

VOICES OF MARGINALIZED YOUTH:
AN EXPLORATION OF MATHEMATICAL LEARNING,
LIMITED SCHOOL CHOICE, AND HIGH MOBILITY

by

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TABLE OF CONTENTS

LIST OF TABLES.....	8
LIST OF FIGURES.....	9
ABSTRACT	10
CHAPTER 1: INTRODUCTION.....	12
Problem Statement.....	13
Overview of the Dissertation.....	19
CHAPTER 2: LITERATURE REVIEW	21
Inequities and Learning Mathematics.....	21
School Choice	25
Highly Mobile Students and Mathematics.....	34
Agency, Opportunity Structure, and Empowerment: Lenses to Explore Equity Issues	37
CHAPTER 3: METHODS.....	50
Overview	50
Study Design.....	50
Context.....	51
Data Collection.....	55
Data Analysis.....	58
CHAPTER 4: FALSE EMPOWERMENT OF SCHOOL CHOICE AND EARNING CREDIT VERSUS LEARNING MATHEMATICS	64
Overview	64
Part 1: Felix.....	64
Part 2: School Choice Experiences—False Empowerment and School Choice for Marginalized Youth	68
Discussion.....	82
Part 3: Mathematical Experiences—Learning Mathematics versus Earning Mathematical Credit.....	85
Discussion	103
CHAPTER 5: PERSISTENCE IN ADVERSITY, THE BENEFITS OF NEW CHANCE TRANSFERS AND THE LIMITATIONS OF PROCEDURAL UNDERSTANDING.....	107
Overview	107
Part 1: Sofia.....	107
Part 2: School Choice Experiences—Moving Beyond the Dichotomy of Strategic and Reactive Transfers.	113
Discussion.....	124
Part 3: Mathematical Experiences—Challenges of High Mobility and a Procedural Understanding of Mathematics	128

Discussion.....	140
CHAPTER 6: TRYING ON SCHOOLS AND THE IMPACT OF OPPORTUNITY STRUCTURES ON MATHEMATICAL EMPOWERMENT	
Part 1: Chris	144
Part 2: School Choice Experiences—Trying on Schools, a Two-Part School Choice Decision Making Process.....	152
Discussion.....	159
Part 3: Mathematical Experiences—Opportunity Structures Supporting Mathematically Empowerment.....	166
Discussion.....	184
CHAPTER 7: DISCUSSION & CONCLUSION	
Overview of My Chapters.....	189
Marginalized Youth's Experiences Engaging in School Choice	191
Marginalized Youth's Mathematical Learning.....	202
School Transfers and Mathematical Learning.....	209
Implications: The Importance of Framework.....	214
Limitations	217
Further Research.....	218
Conclusion	220
APPENDIX A: STUDENT PRE-INTERVIEW	221
APPENDIX B: STUDENT POST-INTERVIEW.....	223
APPENDIX C: STAFF INTERVIEW	225
APPENDIX D: CODEBOOK	226
REFERENCES	228

LIST OF TABLES

<i>Table 3.1</i> Data sources for major research question	58
<i>Table 3.2</i> Analysis table for each transcript.....	62
<i>Table 4.1</i> Felix's School Trajectory	67
<i>Table 5.1</i> Sofia's School Trajectory	111
<i>Table 6.1</i> Chris's School Trajectory.....	147
<i>Table 6.2</i> Original and Revised Empowerment Levels	162

LIST OF FIGURES

Figure 2.1 Empowerment framework (Alsop, Bertelsen, & Holland, 2006).....	40
Figure 2.2 Empowerment framework, adapted from Alsop et al. (2006).....	41
Figure 4.1 Empowerment framework for Felix, Part 1.....	65
Figure 4.2 Empowerment framework for Felix, Part 2.....	68
Figure 4.3 Empowerment framework for Felix, Part 3.....	85
Figure 4.4 Modified empowerment framework.....	104
Figure 5.1 Empowerment framework for Sofia, Part 1	108
Figure 5.2 Empowerment framework for Sofia, Part 2	113
Figure 5.3 Empowerment framework for Sofia, Part 3	128
Figure 6.1 Empowerment framework for Chris, Part 1	145
Figure 6.2 Empowerment framework for Chris, Part 2	152
Figure 6.3 Empowerment framework for Chris, Part 3	166

ABSTRACT

VOICES OF MARGINALIZED YOUTH: AN EXPLORATION OF MATHEMATICAL LEARNING, LIMITED SCHOOL CHOICE, AND HIGH MOBILITY

By

Jennifer Y. Kinser-Traut

School choice is touted to alleviate inequities in students' schooling experiences. It is seen as a way out of under-performing neighborhood schools. However, it can be challenging for marginalized students to leave their neighborhood school and transfer into a school of their choice. The reason for this challenge is the inequitable opportunities surrounding school choice, such as elite charter schools located outside of city centers and credit-recovery schools targeting marginalized youth (Garcia, 2008). As marginalized students try to navigate the school choice landscape, they may engage in sequences of transfers increasing the chance that they will ultimately drop out. Since most school choice research explores student experiences using quantitative research, general school mobility patterns and outcomes are understood. What is not well established is the individual student's more nuanced experiences engaging in school choice, the choices they make, and the resulting outcome, particularly for marginalized youth. Additionally, little research has explored the impact of transferring on students' mathematical learning. This dissertation examined how highly mobile, marginalized youth described their experiences transferring schools and learning mathematics.

This study used an analytic framework that foregrounded students' empowerment, their ability to achieve their goals. The framework focuses on agency and opportunity structures as key components of empowerment. This framework was used to examine three highly mobile, marginalized youths' experiences engaging in school choice and

learning mathematics. This analysis of empowerment highlighted the challenging opportunity structures these youth faced when engaging in school choice and the assets they utilized in making decisions. It also identified important opportunity structures that supported, or hindered, these students' mathematical learning. Finally, the resulting empowerment (both mathematical and school choice empowerment) that these students' experienced was examined.

The findings demonstrate the complexity of engaging in school choice and reveal both challenges and successes engaging in school choice and mathematical learning. The school choice findings indicate that students may be falsely empowered when engaging in school choice, they may engage in new chance transfers offering them a new start, and/or they may increase their mobility by "trying on schools" for a good fit. The mathematical findings suggest that students may experience mathematical learning empowerment and/or earning empowerment, and that recognizing this difference is important; develop a procedural understanding of mathematics that may create further challenges as highly mobile youth transfer schools; and experience productive opportunity structures that may be essential in supporting students' mathematical empowerment.

The findings suggest important implications for highly mobile marginalized youths' mathematical achievement, school choice policy, and further research. Specifically, the findings suggest the importance of using a framework that examines opportunity structures, assets, and empowerment to better understand and support students' engagement in school choice.

CHAPTER 1: INTRODUCTION

I first met Becki, a 16-year-old freshman, when she enrolled in my Algebra I class at a small charter school. She had many mathematical strengths but still struggled in my class. She easily grasped mathematical ideas and was persistent in solving challenging problems. Yet, she had many gaps in her understanding and was beginning to show signs of frustration with early algebraic concepts. As I got to know her, I learned more about how school mobility was affecting her mathematical learning. She had transferred schools many times during middle and high school. Each time she lost ground in her mathematical understanding as she worked to establish herself in the new school and encountered varying classroom procedures and curriculum. As a result, she had a number of gaps in her mathematical knowledge and therefore faced a number of challenges succeeding in math as a second year freshman. She was older than her classmates by two years. She had been away from mathematics for a year, because she had dropped out school during her first attempt at freshman year. Finally, she needed to complete four mathematics classes in order to meet the requirements for high school graduation, and she was currently behind in earning these credits.

Becki's story, and many of my other students' experiences, led me to wonder about the mobility experiences of marginalized youth. The ability to move between schools was supposed to offer students increasingly better educational opportunities. However, Becki seemed not to have benefited in the way school choice advocates had imagined. Not only was she still struggling in school, she was at risk of dropping out entirely. While this small charter school offered Becki the opportunity to be mathematically successful as she was able to complete both Algebra 1 and Geometry

during one school year, overall it was not a good fit. Becki found many of the discipline policies unfair and decided to transfer yet again at the end of the school year, further increasing her mobility.

Becki's story highlights the challenges of school mobility, as she had been through many transfers looking for a good-fitting middle school and then a good-fitting high school. While she found a relatively good fit and was stable during her second year as a freshman, this stability did not last long. In considering Becki's school mobility, it is important to recognize the difficulty she faced identifying schooling factors important to her when making a decision to transfer. For example, it was a challenge for her to identify schools that would positively embrace her sexual orientation, as numbers or test scores do not easily report this school quality factor. In summary, Becki's story not only highlights the importance of a good fit, especially in supporting mathematical achievement, but also demonstrates how challenging it can be to find a good school.

Problem Statement

Becki is not alone. A growing number of students, like Becki, are being placed at greater risk for educational achievement by the current schooling system, first by demographics and then by mobility. These students are marginalized by an educational system that provides limited support for students whose race, class, first language, sexual orientation, and families vary from the dominant background. This marginalization presents challenges for these youth to be mathematically successful, as they frequently do not have access to high-quality mathematics or schooling environments in their neighborhoods. For example, their mathematics courses may have been taught by sequences of substitute teachers, resulting in fragmented learning and struggles to

succeed the following year. Alternatively, they may have transitioned to their district high school, which was just too big, and they felt like their mathematics teacher did not have time to answer their questions. On the other hand, maybe someone recommended that they transfer to an online charter school, and it was a move in the wrong direction as they found it hard to learn mathematics from a computer. Whatever the variation, the end result is all too often the same; these students fall behind in school and in mathematics, making them at risk for dropping out of high school, mainly due to their lack of mathematics credits (Balfanz, Bridgeland, Bruce, & Fox, 2012).

School choice research. Almost all students engage in some level of mobility as they move from elementary school to middle school and middle school to high school, engaging in promotional transfers. However, other students engage in a different kind of mobility – when they move between schools at non-promotional times. For example, they transfer schools between ninth and tenth grade or during one school year. We know so little about the consequences (positive or negative) for high mobility and marginalized students' academic achievement because student transfers are typically explored in general trends. What we do know is that multiple transfers have a negative impact on students' overall learning (e.g., Fiel, Haskins, & Turley, 2013; Powers, Topper, & Silver, 2012; Rumberger & Larson, 1998). Specifically, if a student becomes highly mobile (transferring more than three times throughout their K-12 education) they are less likely to graduate (Rumberger & Larson, 1998). Ream (2005) further specified that high mobility during grades eight through twelve occurs when students engage in two or more transfers during this five year span.

School choice research was originally concerned with student mobility as the result of home moves. Yet, as schooling options continue to grow, students are increasingly transferring schools without a corresponding home move. This has led to the US having the highest rate of student mobility in all industrialized countries. As such, mobility instead of stability, has become the norm for students across the country (Blazer, 2007). The landscape of school choice is even more concerning when considering the general experiences of marginalized youth. For example, youth from low-income families and/or minority students are more likely to be highly mobile during high school, and this high school mobility puts students at an even greater risk of dropping out (Ream, 2005; Rumberger, Larson, Ream, & Palardy, 1999). Specifically, Mexican-American students experience a significantly higher rate of mobility than White students. In high school alone, they transfer twice as often as their White counterparts (Ream, 2005). Additionally, 30% of these transfers have been documented as transfers occurring without an associated home move (Ream, 2005).

Added to these concerns are the challenges marginalized youth face engaging in productive school transfers due to inequities hidden within school choice. Not only do marginalized youth have limited access to high quality neighborhood schools (due to inequitable school funding models), but they also have limited access to elite charter schools. These elite charter schools are frequently located outside of the city center and often require personal transportation to attend (Garcia, 2008). By contrast, credit-recovery charter schools are located along public bus routes and cater to marginalized youth. Due to these structures surrounding school choice and the fact that students often seek out others that look like themselves, school choice is further increasing segregation

in schools (Garcia, 2008). With this, some studies suggest particularly vulnerable groups within school choice. For example, Sattin-Bajaj (2012) found that second generation students born to Latin American immigrant mothers may be the most vulnerable as the students speak English, but the families may not fully understand the schooling structures and associated options of school choice. In summary, marginalized youth face an inequitable school choice landscape, transfer more than their white counterparts (especially in high school), and as such are at a higher risk of dropping out of school.

Mathematics achievement and school mobility. Mathematics achievement is particularly challenging for highly mobile, marginalized youth. Mathematics is a subject with many inequities. Marginalized students score significantly lower than other students on standardized tests with mathematics acting as a gatekeeper, preventing them from progressing educationally if they struggle mathematically (Schoenfeld, 2004). With math having such an impact on students' educational outcomes, it is important to examine the interrelationship between students' engagement in school choice and mathematical learning.

The case of Becki offers one example of how transferring can negatively impact marginalized youths' mathematics achievement, as multiple transfers impacted Becki's limited success in Algebra I (failing it the first time and struggling the second time). However, Becki is also an example of how changes in a student's mathematical experiences (i.e., taking two math classes in one year) can positively shift the outcome. While Algebra I continued to be a challenge for her, her successes in Geometry helped her stay motivated and mathematically empowered, resulting in her mathematical achievement of earning two credits of math in one year. Becki's experiences demonstrate

that school mobility can have a variety of impacts on the outcome of students' mathematical achievement.

With this, school mobility can make learning mathematics particularly challenging, due to the systematic progression of mathematical ideas. As Becki demonstrated, school mobility can create gaps in mathematical knowledge. This is especially true when students engage in transfers mid-year, as they may face additional challenges with curriculum alignment from one school to the next. This may result in further mathematical gaps due to the possibility of missing content when transferring. Furthermore, students transferring to newer charter schools may face inexperienced and under-qualified teachers who are not effective mathematics teachers (Ravitch, 2013). These teachers may negatively impact students' mathematical learning. Finally, some larger open-enrollment district schools assign students to the mathematics course that the majority of their cohort takes (i.e., sophomores take Geometry), regardless of an individual student's success or failure in the previous class. While socially this may be a positive decision, this sequencing can have a negative impact on both mathematical learning and motivation if a student has not passed the previous course.

These various challenges can create significant struggles for students' mathematical learning and develop large gaps in students' mathematical understanding. As a result, highly mobile, marginalized youth may be several mathematics credits behind their cohort. These studies on school choice and concerns related to mathematical achievement and high mobility highlights the importance of understanding individual students' experiences engaging in school choice and learning mathematics.

Importance of a comprehensive, qualitative framework. There is a wealth of quantitative research on school choice, most of which only offers general understandings of students' experiences engaging in transfers. As such, the "voice of the student has been virtually silent in the large body of school choice research" (Sattin-Bajaj, 2012, p. 335) and due to this, "little is known about how students negotiate policies and make school selections" (Sattin-Bajaj, 2012, p. 337). Therefore, it is essential that school choice research move beyond quantitative studies to gain a better understanding of students' experiences engaging in school choice and learning mathematics.

A handful of qualitative studies have been completed. These studies examined students' experiences transferring and have offered a wealth of insights about how students navigate school choice. For example, they suggest the importance of socially adapting to a new school before students can engage academically (Rhodes, 2008). Yet, these studies often lack a comprehensive framework to explore students' experiences and capture the complexity of school choice. With the goal of capturing the complexities of both school choice and mathematical learning, in this study I used an analytic framework that foregrounds students' mathematical empowerment. I define mathematical empowerment as a students' ability to make effective schooling choices and transform the choices into mathematical achievement. This framework links choice, agency, opportunity structures, and empowerment, and allows me to focus on unique aspects of individual student's situations transferring schools. Agency includes the assets, or resources, that students use to make effective choices, and opportunity structures are the formal and informal rules that offer, or limit, students' choices. Such detail provided structure for my analysis, helping to capture the nuances of school choice and

mathematical learning. Using this framework, I better understand the schooling choices available to students, their rationale for their schooling choice, and the mathematical learning and achievement that occur when a marginalized student is highly mobile. In summary, in this dissertation study I seek to bring attention to marginalized students' mathematical learning, school choices, and the outcome of these choices, by taking up the perspective of highly mobile, marginalized youth and utilizing a lens of empowerment to study what perceptions they have of their mobility and the consequences of this mobility on their mathematics achievement.

Overview of the Dissertation

This dissertation is broken into two parts. The first part (Chapters 2-3) introduces the analytic framework and methods, while the second part (Chapters 4 - 7) presents data analysis, findings, and discussion. The first part begins with Chapter 2, which reviews the relevant literature surrounding inequities in mathematics education, as well as the relevant literature surrounding the current climate of school choice, including the unwritten rules of school choice. I next describe the limited research on highly mobile students and their resulting mathematical learning. Drawing upon empowerment research in mathematics education, I argue the importance of a framework that captures the complexity of mathematical learning and school choice while foregrounding students' mathematical empowerment. In Chapter 3, I outline my research process. First, I explain my study design and then describe the setting for the study, including the school context, mathematics classrooms, and study group. Next, I provide my methods for collecting and analyzing data.

Chapters 4, 5, and 6 present my findings. Each chapter considers the experiences of an individual, highly mobile student's experiences. My findings chapters have a somewhat atypical structure and consist of three parts. Part 1 offers an introduction to the student including his or her familial assets, or resources, and mobility experiences. Part 2 examines the student's experience engaging in school choice and highlights a specific finding related to each student's experience. Part 3 explores the student's mathematical learning experiences and how these were impacted (or not) by their mobility experiences.

Finally, in Chapter 7, I reflect across the three findings chapters in order to answer my research questions. I summarize my findings, address limitations, present implications for policy makers, researchers, and teacher educators, and offer future research directions.

CHAPTER 2: LITERATURE REVIEW

The focus of this study is on the intersection of mathematical learning and engagement in school choice for marginalized youth. The aim of this chapter is to situate this study in the current literature and argue the importance of utilizing an empowerment framework to better understand students' experiences learning mathematics and transferring schools. In the first section of this chapter, I draw upon research to describe the inequities marginalized youth face in mathematics education. In the second section of this chapter, I describe the current climate of school choice with a focus on limitations marginalized youth face when transferring schools. I conclude the second section by exploring research on the impact school mobility has on mathematical learning. In the third section, I present an empowerment framework focused on agency, opportunity structure, and empowerment as a tool to analyze marginalized youths' experiences engaging in mathematical learning and school choice.

Inequities and Learning Mathematics

Mathematics is a place where inequities are exacerbated. It is the subject with the greatest disparities between racial groups (Milem, Bryan, Sesate, & Montaña, 2013). As a result, minority students are often marginalized since they do not have the same opportunities to learn or to succeed in mathematics as their more privileged peers (e.g., Anyon, 1981; Darling-Hammond, 2004). For example, in Arizona, students who are Asian American or White are much more likely to pass the state standardized test than students who are American Indian, Black, or Hispanic (Milem et al., 2013). Unfortunately, over the last several years, passing rates for marginalized students continued to decrease, resulting in even greater inequities as passing this test was

necessary for high school graduation and entry into college (Milem et al., 2013). Not surprisingly then, students who were Hispanic, Black, or American Indian were less likely than other students to meet the mathematics eligibility requirements for college (Milem et al., 2013). This research points to the importance of focusing on mathematics education in an effort to better understand overall inequities in the educational system. This is crucial for areas with high rates of mobility (such as urban areas), which also have large numbers of students of color as these students could be further marginalized mathematically if they are also highly mobile, becoming doubly disadvantaged.

Researchers have explored many reasons why marginalized youth do not have the same mathematical opportunities as other youth. Specifically, social justice educators have been concerned about the curriculum and pedagogy used in mathematics classrooms with marginalized youth. Anyon's (1981) study of social class and school knowledge found that lower-SES and minority students had access only to direct instruction, while upper-income and White students had access to dialogic instruction, including open-ended questions and critical thinking. Similarly, Willis (1977) found that the curriculum, pedagogy, and attitude was different for varying social classes, which often worked as a means to maintain existing social classes. For example, the children of laborers were often socialized into laborers, with their other future options curtailed, as the school curriculum and culture did not encourage critical thinking or instill in them the love of learning.

Given the limited access to dialogic instruction for marginalized youth (Anyon, 1981; Leonard, Brooks, Barnes-Johnson, & Berry, 2010; Willis, 1977), it is not surprising that students may prefer what they (and their parents) are most familiar with—direct

instruction. This, however, is not equivalent to saying that direct instruction is the best approach for teaching marginalized youth mathematics. Researchers are beginning to demonstrate that direct instruction limits students' access to mathematical ideas and learning. For instance, the Diversity in Mathematics Education (DiME) group (2007) examined the research literature which studied *all* students' participation and identity as well as their opportunities to learn. It concluded that "mathematics instruction that prioritizes finding solutions or performing rapid computation [direct instruction] over making sense of mathematical ideas and the connections between them [dialogic instruction] can serve to constrain students' opportunities to engage deeply in mathematics" (p. 410). Therefore, when marginalized students are only offered direct instruction, they do not receive the same access to engage in high-level mathematical thinking and learning as their more privileged peers.

Marginalized youths' access to highly qualified teachers is also limited. In a study of California schools, Darling-Hammond (2004) found that lower SES students have fewer qualified teachers than higher SES students. Therefore, lower SES students face a higher concentration of untrained teachers. Other studies have pointed to the relationship between teacher qualification and student achievement (e.g., Betts, Rueben, & Danenberg, 2000). Accordingly, since marginalized youth have a higher concentration of untrained teachers, their student achievement is lower.

Given the many challenges marginalized youth face in being successful in mathematics, it is unfortunate that when these students talk about mathematical ideas, they are evaluated in terms of white, and/or higher SES, privileged thinking (Warren, Ballenger, Ogonowski, Rosebery, & Hudicourt-Barnes, 2001). Zevenbergen (2001) found

that lower SES students faced a disadvantage in learning mathematics as the language of the mathematics classroom favored the language of middle class students. He went so far as to call this a "symbolic form" of violence in the mathematics classroom, which many teachers are not even aware of. Too often marginalized students' positive contributions are not recognized, leading to further marginalization.

Politicians and educational philanthropists offer school choice as the way to address these inequities in mathematics education (Hill & Lake, 2010; Ravitch, 2010, 2013). Inherent in this argument is the assumption that some schools are better than others and that as schools fall to the wayside, the best schools will remain (Arsen & Ni, 2008; Linick & Lubienski, 2013; C. Lubienski, Gulosino, & Weitzel, 2009; Ni & Arsen, 2011). Educators and policy makers have argued the benefits of school choice for overall student achievement (e.g., Hill & Lake, 2010), *but what are the mathematical and academic outcomes for marginalized students who repeatedly engage in school choice?* Research suggests that the transfers necessary for students to engage in school choice can be detrimental for the learning of the transfer (school choice) students (e.g., Rumberger & Larson, 1998). Although all students face challenges when transferring schools, repetitive transfers are most harmful for marginalized students as they may lack the needed supports to be successful (e.g., Goldhaber & Eide, 2002). In the above section on inequities in math education, an important and growing population that is not considered is marginalized, highly mobile youth, or doubly disadvantaged youth. To better understand this population, one must understand the landscape of school choice.

School Choice

The growth of school choice. School choice means students have the option to attend a school different than their district neighborhood school. Public alternatives to the district school began in 1991, when Minnesota passed the first charter school legislation. California quickly followed and passed its own legislation in 1992. Today, more than 40 states have legislation, often created with bipartisan support, that allows charter schools as alternatives to the district schools (Linick & Lubienski, 2013). As the number of charter schools increases, so do schooling options and, therefore, the number of students engaged in school choice increases. Between 1999 and 2008, the charter school student population grew five-fold and in 2010 was greater than 1,407,800 students (O'Brien & Dervarics, 2010). Currently, 2.5 million students are enrolled in nearly 6,500 charter schools, with half of these schools in four states: California, Texas, Florida, and Arizona (<http://www.publiccharters.org/get-the-facts>). As of 2013, Arizona had the largest percentage of students (nearly 15%) attending charter schools of any state (Ravitch, 2013). In urban areas, in particular, schooling options are increasing rapidly; for example, in Chicago half of the students attend charter schools (Lauen, 2009). In high school, 29% of students change schools between eighth and tenth grade and 24% between tenth and twelfth grade (Swanson & Schneider, 1999).

Some school districts are responding to the increased pressures from charter schools, especially lower-enrollment, by making changes to enrollment criteria for many or all of their schools (C. Lubienski et al., 2009). Specifically, some of these district schools are becoming open enrollment schools, meaning that students from out-of-district (or out-of-neighborhood) can enroll. While the hope is that open enrollment will increase

student enrollment at these public schools, the result is often further student mobility. One study researching inter- and intra-district transfers found that open enrollment public schools encouraged a pattern of "school mobility that was more one of a revolving door than one district actively taking students from the other" (Powers et al., 2012, p. 224). With this, Powers et al., (2012) found that there were the highest inter-district transfer rates in urban areas with predominately poor and minority students. The large number of students participating in school choice by transferring to charter schools or open enrollment public schools suggests an urgent need for more research to understand the academic outcomes of students' schooling mobility.

School choice and student achievement. The push for this wide variety of school choice is linked to the increased focus on improving student achievement. Yet, transferring to the new school takes substantial energy on the part of the student and is not without consequences, both positive and negative. Overwhelmingly, studies have found that the more times a student transfers, the less likely they are to graduate high school (e.g., Rumberger & Larson, 1998). Other researchers identified that *when* (or during what school year) a student transfers has a significant impact on whether or not s/he graduates from high school; students transferring schools between eighth and tenth grade tend to graduate, while students transferring between tenth and twelfth grade do not (Swanson & Schneider, 1999). Also, when a student is excelling in a middle school, it is to his/her advantage to continue on to the district's high school with the same classmates; whereas, a middle school student who has been struggling academically often benefits from enrolling in a different high school (Schiller, 1999).

As students choose new schools, they encounter a number of variables (including the opportunities and resources available to be successful) that determine whether the new school is a good fit. While some alternative schools do show significant gains in student achievement over traditional neighborhood schools, others do not. Little is said about the students, particularly marginalized youth, whom school choice may fail. For example, online schools have shown little to no growth in student achievement (Hubbard & Mitchell, 2011). In addition, marginalized students sometimes transfer from school to school, never finding a good fit (Powers et al., 2012). Instead, this string of transfers between charter, public, and private schools increases the likelihood that they will drop out (Rumberger & Larson, 1998). School choice is touted to alleviate inequities in students' schooling experiences, but just like mathematics, inequities exist and the students who lose out the most are often the students who already have the least.

School choice inequities and student achievement. Educational researchers have focused on research using quantitative measures to understand the overall complexities and landscape of school choice. Because of this quantitative focus, they have not fully explored the challenges of individual student engagement in school choice. Yes, students have more options than at any time before (Powers et al., 2012), but what is being overlooked are the variations in student experiences in these alternative settings. Proponents of school choice tout the success stories of specific schools. For example, charter schools that are ranked in the top ten schools nationally achieve this rank by holding students to very high standards. Yet, little is said about the individual students who may be further marginalized by these schools not able to enroll or forced out soon after enrolling in top rated schools. School choice has a number of constraining and

affording structures that contribute to being inequitable for marginalized students. In the paragraphs below, I will illuminate these hidden structures that contribute inequities. I will discuss two types of inequities that marginalized students face when engaging in school choice: the unwritten rules of school choice and a student's limited assets or resources. Here I am differentiating rules and resources because when thinking about how school choice plays out for students these unwritten rules and students' resources play different roles in constraining their choices.

Unwritten rules of school choice. Inherent in this issue of equity and school choice is the assumption that with increased competition schools will improve and all students will be offered better educational environments resulting in higher educational achievement (e.g., Hill & Lake, 2010). A careful look at the school choice literature shows this goal of improving education for all is not the reality, rather there are unwritten rules of school choice that further marginalize students. These rules are the overall principles or procedures common in school choice. I will explore two of these unwritten rules: types of student transfer, including school choice by mortgage, and types of charter schools.

Rule 1: Types of transfers. There are two main reasons for school transfers: 1) a strategic transfer of schools and 2) a reactive transfer of schools (Fiel et al., 2013).

Strategic transfers are more common among White and high SES families, when a family chooses to find a better fitting or more challenging school (Fiel et al., 2013). These transfers happen over the summer and not during the school year, which helps to limit the disruption of student learning.

An important subtype of strategic transfer is when families move residences to improve their children's schooling options, or *school choice by mortgage* (Lauen, 2009). In exploring demographics related to families' engaging in school choice by mortgage, Goyette (2008) found that White families were much more likely to move to a neighborhood for the school (42.7%) than families of color (21.9%) (p. 123). In addition, she found that middle-and upper- income families (incomes at \$40,000 to \$80,000 and over \$80,000) were more likely to move to a suburban neighborhood for its schools than lower-income families (incomes less than \$40,000). This "privileged flight" from urban areas, in turn, increases the price and property taxes of these suburban homes and therefore, increases the amount of money going to the neighborhood school. Consequently, the social and financial resources available to these schools continue to grow, furthering the gap in funding between urban schools and suburban schools. Segregation also increases, resulting in greater inequities among neighborhood schools. Therefore, school choice by mortgage contributes to the inequities of school choice by creating inequitable schooling options often before children even begin school. Overall, strategic transfers are engaged in at a much higher rate for White and high SES families.

In contrast, marginalized youth often transfer as a reaction to a negative situation at the current school, such as a student and/or teacher conflict, unhappiness with academic and/or social situations, and problems stemming from disciplinary issues; these types of transfers are referred to as *reactive transfers* (Fiel et al., 2013). Reactive transfers may happen over the summer *or* during the school year. Additionally, reactive transfers may be the result of a physical move of the family to a new residence, necessitating a student's school transfer. In this transfer, the student's schooling

experience is not one of the top reasons for the move. Rather the family may be moving for a parent's job or because they can no longer afford the rent for their home. Reactive transfers and physical moves resulting in a transfer can be seen as similar. Added to this, researchers have found that reactive transfers and transfers due to a physical move are more prevalent among minority students and low SES families (Fiel et al., 2013; Powers et al., 2012). In both transfers, the students' (and families') educational empowerment is limited, as the school transfers are not necessarily focused on improving their educational outcomes. Sometimes these reactive transfers may happen involuntarily, with little or no warning. Rhodes (2008) found that students who engaged in these types of reactive transfers had negative school transfer experiences, while students who switched schools to improve their educational experiences had much more successful transfer experiences. In summary, the first unwritten rule of school choice, how students transfer, benefits students who are White and/or higher SES.

Rule 2: Schooling choices. The second unwritten rule negatively impacting marginalized students is the types of charter schools available. Specifically, advantaged students often have access to very different school choices. They tend to transfer to *elite schools* that cater to well-to-do families by focusing on advanced coursework including college prep, having strenuous entrance requirements, and not being located along public bus routes (Garcia, 2008; Renzulli & Evans, 2005). Whereas, other schools may provide "direct instruction" or "Back to Basics" curricula, offer credit recovery options, or be designed to cater to special education students (Renzulli & Evans, 2005). These *non-elite schools* often cater to students who have had trouble academically or socially. These difficulties have impacted students' ability to earn credit at their district high school;

therefore, they need to make up, or recover, academic credits. These schools are often on public bus routes, in more populated areas, and target Black, Latino, and/or low-income students (Garcia, 2008). While non-elite schools are typically only ninth through twelfth grade, elite schools often span the grade levels and may be kindergarten through 12th grade, increasing student stability (Garcia, 2008). Additionally, White students engaged in school choice at higher levels than other races in elementary school (59%), and minority students were more likely to be engaged in school choice at the high school level. Therefore, not all charter school options are equal, nor do the best schools get all of the students.

In summary, White and higher SES students are more likely to have strategically moved to better school districts through school choice by mortgage and/or engaged in school choice from an early age through a strategic transfer to an elite charter school. Whereas, minority and lower SES students are more likely to engage in school choice by reactive moves limited to non-elite high school (Lubienski, Linick, & York, 2012). This is often the case because elite charter schools are designed for kindergarten through twelfth grade students and may foster these strategic moves among White and higher SES students. In contrast, non-elite schools are often designed for ninth through twelfth grade students and target students who have had negative academic experiences (Lubienski et al., 2012).

Engagement in school choice is not equitable; White and higher SES students can increase their educational experiences, while minority and lower SES students face a downward spiral in their educational experiences (Gomez, 2012). The landscape of school choice itself fosters a more inequitable educational system through these unwritten

rules. Inherent in these unwritten rules are the components of resources available to students and families. In the next section, I will specifically examine how limited resources further marginalize students as they engage in school choice.

Resources available. In addition to these unwritten rules of schooling choice, families and students often have different resources to draw on when deciding to engage in school choice. For example, parents' own schooling experiences, successes, and failures impact their expectations of a good school for their children and are a major resource for students (Goyette, 2008). In this section, I will discuss the following resources that impact students' educational success: knowledge families have about schools, limited financial resources, and parental involvement.

Knowledge families have about schools. Students may be unhappy at their neighborhood school and may decide to transfer, hoping for a better educational experience. However, students and families have different resources to draw on when learning about schooling options. For example, lower-income individuals commonly ask relatives about schooling options; whereas, middle-class individuals often ask co-workers and friends (Goyette, 2008). Relying on relatives for information may be redundant, leading to limited information about schooling options. Additionally, Black individuals have fewer people in their networks than White individuals to learn about schooling options (Goyette, 2008). This differentiation in information sharing limits marginalized students' resources and further facilitates racial and economic segregation of school choice.

Limited financial resources. When considering schooling options, lower-income families are more constrained by concerns of transportation that come from limited

resources, as they may not have a vehicle and/or a work schedule that allows for flexibility to drive their child to a school (Rangel, 2013). As mentioned earlier, elite schools are often located in more advantaged neighborhoods, so low-income families may have to travel further to reach them (Garcia, 2008). The limited transportation resources and travel considerations contribute to the fewer schooling options for low-income families (Goldring & Hausman, 1999). Not surprisingly, given the resources available to higher-income families, researchers have found that these families are more likely to choose schools based on academics rather than other considerations (Smrekar & Goldring, 1999).

Parental involvement. While limited financial resources add to the inequities of school choice and the student's resulting educational trajectory, parental expectations and involvement in a student's educational trajectory are also important resources (Bandura, Barbaranelli, Caprara, & Pastorelli, 2001). Parents have high expectations for their children, but being knowledgeable about career opportunities and the educational trajectory necessary to achieve those high expectations are important resources for achieving high expectations. For example, a family who has high hopes that their daughter will become a doctor, but does not know that they have the right to request improvements in her educational trajectory (i.e., that she be placed in the math class with the certified teacher instead of in the class with rotating substitute teachers) can not advocate for better options. Rather, a family who expects their son to be a doctor and requests that he be put in an award-winning teacher's mathematics class is offered the high expectations and support to achieve his family's goals. Parents offer their children valuable resources by having high career aspirations for their children *and* encouraging

school changes that improve their children's educational experiences (Bandura et al., 2001; Leahey & Guo, 2001). Therefore, it is important to consider parental involvement when examining resources students are able to draw on in improving their educational outcome when they transfer.

Often, school choice is seen as a way out of under-performing neighborhood schools (Goyette, 2008). Yet, due to limited knowledge of charter schools, limited resources, and non-elite schools catering to marginalized students, it can be very challenging for marginalized students to leave an under-performing neighborhood school and transfer into an elite school (Rangel, 2013). Sometimes these school choices work out for the student, and sometimes they do not, necessitating additional transfers or even returning to the original neighborhood school. Thus, engagement in school choice is inequitable due to the unwritten rules of school choice and the limited resources marginalized students have to draw from when engaging in school choice.

Highly Mobile Students and Mathematics

Mobility, in and of itself, presents another set of challenges in learning mathematics that charter and public school staff and teachers may not address. Marginalized youth already lack access to good mathematics teaching or mathematical success and may be encouraged to transfer schools as a result. Moving schools can add additional obstacles to their mathematical learning. First, moving schools disrupts the systematic progression of mathematical ideas and may result in a student missing entire segments of the mathematics curriculum (Swanson & Schneider, 1999). Several studies have documented the impact this has on students' mathematical achievement. For example, students who transferred scored significantly lower on mathematics assessments (Rumberger & Larson,

1998) and students with high mobility also had lower grades in mathematics (Schiller, 1999). Added to this, students who transferred between sophomore and senior years had significantly lower gains in mathematics achievement (Swanson & Schneider, 1999). In Chicago, where 50% of students attend charter schools, Lauen (2009) found that students who did poorly in mathematics were less successful *overall* in transferring to a charter school than those students who excelled in math. It is unclear if the act of transferring or if the new school with a less rigorous mathematical curriculum causes the decrease in mathematical achievement in the studies listed above. Schiller (1999) adds complexity to this concern, as she found that students who were already doing poorly mathematically--earning C's in their classes--received lower grades after a transfer when they had *more choices* of schools than when they were limited to their district high school.

Unfortunately, Schiller could not explain this interesting insight.

Secondly, because students are entering charter schools from a variety of schools and districts, mathematics is often used as a method of sorting students into the appropriate classes. Some math- and science-focused charter schools have unofficial entrance requirements at the high school level. Consequently, not all students can attend and/or be successful at all schools; marginalized youth may be sorted out of strong math-focused charter schools (Garcia, 2008). Limited to under-performing public schools or lower mathematical track charter schools, marginalized students may be unhappy with their school choice due to their limited options. In turn, this may increase their mobility as they look for a school where they can succeed.

Highly mobile, marginalized youth face a school system that puts them at double jeopardy for dropping out: 1. Marginalized youth face an educational system that does

not offer equitable mathematics instruction and 2. High mobility may create further gaps in their mathematical knowledge, making it harder to be mathematically successful. As such, these students face challenges that their counterparts, advantaged, stable youth, do not encounter. Unfortunately, these additional challenges may translate into mathematical failure, and consequently, in a lack of necessary credits for graduation for marginalized highly mobile youth.

Research that specifically makes connections between school choice, mobility, and mathematical achievement is limited. While these research studies are helpful in understanding how students do overall, they do not help us make sense of individual students' experiences as they transfer and how transferring impacts their mathematical learning. With this, one study explored individual student experiences, but did not focus on mathematics. Rhodes (2008) examined the challenges individual students faced as they engaged in school choice and high mobility by interviewing six highly mobile youth. These students spoke first and foremost about the social and emotional connections that they needed to create (such as making new friends and connecting with teachers) before they could engage in the academics. Added to this, students talked about the challenges they faced and the further delay in their learning, as they worked to understand their new teacher's expectations and teaching style. Therefore, the importance of understanding what types of impacts (positive or negative) transferring has on a student's mathematical trajectory is essential in transfer students having successful mathematical and academic trajectories.

In this dissertation, I focused on the mathematical outcomes of student transfers, while keeping in mind the inequities of school choice. This does not mean that a transfer

for a marginalized student is inherently negative. In fact, it might be the change needed to empower a student to engage in her education. As a result of the varying limitations and possibilities of school choice, it is important to consider the student perspective. While there is extensive research on school choice inequity, for the purpose of this dissertation, I am going to focus on the impacts of the unwritten rules in school choice and the resources available to each student. From the students' perspective, I will examine how the double disadvantage of being highly mobile, marginalized students may impact their mathematical achievement.

Agency, Opportunity Structure, and Empowerment: Lenses to Explore Equity Issues

The societal and public policy narratives sing the praises of school choice, especially the empowerment and success possible for all students. In contrast, the research narrative on school choice shares a different melody—one where highly mobile minority and lower-SES students are marginalized (or disempowered) by school choice. Yet, we see in Becki's story that both of these narratives are insufficient in explaining her choices and mathematical learning outcomes. The societal narrative suggests that Becki should easily excel when she transferred schools. Yet, the research data suggest that she should be flunking math, experiencing academic disempowerment. Neither story can account for the complexity of her situation nor how she successfully passed two math courses in one year.

The small charter school recognized that Becki needed the opportunity to change her mathematical learning situation; she took up these opportunities, becoming more empowered and mathematically successful. But Becki's situation was not unique. Other schools (and teachers) offer similar opportunities, and yet the literature does not account

for these students' individual narratives surrounding their choices and resulting mathematical experiences. Therefore, I have selected an analytic lens that links choice, agency, and empowerment, allowing me to focus on unique aspects of individual student's situations. Using this lens, I will be able to better understand the schooling choices available to students, their rationale for their schooling choice, and the mathematical learning/achievement that occurs when a marginalized student is highly mobile.

Many mathematics education researchers use empowerment as an analytic lens to explore issues of inequity. The majority of this work focuses on how teachers can empower marginalized students in their classrooms. For example, Martin (2000) found that helping students (particularly African American students) develop critical mathematics literacy empowered them to not only learn mathematics, but also to use mathematics to accomplish their own purposes. With this, Martin identified the following multi-level factors that influence students' power: sociohistorical context, community forces, school influence and individual influence (Martin, 2000). Similarly Stinson (2004) wrote about an empowering mathematics, one that has three theoretical perspectives (situated, culturally relevant, and critical) combining together to empower students to see mathematics as a "tool for sociopolitical critique" (p. 15). His hope is that students engaged in learning an empowering mathematics would help change mathematics from a discipline that functions as a 'gate-keeper' to a "discipline of empowering inclusion" (p. 15).

This important work researching empowerment helps to address the inequities that currently exist in mathematics education. Many empowerment researchers (e.g.,

Gutstein, 2006) have explored aspects of mathematics curriculum that would empower students to learn mathematics and while this is essential, it foregrounds factors that are external to students and is therefore not useful in looking at students' school choices, transitions, and the impact of these choices on their mathematical learning. Unlike Martin who is ultimately interested in students' power, I am more interested in understanding these factors, seeing how they impact students' choices, and recognizing the resulting empowerment. Differently from Stinson, who is focused on providing students' skills and resources that can empower students in mathematics, I am considering what these students already have and how this impacts their choices and resulting empowerment. My work is more mechanism driven, looking at the unique aspects, situations, and choices of individual students to better understand how and when they become empowered (or disempowered) to engage in learning mathematics.

A framework to explore these issues. Above, I have argued the complexities of both school choice and empowerment. Schiller (1999) cautioned researchers on these intricacies explaining:

Any effort to explore these issues [of school choice] must be sensitive to the fact that schools are complex social systems in which the same experience may vary in its impact on students' lives. What may be a negative experience for some students may be liberating for others" (p. 228).

To capture the complexities of both, I used an analytic framework that foregrounds students' mathematical empowerment. This framework, developed by Alsop, Bertelsen, and Holland (2006) (see Figure 2.1) offers concrete definitions of specific components of empowerment and identifies the relationships between these. Such detail provided structure for my analysis, helping to capture the nuances of school choice and mathematical learning.

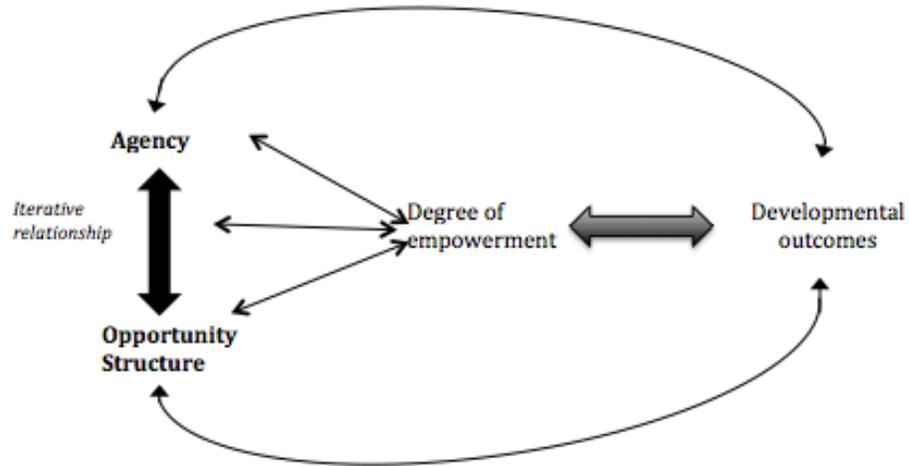


Figure 2.1. Empowerment framework (Alsop et al., 2006).

Alsop et al. (2006) defined *empowerment* as "a group's or individual's capacity to make effective choices, that is, to make choices and then transform those choices into desired actions and outcomes" (p. 10). Occasionally, I utilize a general outcome in my framework (see Felix Part 2) much like Alsop et al., (2006), but more frequently I have replaced "developmental outcomes" with the more specific Mathematical Achievement, as it will help me focus on the interplay of school choice and mathematical learning (see Figure 2.2).

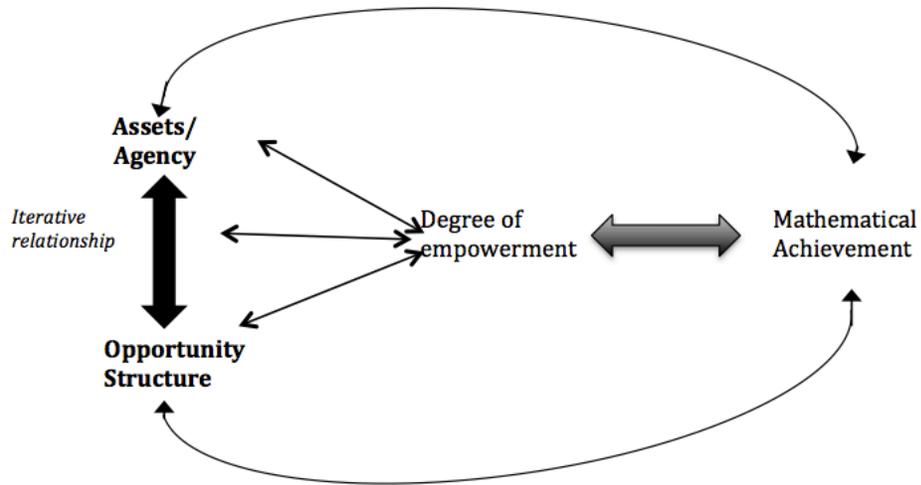


Figure 2.2. Empowerment framework, adapted from Alsop et al. (2006).

For example, Becki demonstrated her empowerment when she effectively chose to enroll in the Geometry course and then leveraged her success in Geometry to support her successful completion of Algebra. This emphasis on choice makes this a suitable framework for examining school choice and options marginalized students do or do not have as they strive to successfully complete their high school education.

Alsop et al. (2006) identified and included two components essential in examining empowerment: agency and opportunity structure. *Agency* is defined "as an actor's or group's ability to make purposeful choices--that is, the actor is able to envisage and purposively choose options" (p. 10). For example, Becki had agency (was able to make the choice to attend the charter school) because she had *resources* (i.e., her friend's mom) that helped her learn about and enroll in the school. *Assets* are the resources and/or supports students leverage to make purposeful choices. There are five assets that are important in educational agency: psychological, informational, organizational, financial, and human (Alsop et al., 2006).

- Psychological assets are the capacity to envision change and to aspire, including beliefs and goals. For instance, a student has psychological agency when she believes that she can be mathematically successful.
- Informational assets are easily accessible knowledge and information, such as knowledge about a variety of schooling options from friends including which schools are "good."
- Organizational assets are memberships in an organization. For example, membership in a church group may increase their knowledge about schooling options.
- Financial assets are both finances (income) and material assets that are acquired from finances (i.e., ownership of a car). These assets may have a large impact on students' abilities to make productive choices, as owning a familial home in a neighborhood with a good school could improve schooling options, and annual income may impact the family's ability to own that home.
- Personal assets are assets that individuals possess within themselves. For example, personal assets can be knowledge of skills, student and family literacy level, graduation success, and prior experiences with mathematics. Throughout my dissertation, I will frequently refer to *mathematical informational assets*, which I define as students' knowledge as a result of prior mathematical experiences. This is a specific type of a personal asset.

I often refer to these assets individually. However, I do use the term *familial assets*, which I define to include both the families' financial and personal assets. While one of the above assets may influence a student's ability to make choices, it may also impact

other assets, further improving (or limiting) the student's ability to make choices. For example, if both parents have graduated from college (human assets) this may increase a student's ability to believe that he can do well in school (psychological assets), further increasing his agency and ability to make purposeful choices.

Opportunity structure "is conceptualized as both the formal and informal rules of the game that guide choices, frame relationships and procedures, and influence the allocation of tasks and responsibilities" (Alsop et al., 2006, p. 84). In the specific context of mathematics education, opportunity structures include the written and unwritten rules that facilitate or limit an individual student's success in mathematics and transferring schools. The formal rules include the existence of laws that fund public schools from property taxes (resulting in inequitable funding) and the classes and tests students must pass to graduate. The informal rules arise from the *curricular structures of the school* (how the math classes are staffed and what classes are offered), *structure of the classroom* (dialogic or traditional), *types of student transfers* (strategic or reactive), *types of charter schools, and where charter schools are located*. Opportunity structure is not the same thing as choices; rather opportunity structure is the rules that influence what choices students have. For example, Becki faced an opportunity structure in her city in that the best math/science charter schools were outside the city center and not on the bus route. Since Becki needed to rely on public transportation (due to limited assets), these math/science charter schools were not real options for her. Therefore, this opportunity structure played a role in limiting her choices. With this, opportunity structures can be referred to as the "*relative space for achievement [emphasis added] of capabilities*" (p. 84). For example, one classroom's relative space for achievement involves the availability

of help from the teacher including the teacher's rules and beliefs about when and how to help students. If a teacher is only willing to offer help to students in the last ten minutes of the class, the opportunity to receive help is limited in both time and, if many students need help, access to the teacher.

Taken together, a student's agency and available opportunity structures impact the degree of empowerment and educational success. As an illustration, a student whose parents did not finish high school (limited assets and therefore agency), but has the assets (transportation, time, and goals) to choose to attend the after school tutoring that her teacher offers (opportunity structures) may become empowered mathematically by choosing to attend the tutoring. Alsop et al. (2006) argued that power, or empowerment, is impacted (both positively and negatively) by agency and opportunity structures. While students may be able to make choices (thus demonstrating agency), these choices may be thwarted by structures outside of the students' control (demonstrating a lack of power). For example, a student may not be able to transfer to the school they choose because enrollment is closed, as the school is full, or because there is no public transportation available to the school. Here the opportunity structures impact the "success or failure of the choices that they make" (p. 13) and therefore the student's power. Alsop et al. (2006) identified the iterative relationship between agency, opportunity structure, and empowerment with double-headed arrows [see Figure 1], explaining that empowerment "is a dynamic process through which the interaction of agency and opportunity structure has the potential to improve the capacity of individuals or groups to make effective choices" (Alsop et al., 2006, p. 15). Here it is important to note that agency and

opportunity structure interact to provide students with choices, but are not the same thing as choices.

Alsop et al. (2006) have identified three levels for examining how the relationships between agency and opportunity structure impact empowerment:

Level 1: *Existence of choice*—does the student (or family) have the opportunity, through agency and opportunity structures, to make a choice?

Level 2: *Use of choice*—does a student actually make a choice? How is this decision made?

Level 3: *Achievement of choice*—Does the student achieve the desired outcome, which is influenced by the student's agency, opportunity structure, and empowerment?

Here, it is important to note that a student does not actively have to move schools to have choices and/or make a choice; a student who stays at his district school because it is a good educational experience is actively making a choice. To illustrate the three levels, I will draw on Becki's educational story. Becki's city had many different options for public schools and having these different options meant that she had the chance to choose a different school (Level 1). Becki chose to attend a small charter school because her friend's mom suggested it (Level 2), and at this school, Becki was mathematically successful (Level 3).

Alsop et al. (2006) contend that people experience different degrees of empowerment depending upon their choices and outcomes. For example, at Level 1, Becki's schooling options provided her with the first level of empowerment, a minimal amount of empowerment. At Level 2, having knowledge about a specific school, and choosing to go to that school increased Becki's empowerment, as it had a large impact on her eventual success in mathematics. Through this success, Becki reached the third and ultimate level of empowerment for her second attempt at freshman year. In contrast,

another student may have options (Level 1), and may choose to attend a charter school hoping to graduate more quickly (Level 2), but he may wait months to be enrolled in the proper classes (opportunity structure) preventing him from reaching his goal (Level 3). Here he has limited empowerment, as his choice did not allow him to reach his goal.

Each of the three levels has a different effect on the degree of empowerment. For example, Level 3, achievement of choice, has the largest effect on empowerment because it captures the overall success or failure of the choice. A student who makes a choice to attend a non-elite school, and is successful in completing his required mathematics credits resulting in his graduation, is much more empowered than a student who chooses to attend a math focused school, but cannot keep up with the pace of the mathematics classes resulting in her dropping out of school. Overall, in thinking about the levels, it is important to recognize that the degree of empowerment between Level 1 and Level 3 is considerable.

Understanding student activity and thinking at each of these levels of empowerment is an important analysis for this study, as it will help reveal students' experiences as they choose to transfer schools. For example, a student who has many choices of schools may have less power than a student who has few choices if there is a significant difference between the available schools. If all of the choices available to the first student offer limited mathematics experiences while each of the few choices available to the second student offer rich and rigorous mathematics curricula, the second student has more power to achieve his mathematical goals than the first student. Thus having many choices at Level 1 may limit the resulting empowerment.

Alsop et al.'s framework will allow me to closely examine the activity, thinking and empowerment or disempowerment highly mobile, marginalized students face in achieving mathematical success or failure by looking specifically at agency, opportunity structure, and choice. Due to limited assets, marginalized youth usually have limited agency in mathematics classrooms. In the previous chapter, I explored the limited assets and resources marginalized youth often encounter when learning mathematics (i.e., fewer highly qualified teachers). Additionally, these students' families may have had limited success graduating from high school, further impacting these students as they have fewer assets for learning mathematics and being successful in school. Alsop et al. (2006), identified power as an important construct of empowerment, explaining that it "results from a combination of resources and rules" (2006, p. 11). Unfortunately, these limited resources constrain the agency students have in engaging in school choice and result in less power, or empowerment. While we know marginalized students have fewer resources to support their success in a traditional mathematics classroom, what we do not know is how the rules or regulations of school choice offer (or do not offer) these students the capacity to be empowered and mathematically successful.

This specific framework proved to be a useful analytical tool, helping to identify important nuances and findings as I examined the relationship between marginalized students' engagement in school choice and the outcomes of this engagement on their mathematical learning. The mathematical learning a student achieves is impacted by her agency, opportunity structure and empowerment, but a student's mathematical learning also impacts a student's agency, opportunity structure and degree of empowerment as noted by the double-headed arrows in the framework diagram [see Figure 1]. As an

illustration, a student may be very limited in his choice of schools to transfer into due to his lack of mathematics credits, and he transfers into the one school that will accept him. The opportunity structures limited his degree of empowerment, but at this new school, he is successful at learning mathematics and quickly earns three credits. This success in learning mathematics changes his opportunity structure and agency as he is now able to choose between more schools to transfer into *or* he can choose to stay at this successful school.

Summary. Marginalized youths' engagement in school choice and mathematical learning are intertwined, complex matters that need to be further researched in order to understand how individual students are experiencing and engaging in school choice and the meanings they make of these experiences, particularly how they think these experiences impact their mathematical learning. In order to explore these complexities, I seek to answer the following questions by relying on students' experiences in both mathematics and school choice:

- How do highly mobile, marginalized youth describe their decisions to transfer schools including what options they considered, how they chose a school, and their perceptions of the outcomes of their choice?
- How do highly mobile, marginalized youth describe their experiences learning mathematics?
- What are the relationships between the school transfer and mathematical learning experiences of these youth?

Here, I strive to position youth as experts in navigating school choice and work to understand how their choices impact their mathematical learning success or failure. In the

next chapter, I will explain my methods, the rationale for my methods, and how my methods connect to my theoretical framework. Throughout the findings chapters, I rely heavily on my framework, focusing on the various components and expanding on and elaborating many of these definitions and constructs.

CHAPTER 3: METHODS

Overview

This chapter elaborates upon both the framework I employed and my sequence of work as I explored my research questions. I begin by elaborating my study design. I then describe the details of my research site and my participants, my data collection procedures, and my data analysis.

Study Design

This study seeks to deepen our understanding of the intersection of marginalized students' mathematical experiences and school choice. When students engage in school choice, they draw upon their assets and are encouraged, or limited, by schooling structures. These assets and structures, and students' perception of them, influence if students have the chance to make a choice, actually make a choice, and achieve the goals of this choice. The resulting empowerment (or disempowerment) may impact how students engage in mathematics classes, and how mathematical learning and/or mathematical empowerment may impact students' engagement in school choice. To make sense of these factors, a method was needed that allowed for investigation of students' experiences and the sense making of those experiences. Therefore, I used an interpretive method because it focuses on "understanding human ideas, actions, and interactions in specific contexts" (Glesne, 2006, p. 8). Specifically, interpretive methods allowed me to take up the students' perspective, which was essential in examining students' experiences of school choice. With this, listening to the experiences of marginalized youth and positioning them as authorities in explaining how school choice and their mobility has impacted their mathematical trajectories, was a unique view not common in the school

choice literature. By both positioning students as experts and using an interpretive methodology, I was able to create a thick description (Geertz, 1994) of the cultural factors (social, events, behaviors, institutions, and processes) that arise at the intersection of mathematical learning and school choice.

Context

Site. The study site was Portal High School, an urban charter school in the southwest with a highly mobile population. School, staff, and student names have been changed to pseudonyms to maintain participant confidentiality. The school has worked towards its mission of providing better opportunities for success to students with unrealized potential for the past two decades. The school helped provide better opportunities through: small classroom settings (always less than 22 students), self-paced curriculum with a strong goal setting component, opportunities for credit recovery and accelerated learning, and a safe and respectful learning environment.

In the year of my data collection, racial/ethnic minority students (Hispanic, Black, Asian or Asian/Pacific Islander, and Native America) made up the majority (61%) of the student body. In addition, 76% of the students qualified for free or reduced lunch (www.greatschools.com). Therefore, the large majority of students at Portal were marginalized due to race and/or SES.

Unpublished survey data that I collected for an earlier project showed that the student population was further marginalized due to their high mobility. Nearly 50% of the students I surveyed at Portal were highly mobile. Three of these 110 students had very high mobility, each having transferred 11 times. Looking specifically at transfers during high school, 40% of the students I surveyed at Portal had transferred three or more times.

The school supported its students in a number of ways. For instance, the school offered bus passes on the local bus system for students who qualified for free and reduced lunch. Additionally, the school had AM and PM sessions (8 am - 12pm or 11am - 3pm) that the students could choose to attend, providing time to excel in school, but also time to work or attend to other commitments. The school used a self-paced curriculum, often on computers. The students moved classrooms each hour and often had a teacher highly qualified in the content material. Rather than a traditional high school structure in which students earn course credit at the end of a semester, students at Portal could earn credit anytime they completed their course work for a given class. Every Friday the counselors would go from class to class recognizing the students who earned a credit that week.

The mathematics classroom setting. The mathematics classes at Portal included: Pre-Algebra, Algebra I, Geometry, Algebra II, Trigonometry, and Pre-Calculus. When transferring into Portal, students took the *Test of Adult Basic Education* mathematics placement test, or TABE, (designed by McGraw-Hill). The students were then placed in the course they tested into, even if they had already earned that course credit. For example, if a student had passed Algebra I at another high school, but they tested into Algebra I, the student would have to retake the class at Portal.

The mathematics curriculum at Portal came primarily from ALEKS, a self-paced web-based curriculum that broke content into small topics. For each topic, several examples were provided for students. They could then try practicing problems or request more examples. Once they successfully completed three problems in a row, they were able to move on to another topic. The topics were sequential within broad categories, but students moved from category to category and completed the topics in any order. When a

student had completed 20 topics or 10 hours of course work, they were prompted to take an assessment. If they did well on the assessment, their course completion rate went up accordingly; if they did not do well, they had to retake several (or all) of the topics they recently covered.

Two courses (Algebra and Geometry) were textbook based; the books for these courses were entitled *Pacemaker* and were written by a group from Globe Fearon, a part of Pearson Learning Company. This textbook was similar to ALEKS in that there were examples the students read through, and then they completed the problems in each section. After they completed a chapter, the teacher gave them a test, and they either moved forward to the next chapter or repeated the sections they failed to learn. The mathematics teacher provided each student with an individualized calendar, offering guidance for which (or how many) sections the student should be working on each day. Students were able to work their way through the classes at their own pace and could finish a class one day and start the next course the following day. In each mathematics classroom there were students enrolled in a variety of mathematics courses. The mathematics teacher monitored and supported student learning as well as student progress through these various courses.

Case Study Participants. In my pilot study, I identified tutoring as a valuable time to gain insight into student's experiences learning mathematics and transferring schools. With the support of the school, I created a mathematics study group for a total of eight students over nine-weeks. The purpose of this study group was two-fold: 1) to provide much needed mathematical support to students as they neared high school graduation and 2) to provide a context in which I might learn more about students' experiences learning

mathematics. I did not provide the students with additional work or teaching; rather, I supported their coursework and provided assistance as they worked to complete their mathematics classes. In doing this, I most frequently provided support on a one-on-one basis, but occasionally worked with students in small groups when they were on the same topic.

The curriculum director, counselor, and mathematics department head suggested students who had been at Portal since the first quarter of the 2014-2015 school year and would benefit from additional mathematical support. I met with each of these students individually and/or in a small group to explain my study including the study group and interviews. If a student was interested in both the study group and the interviews, they were invited to participate in my study. I explained the consent forms to the student and asked them to return the consent forms to me before the study group started. Three students returned their forms after the study group started and therefore began attending the study groups upon their return of the consent forms.

While eight students may seem like a large group to start with, given Portal's highly mobile population, this number ensured that I had four students at the end of the quarter. Of these eight students, one student only attended once and two only attended twice. A fourth student attended the study sessions for the first five weeks, but was then suspended from Portal. These first four students were not included in my dissertation results because their participation in the group and interviews generated insufficient data to develop cases. Therefore, only four students regularly attended the study sessions throughout the quarter. Of these four, I selected three to become my dissertation data: Felix, Sofia, and Chris. I decided not to include the fourth student as her interview

responses and actions in study groups changed frequently. For example, her explanation for leaving a district school and attending Portal were vastly different between the pre and post interviews. While her story is very interesting and school choice researchers could learn much from her case, the empowerment framework I am utilizing to analyze data does not account for such variation.

Data Collection

I collected four main sources of data: student study group observations, interviews (students and teacher/principal), student school records, and informal conversations with school personnel.

Student study group observations. During the study group, I video and audiotaped students so that I could capture the conversations that came up around students' challenges transferring and learning mathematics. I positioned the video camera so that it captured all of the students in the study group. Additionally, I used a wireless microphone to capture audio from student(s) as I worked with them. I moved the microphone with me when I moved to a different place in the classroom. On days when the study group was large (5-8 students), I used a second audio recorder to ensure that I was able to capture all student conversation. Following each study group, I completed field notes to document the mathematical content each student was working on. In addition, I made note of any specific student mathematical challenges and/or interesting comments students made about mathematical learning and transferring schools. Finally, I documented conversations related to school choice and/or transferring when mathematics was not specifically part of the conversation. The study group provided me with a place

to learn information specific to students' struggles with content, which helped inform each student's post-interview.

Interviews. Interviews were the primary source of data I utilized to understand the intersection of school choice and mathematical learning for marginalized youth. As my emphasis was on the students' experiences and perceptions of these experiences, interviewing my study participants allowed me to elicit this information.

I interviewed each of my case study students twice; each interview was about an hour in length. The first interview occurred within the first two weeks of the student starting the study group. The focus was on their schooling experiences, including what impacts these experiences may have had on their mathematical success, but also included their and their family's beliefs and interests in mathematics (See Appendix A, Pre-Interview). The second interview, or post-interview, occurred near the end of 9-week study group and focused on the relationship between school choice and mathematical learning. I asked questions about specific mathematical content challenges or successes that surfaced during the study group. I used the transcripts from the pre-interviews and the videos and field notes from the study group to create post-interviews that were specific to each student. For example, I prepared a table summarizing each student's transfer experiences as explained during the pre-interview and began the post-interview asking the student to confirm that the table was an accurate description of their experiences or to let me know what changes needed to be made (See Appendix B for a general outline of the Post-Interview). All of the case study students' interviews were audio recorded and transcribed. When transcribing student interviews, I deleted

superfluous words (i.e., "like"), but I did not correct grammatical errors (i.e., changing "taached" to taught).

I also interviewed the mathematics teachers, the two counselors, the curriculum director, and the principal. These interviews focused on the staff's experiences working with highly mobile youth and their knowledge of these students' successes or challenges learning mathematics, as well as the specific supports Portal offers highly mobile students in learning mathematics (see Appendix C, Staff Interview). All of the staff interviews were audiotaped and key sections were transcribed.

Student school records. I collected copies of school records after the quarter and school year ended. The records included unofficial transcripts, as well as mathematical assessment results. I used student school records to supplement my analysis of their perceived mathematical success by identifying if they earned mathematics credits or not. Additionally, I used school records to determine overall academic success, specifically whether my participants graduated (this information was collected after the nine-week study group).

Informal conversations with school personnel. I had many informal conversations with the mathematics teachers, the academic director, the counselors, and the principal about students and their mathematical success. These conversations were important to this study because they helped me better understand the school and the opportunity structures students encountered when transferring into this school. These conversations happened quickly and as such, I was not able to record them. However, they were summarized and included in my daily field notes.

Table 3.1 demonstrates how the above four data sources helped me to answer my research questions.

Table 3.1

Data Sources for Major Research Question: What is the intersection between school choice and mathematical learning?

RESEARCH SUB-QUESTION	DATA SOURCES
How do highly mobile, marginalized youth describe their decisions to transfer schools including what options they considered, how they chose a school, and their perceptions of the outcomes of their choice?	<ul style="list-style-type: none"> • Student Interviews • Student Study Group Observations • Teacher/Principal Interviews • Informal Conversations with school personnel
How do highly mobile, marginalized youth describe their experiences learning mathematics?	<ul style="list-style-type: none"> • Student Study Group Observations • Student Interviews • Math Teacher Interview • Student School Records
What are the relationships between the school transfer and mathematical learning experiences of these youth?	<ul style="list-style-type: none"> • Student Interviews • Student Study Group Observations • Teacher/Principal Interviews • Informal Conversations with school personnel

Data Analysis

Below I explain my three layers of data analysis: in the first layer, I wrote an analytic memo for each study session and student interview; in the second layer, I analyzed student talk in each transcript, focusing on identifying components of my analytic framework and noting other important factors; and in the third layer, I wrote numerous analytic memos considering especially significant aspects of each case study student's experiences engaging in transferring and mathematical learning. Here it is important to note that I frequently moved between levels two and three in order to

construct my findings, as I examined detailed aspects of the transcript and considered the larger picture for these students.

Layer 1: Analytic memos of study groups. My first layer of data analysis consisted of writing an analytic memo for each study group session. Within 24 hours of the study group session, I watched the video (and listened to any additional audio) to generate a first layer analytic memo. Memos were both descriptive and reflective (Bogdan & Biklen, 2003), capturing the details of what happened in each study group along with my thoughts, feelings, and questions. Additionally, I included any insights I gained into school choice and mathematical learning for each student. During this memo writing, I also identified key sections of the study group to be transcribed for further analysis.

These analytic memos became a tool for multiple purposes. One purpose was to help build information about empowerment cycles and cases for each student. A second purpose was to help me identify insufficiently elaborated stories that arose during the study group, stories related to school choice or mathematical learning. Identifying these stories that needed further elaboration helped me construct post-interviews specific to each case study student (See Appendix B for an outline of the Post-Interview).

Layer 2: Student talk. In the second layer of analysis, I focused on coding transcripts from the student interviews and study group sessions. I transcribed each interview in its entirety, along with key sections of the study group sessions that included students describing experiences transferring schools or learning mathematics. Then, I coded specific components of my analytic framework in the students' talk, which included: agency, opportunity structure, perceived mathematical achievement, and

student empowerment. I identified agency by labeling any asset the student mentioned and identifying which asset category it fit into: psychological, informational, organizational, financial and human. I identified opportunity structures by labeling the informal rules of schooling, about which students talked, and I identified from which category the informal rule arose: curricular structures of the school, structure of the classroom, types of student transfers, types of charter schools, and locations of charter schools. Additionally, I made notes of any talk related to the formal rules of school choice (how schools are funded and classes students must take to graduate) had on students' experiences. For perceived mathematical achievement and student empowerment, I labeled student talk that discussed successes or failures in mathematics, which in turn helped me identify student empowerment in mathematics (see Appendix D for my codebook). In this second layer of analysis, I coded line by line and in thematic episodes (chunking sections of the transcript) if students talked in length about a specific detail of their experience. For example, I identified a math-learning episode (across multiple lines of transcript) and considered for that moment the student's agency, opportunity structures, and outcomes.

Layer 3: Empowerment cycles. During the third layer of analysis, I coded students' empowerment at the three different levels. I began this analysis by labeling times when students' talked about existence of choice, use of choice, and achievement of choice. I noted the beginning of an empowerment cycle, when the student had a choice (Level 1, existence of choice), and I labeled which choices she considered. Next, I identified if the student made a choice, which choice she made, and why she made this choice, including the goal of this choice (Level 2, use of choice). Finally, I noted whether

the student achieved her goal, specifically with regards to her mathematical learning (Level 3, achievement of choice). To complete this layer of analysis, I looked across the students' transcripts and school records to examine cycles of empowerment and wrote analytic memos for each student's cycles of empowerment. To fully explore a student's educational trajectory, this analysis occurred for each school transfer when there was sufficient information.

To complete these analyses, I considered both the student's experiences holistically as well as in empowerment cycles. To consider the student holistically, I chunked sections of the transcript that highlighted key aspects of his mobility experiences. From these chunked sections, I wrote analytic memos. For example, it became clear through this process that Felix experienced significant differences in learning and earning empowerment. Upon identifying these thematic sections, I wrote an analytic memo that formed that basis for the mathematical findings in Felix's chapter.

To consider the small details of a student's experience, I created a table for each transcript (see Table 3.2). In addition to line number, speaker, and the student/interviewer talk I added four more columns. The first additional column was a place for me to note moments: mathematical, school choice, or joint. The second column contained my analysis of student agency, specifically the assets available to the student in the transferring schools or learning mathematics. This column helped me identify what, if any, types of agency the student was drawing on as they explained their particular experience. A third column included my analysis of opportunity structure, specifically any structure that relates to the unwritten rules of school choice, and/or challenges

marginalized youth face learning mathematics. The final column provided a space for me to analyze the student's empowerment in relationship to each school transfer.

Table 3.2.

Analysis table for each transcript.

Line Number	Speaker	Data	Moment	Agency	Opportunity Structure	Empowerment of School Choice

For each student talk turn, the amount I coded varied. For example, I might have coded just one column, all columns, or no columns, depending upon how detailed and complex an individual talk turn was. As I completed these tables, I analyzed them for patterns; specifically, I grouped talk turns that related to particular themes or instances so that I considered agency, opportunity structure, outcome, and connections for specific transfer experiences or mathematical learning experiences. I also considered any analytic memos I wrote based on thematic sections to inform this analysis. Additionally, I allowed this detailed analysis to add to the insights of my memos from thematically chunking sections of the transcripts. In zooming into the details of the data and zooming out to a holistic view of the data, I paid special attention to the joint moments (talk about mathematical learning and school choice) to better understand the connections between school choice and mathematical learning.

I created cases for each of my students to help organize my findings and utilized multi-case studies methods to complete my final discussion chapter (Stake, 2013). I drew upon my field notes, student interviews, and school records to triangulate my findings.

Additionally, I member checked when possible to verify my findings (i.e., during the post-interview).

These methods provide a robust means of examining student stories as a means to better understand the intersection of school choice and mathematics. The aims of this dissertation study are to identify agency, opportunity structures, empowerment, and mathematical achievement in marginalized students' talk around transferring and learning mathematics.

CHAPTER 4: FALSE EMPOWERMENT OF SCHOOL CHOICE AND EARNING CREDIT VERSUS LEARNING MATHEMATICS

You actually learn too [at Portal]. I thought that I would never learn anything in math, and I learned a lot.
(Felix, Pre-interview, line 236)

Overview

This first case, presents the experience of one student, Felix, whose reality of passing courses, but not learning, in fourth through tenth grade was a key factor in both his later mobility experiences and his experiences learning mathematics. Felix shifted from experiencing both mathematical *learning* and *earning empowerment* in third grade to experiencing only earning empowerment from fourth through ninth grade. In eleventh grade, Felix again experienced both mathematical learning and earning empowerment.

This chapter is broken into three distinct parts. Part 1 offers an introduction to Felix, including his familial assets and his mobility experiences. Part 2 examines in more detail Felix's experience engaging in school choice and his frequent *false empowerment* resulting from his transfer decisions. Part 3, explores the opportunity structures that shaped Felix's mathematical experiences of being passed along without learning mathematics and the later opportunity structures that supported Felix to re-engage in learning mathematics at Portal.

Part 1: Felix

In Part 1, I offer background on Felix, including his assets and the opportunity structures he experiences, as well as his mobility experience. Figure 4.1 highlights these

aspects within my framework.

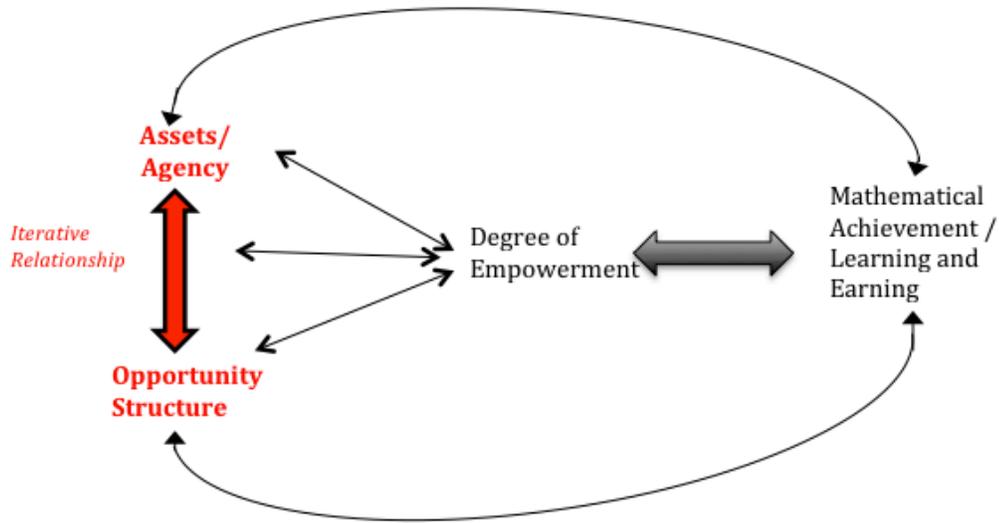


Figure 4.1. Empowerment framework for Felix, Part 1.

Felix, a seventeen-year-old junior at the time of my study, was a Hispanic American who emigrated from Cuba with his parents when he was two. His parents were separated at the time of the study and he was an only child; he lived with his mom, and saw his dad only occasionally. Spanish was Felix's first language and he began learning English at daycare when he was three or four (pre-interview, line 8). Felix's mom worked at two different daycare facilities before Felix was old enough to attend kindergarten, and Felix attended the daycares where his mom worked [see Table 4.1].

Felix was physically active and social. As such, at the time of the study, he was a member of both the Portal basketball team and running club. He also went to a gym with friends to play more basketball outside of scheduled practice with the school team.

Mobility experience. Felix was fairly stable in his early schooling experience, transferring schools only once in pre-school due to his mom's employment changing [see Table 5.1]. Felix lived in the same apartment his entire schooling career, but due to his

district's efforts to achieve desegregation compliance, Felix was bussed to an elementary school on the outskirts of town. He complied with his desegregation placement until middle school when he and his mother decided he would attend the school across the street from his home (post-interview, line 133).

This was the first time Felix engaged in selecting a school other than his assigned desegregation school and therefore counted as his first transfer, even though he was choosing to attend his neighborhood school. In high school, Felix began to engage more fully in school choice and school transfers, transferring three times during his freshman year and twice more during his sophomore year. These transfers resulted in Felix transferring five times in his first year and a half of high school. His sixth (and final transfer at the time) was into Portal and he had been there for almost a year and a half at the time of the study. He was planning to graduate from Portal (post-interview, line 744).

In this chapter, I describe Felix's experiences related to mobility, but sometimes my description is non-linear in an effort to highlight specific themes and findings. Therefore, I have included the following table, which is a summary of Felix's schooling trajectory [see Table 5.1]. The table includes the schools Felix attended, the high school math courses he took, the reasons he moved, and the ways he found out about the specific school.

Table 4.1

Felix's School Trajectory

School	Reason for transfer	How he learned about the school
Smile Day Care	Closed	Mom was working at daycare
ABC 123 Day Care	Mom switched jobs	Mom was working at daycare
Caldwell District Elementary School (K-5)	Assigned school	Desegregation School
Hobbs District Middle School (6-8)	Neighborhood School [Has closed since he attended]	Was supposed to attend Navarre Magnet School (an almost hour long bus ride) but he decided to go to a closer school
Century District High School (9th grade-- August to November) Algebra (F)	Choose this because Streetside, his neighborhood school, was "bad"	Friends and Mom
Blanco District High School (9th grade-- November through December) Algebra (F)	Social	Best friend went there and told him to go there
Portal Charter High School (9th grade-- December through May) "Red Book" (I)	Hated Blanco High School	Facebook friend told him about school
Century District High School (10th grade--August through December) Geometry (F) and Credit Recovery (F)	Wanted to return since he left in 9th grade	Prior experience attending school
Portal Charter High School (2nd half of 10th grade, summer, and 11th grade) "Red Book" (P), Pre-Algebra (P), Algebra (P), and Geometry (P)	Was not doing well at Century, so he returned to Portal	Prior experience attending school

Part 2: School Choice Experiences—False Empowerment and School Choice for Marginalized Youth

In Part 2, I examine the impact of Felix's engagement in school choice, as a marginalized student, on his empowerment levels. In doing this, I will focus on his assets/agency, opportunity structure, and degree of empowerment. Figure 4.2 highlights these aspects within my framework.

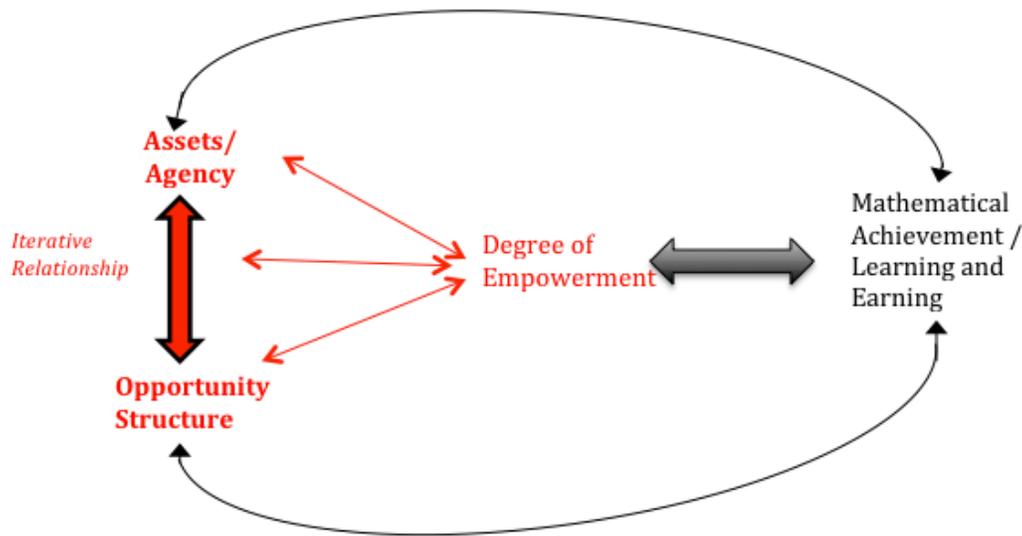


Figure 4.2. Empowerment framework for Felix, Part 2.

There are a number of different reasons why students transfer, and as a result, they can find it difficult to pick a school. The case of Felix demonstrates that picking the right school can be a challenging endeavor because there are many different and competing factors to consider.

In this section, I will use the following terms to articulate these various concerns facing marginalized students and their resulting empowerment: *school choice empowerment* and *academic empowerment*. School choice empowerment refers to a student having the option to switch schools, making a decision to switch schools for

specific concerns, switching schools, and having those concerns met by the new school. This category of empowerment focuses on non-academic reasons for changing schools. For example, a student, like Felix, may consider changing schools in order to be at a school that is a better fit socially. To the extent that this student considers, decides, and enacts a school change around improving his social situation, and improves his social situation by enrolling at the new school, this student has school choice empowerment around the goal of a school that is a better social fit.

Academic empowerment refers to a student having a choice, making a decision to switch schools for academic (or mathematical) concerns, switching schools, and being academically (or mathematically) successful. For example, a student, like Felix, may consider changing schools to catch up on credits. To the extent that this student considers, decides, enacts a school change based on this goal, and is successful in catching up on credits, this student has academic empowerment. Sometimes academic empowerment may be motivated by the prospects and importance society places on graduation. School choice empowerment and academic empowerment are not necessarily mutually exclusive; a student can (and ideally does) achieve both at the same time as explored in more detail below. I will also be utilizing the three levels of empowerment, or degree of empowerment, in this section: Level 1 (having choices), Level 2 (making a choice), and Level 3 (achieving the expected outcome).

Throughout Felix's first year and a half of high school, he made many choices to transfer, but these were not necessarily choices leading toward access to productive opportunities to learn mathematics. In this section, I explore Felix's engagement in school choice, what concerns he made his decisions based upon, and if there was a resulting

school choice empowerment. Additionally, I will examine if Felix ever experienced academic empowerment.

Changing choices. Some marginalized students and their families engage in school choice for one reason (i.e., location of the school), but then find that their new school does not meet all of their needs. For example, Felix transferred to Hobbs, his neighborhood middle school, because he did not want to spend an hour each way on the bus to attend Navarre (his assigned school due to desegregation policies). His school choice was made for reasons related to proximity. In attending the school across the street from his home, Felix's concern of proximity was met and as a result, he experienced Level 3 school choice empowerment. He was able to attend a school close to his home. However, many other things also changed when Felix transferred from his assigned elementary to his neighborhood middle school, especially his engagement in school. Here he explained the change he experienced moving from his assigned desegregation elementary to his neighborhood middle school:

Pre-interview, lines 263 - 268

263	Jen	26:56.4	Do you know what happened or, was it just getting harder?
264	Felix	27:00.9	I just, I didn't like to follow the rules. So, I got in trouble a lot in middle school. I used to fight a lot, too. Um, and ah, I just didn't like school.
265	Jen	27:16.1	Did you like it [school] in elementary school?
266	Felix	27:18.0	Yeah I liked it in elementary.
267	Jen	27:21.8	Do you know what the difference was?
268	Felix	27:23.7	Yeah, you know like once you start getting older you start getting exposed to different things and uh I guess that really changes who you are as a person. Cause you know you get all, the gangs and the drugs and all that stuff. So, that's the difference between it.

Felix interpreted his struggles during middle school as an internal problem related to "getting older" (line 268). While some of these may have been related to challenges

specific to middle school, they were most likely also related to his attending Hobbs. After Felix left Hobbs, the school was closed. According to Felix, this closure was a result of all "the fights there" (pre-interview, line 58) and "all of those budget cuts that they had" (pre-interview, line 60). In this reflection on Hobbs, Felix revealed a possible understanding that Hobbs was not a "good" school and as such was closed down. Yet, Felix did not recognize that the school was not a good fit for him even though he failed every class and was almost held back a year (pre-interview, line 278). Rather, he thought he was struggling in school because of the challenges inherent in being a middle school student.

While Felix's decision to transfer to his neighborhood school because of proximity concerns makes sense and is understandable, his reaction to his experience at this school foreshadows Felix's future engagement in school choice and reaction to his school transfers. He experienced school choice empowerment, but his overall academic empowerment greatly decreased. Felix began disliking school and failing after having been mostly academically successful and enjoying elementary school (line 264). Most concerning was that Felix thought these changes were a result of being a middle school student and did not necessarily see them as a result of transferring schools; therefore, he internalized his negative situation without recognizing that he could again decide to transfer and possibly improve his situation. In other words, Felix's disempowerment in the academic realm lead to a decrease of psychological assets, and Felix did not see school choice empowerment as a possible solution to his struggles.

The false promises of school choice, or the challenges of Level 2 empowerment. Transferring to a new school does not guarantee that a student will

experience a better academic and school environment. It is possible that a student will experience *false empowerment*, resulting from transferring to a school that fails to meet the student's needs. In other words, I define false empowerment as engagement in school choice (transferring schools) when the student assumes that the new school will be better, but it is not, and as a result, the student faces lower levels of empowerment.

Felix's first two transfers in high school offer insight into this challenge of school choice, namely false empowerment. At first, it appeared that his mom played a role in helping him find a good school:

Pre-interview, lines 189 - 202

189	Jen	19:23.0	. . .Did your mom help you decide on what schools to go to or did she have a role in these transfers besides really encouraging you to stick with school?
190	Felix	19:38.9	Uh, not really.
191	Jen	19:40.8	She just let you go where you wanted or?
192	Felix	19:42.9	Well, no cause I told her I wanted to go to Streetside [High School] and she was like, "No that's a bad school."
193	Jen	19:49.6	Ah.
194	Felix	19:50.7	She just wouldn't let me go there. So, I would tell her some schools and then she would be like, "yeah."
195	Jen	19:59.7	So, she would give you some options based on your ideas and. . .Why did you want to go to Streetside?
196	Felix	20:05.0	Cause um, even though like a lot of my friends that went to my middle school went to Century [High School], the majority of the people went to Streetside. That was everyone's home school that lived in the area. So, I knew a lot more people there.
197	Jen	20:23.6	Were you out of district then for Century?
198	Felix	20:25.1	Was I out of district? Yeah. Yeah.
199	Jen	20:28.3	Okay.
200	Felix	20:29.1	My home school is Streetside.

Instead of attending his neighborhood (or "home") high school where the majority of Felix's middle school classmates were going, Felix enrolled at a nearby high school, Century High School. Choosing this school addressed familial and social concerns for

Felix. This school gained his mom's approval because it had a better reputation than the neighborhood high school, and Felix still had a "lot of friends" who attended Century. At Century, he had achieved school choice empowerment and most likely academic empowerment. However, after just three months, Felix decided to transfer to Blanco, another nearby high school, because, "One of my best friends goes there, so he told me to go there. So I went there" (pre-interview, line 218). Surprisingly, Felix had little to say about his mom's involvement in making this decision, "she just asked me why [I wanted to transfer] and I was like 'I don't know, I just want to.' She was like, 'alright'" (post-interview, line 167).

When I encouraged Felix to further explain his rationale to transfer so early into the school year, he stated, "To be honest, I don't even know why I moved from Century to Blanco. I just don't, maybe it was like this girl that I liked or something like that" (post-interview, line 161). At another point in the interviews, he reiterated this idea that he did not know why he transferred: "I don't even know why I moved there. I don't know why; I really don't. At the time, I wanted to but I didn't know why" (pre-interview, line 174). Here, the opportunity structure of school choice allowed Felix to transfer at the beginning of November without a clear academic rationale, or concern, for the transfer. While Felix appeared to be motivated to transfer for social concerns (i.e., his best friend and "this girl"), he offered no reason why he wanted to transfer from Century as he had friends there too (pre-interview, line 196). The opportunity structure of school choice resulted in Felix's brief empowerment when he decided to transfer (Level 2), but it ultimately proved to be disempowering as Felix was not able to attain school choice

empowerment (Level 3) surrounding his social concerns once he transferred. Felix explained:

Pre-interview, lines 467 - 471

467	Felix	47:23.6	. . . I had some friends there, but I just don't know. I just had a lot of problems with people there. Which I didn't know at the time [of transferring], because I didn't know a lot of those people went there. You know. So, I was like, "ah, what do I do?" You know. What if I get in a fight or something, you know? I get jumped? I almost did get jumped.
468	Jen	47:57.6	At Blanco?
469	Felix	47:59.6	Yeah, so. I just kinda had to always watch my back and stuff.
470	Jen	48:04.5	That never feels good.
471	Felix	48:06.4	Yeah. It was just stressful so that's why I told my mom, I gotta move.

Rather than feeling socially content, Felix became concerned with his safety. Felix explained that attending Blanco was "stressful" (line 471) and that he talked with his mom about the situation, but this was not the whole story.

Before talking with his mom, Felix ditched school for two days (pre-interview, line 70). When I asked him how it felt to ditch school, he said he was relieved:

Post-interview, lines 454 - 481

454	Jen	35:22.4	. . . So how did it feel to skip those two days at Blanco?
455	Felix	35:32.2	It felt great.
456	Jen	35:32.3	Why?
457	Felix	35:33.0	I just didn't like Blanco at all.
458	Jen	35:34.6	Yeah?
459	Felix	35:34.9	That's how much I hated it. I've never done that before.
460	Jen	35:38.0	And did you feel guilty at all? You just were happy?
461	Felix	35:42.1	I was relieved.
462	Jen	35:45.1	Yeah?
463	Felix	35:46.7	Mm-hmmm.
464	Jen	35:46.8	And had you talk to your mom about moving [transferring] schools again?
465	Felix	35:49.7	Not till she found out.
466	Jen	35:49.8	Why didn't you talk to her first? [Pause] You just felt like you had to take care of it on your own? [Felix nods]. Okay, okay and what was going on right before you transferred at Blanco? Or right before you stopped going to classes?

467	Felix	36:05.0	Where?
468	Jen	36:05.3	At Blanco.
469	Felix	36:07.3	What was going on?
470	Jen	36:10.9	Yeah, what was there reason you stopped going for two days?
471	Felix	36:13.0	To school?
472	Jen	36:15.9	Yeah.
473	Felix	36:17.7	I just didn't like anybody there.
474	Jen	36:18.0	Okay.
475	Felix	36:20.3	And I was alone I didn't really like, I had like second lunch, so I didn't know anybody there and like I would sit alone and stuff so I didn't like it. Yeah I hated it.
476	Jen	36:33.8	And it's one thing to be alone at home right? It's okay but you don't want to do that=
477	Felix	36:37.2	At school, yeah. It looks bad.
478	Jen	36:39.8	And had that happened for a while or did you get your schedule changed?
479	Felix	36:46.1	Yeah, it happen[ed] for a while at Blanco.
480	Jen	36:47.0	And you were just eating alone?
481	Felix	36:48.2	Yeah sitting alone and I don't know. I was lonely. I hated it.

This was a challenging situation for Felix, as he experienced false empowerment from school choice. He went from being empowered (most likely achieving both school choice and academic Level 3 empowerment) and happy at Century to being unhappy, lonely, and disempowered (not achieving school choice nor academic empowerment) at Blanco. While it is unclear why Felix ditched, it is striking that he had never ditched before and that "it felt great" (line 455). It appeared that Felix felt the best solution to his disempowerment, or decrease in level of empowerment, was to ditch school, rather than to talk with his mom about the situation. He explained how she found out about his attendance:

"Naw, I didn't tell her. [Laughs.] School called my mom and my mom was like 'What?' and she, she. I got grounded for a while, but I explained to her like what was going on and I just couldn't, I just couldn't go there anymore" (pre-interview, line 74).

Once his mom found out that he had been ditching school, he had the opportunity to explain why he could no longer go there.

In summary, Felix engaged in school choice, selecting Century, which resulted in an empowering school decision focused on familial and societal factors (Level 2 empowerment) and he was most likely academically successful at this school (achieving both Level 3 school choice and academic empowerment). But then he chose to transfer for societal factors (again achieving Level 2 empowerment) into a situation that resulted in false empowerment (no longer able to achieve Level 3 school choice or academic empowerment). Perhaps if Felix had been given a different schedule (i.e., first lunch) he would not have felt so lonely and would have been more empowered at Blanco. Variables like what schedule a student receives add to the nuances of school choice that make it challenging to anticipate whether a school transfer will be empowering or falsely empowering for students in achieving their specific transfer concerns.

Further Disempowerment of Highly Mobile Students. The structure of school choice empowers students to engage in transfers, but it can create further challenges for students if they are highly mobile. For example, a student is highly mobile if she transfers three or more times and is at greater risk for dropping out of high school (Rumberger & Larson, 1998). Felix's case demonstrates the possible negative impacts and resulting disempowerment from being highly mobile.

Felix was initially very empowered by his school choice decision to return to Century stating, "Yeah, everything was going good. I started out good, I was doing homework at home for like once-in-a-lifetime" (post-interview, line 509). Yet, within two weeks his experience changed:

Pre-interview, lines 96 - 102 (italics added)

96	Felix	06:58.9	And then, so then, I go back to Century sophomore year and everything is going good, you know. Like I'm happy and I don't know what happened, I just got so tired everyday and they kept changing my schedule so much.
97	Jen	07:18.5	Why, at quarters or just in=
98	Felix	07:20.0	Just like randomly, they just kept changing it so much. I would have um the same teachers and stuff and the same classes, but they would just change the periods of them, you know.
99	Jen	07:33.9	Oh.
100	Felix	07:34.5	And I didn't like that cause like it's a <i>big school</i> . You know, you don't really; you don't know everyone there. So, once you finally get like adjusted to one class and you finally meet everyone and they change it [your schedule] again and it's awkward, you know.
101	Jen	07:48.6	Was it just you or were there other people [getting new schedules]?
102	Felix	07:50.3	I'm not sure; I know for me they changed it a lot. And I just got tired, of just like waking up and just going to school and stuff. And I started failing too. I started failing like almost every class; I was just tired of it. So, I like dropped out for a while, I just stopped going to school for like a whole month I stopped going.

Felix was finally attending the school he wanted to again based on social factors (achieving Level 3 school choice empowerment), and the first two weeks of school he was academically engaged (achieving Level 3 academic empowerment). For reasons unknown to him, his schedule was changed and he faced challenges in maintaining his social and academic empowerment because "once you get adjusted to one class," he then had to get adjusted to a new class and students.

The impact of having his schedule changed "four times" (post-interview, line 191), "every couple of weeks" (post-interview, line 195), and essentially being highly mobile within the school, was disastrous for Felix. He found this to be difficult because the school was so big, and it took time to meet the students in each new class (pre-

interview, line 100). He found this situation very socially challenging. As a result, he was no longer empowered at Level 3 school choice because his social concerns were no longer met. In line 96, Felix explained the impact of this on his academic engagement, instead of "everything going good," he just got "so tired everyday." Therefore, he was no longer achieving academic empowerment either. He continued on to explain the impact this had on his psychological agency in that, he "got tired, of just waking up and going to school and stuff. . . I started failing every class" (line 102). The result of his feeling tired was that "he dropped out for a whole month" (line 102).

Similar to his experience at Blanco, Felix felt disempowered, and his solution was to stop attending school. At Blanco, his mom was notified almost immediately. Whereas, at Century it took a month of Felix skipping school before a letter was mailed home.

Felix explained what happened after his mom received the letter regarding his attendance:

Pre-interview, lines 116 - 124

116	Felix	09:10.5	So, my mom called the school and they told my mom that I haven't gone to school for like a whole month or something like that. Maybe like once in the month and my mom was like "Whoa, why didn't you guys ever call me and tell me?"
117	Jen	09:24.6	Yeah, they never did?
118	Felix	09:26.4	Yeah, and they said, "well we thought he had moved schools so."
119	Jen	09:30.5	Wow.
120	Felix	09:31.4	Yeah, and then uh I got grounded again for a long, long time, but I was just tired. I just, even after that, I still stopped going to school. Cause I just like didn't, I didn't feel like going. I don't know why. I just felt lazy, I felt like school at the time, just wasn't worth it. So, and I was far behind. I was like, it was like the middle of, it was more than half of the year already, and I only had three credits. So.
121	Jen	10:14.3	From freshman year or from?
122	Felix	10:17.4	Yeah. And I was a Sophomore and it was more than half the year already and I only had three credits and I was like, um, in my head, you know, I was thinking I was like, well, you know junior year is almost here, I only have four credits. Might as well drop out and get my GED and stuff. But, um I

			don't know um, I guess [I] kinda gotta thank my mom cause she just never gave up on me and stuff.
123	Jen	10:46.1	Oh nice.
124	Felix	10:47.1	And she kept like telling me that I have to like you know GEDs [are] not as important as a high school diploma and stuff. . .

While there are many possible reasons for why it took a month for Felix's mom to be notified (e.g., a clerical error, high student turnover, etc.), Felix believed it took this long because the school thought he had transferred. Therefore, Felix's high mobility, and possibly being considered a highly mobile student by the school, further impacted his chance of empowerment at Century. As a result, Felix had little school choice or academic empowerment. At this time, Felix realized he only had four credits (the majority of these earned at Portal) as a sophomore, and he was thinking he would permanently "drop out and get [his] GED." Luckily, his mom "never gave up on him" and encouraged him to keep attending school, explaining the importance of a high school diploma.

In summary, Felix experienced disempowerment from engaging in school choice when choosing to attend Century a second time. This time, his experience dramatically shifted after the first two weeks of school, and the combination of the large school and his frequent schedule changes made it challenging for him to maintain his Level 3 school choice empowerment he began the year with. Additionally, his experience as (and label of) a highly mobile student may have further disempowered him academically when his mother was not informed of his poor attendance for over a month.

It was not until the middle of his sophomore year that Felix realized he was soon to be a junior and "only" had four credits. Up until this point, Felix's engagement in

school choice had mainly focused on social factors, sometimes combined with familial and safety factors. Yet, he was often falsely empowered, as when he transferred he did not experience the better schooling situations he was expecting with regard to these factors. As a result, Felix was disempowered as his level of empowerment, both school choice and academic, frequently decreased upon transferring.

Braided concerns: experiencing academic and school choice empowerment. It

is a testimony to students who are almost two years behind in high school that they continue attending school. Perhaps it takes being behind to begin to unify, or braid together, the concerns of school choice and academic empowerment. Felix's second transfer to Portal demonstrated that once he was concerned with graduating, he was able to experience both academic empowerment and also experience school choice empowerment as his concerns became intertwined. He was able to find a school that met his social, safety, proximity, familial, and academic concerns. Here he explains what happened when he transferred back to Portal [this is a continuation of the previous transcript section]:

Pre-interview, line 124

124	Felix	10:47.1	And she [Felix's mom] kept like telling me that I have to, like you know GEDs [are] not as important as a high school diploma and stuff. You know. And so, uh, I just, I guess I kinda got my act together and I was like I'll go back to school and then I came back to Portal and um, when I came back to Portal I tried really hard last year for like the remaining, the remainder of the school year I tried really hard. . .
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The support from his mom appeared essential in Felix's commitment to return to school and try "really hard." An analysis of Felix's transcript showed that he did try hard, and earned 2.75 credits during the second semester of his sophomore year, almost doubling

the number of credits he had earned up to this point. His success in turn fueled his psychological assets and he was committed to working even harder the following year at Portal, which I will explore in more detail in Part 3.

Portal offered Felix what many advantaged youth receive with their first schooling decision, support for educational achievement, a safe schooling environment, close proximity to home, and a good social fit (Renzulli & Evans, 2005). While Felix became committed to his education as a sophomore, it appeared that the educational support Portal offered him really empowered him to think about his future and graduation. As a result, Felix earned 7.25 credits his junior year while also playing on the basketball team and being a member of the running club. At Portal, he experienced both school choice and academic empowerment.

In summary, Felix transferred five times in his first year and a half of high school and finally achieved empowerment (both school choice and academic) his second time transferring to Portal. He achieved this empowerment when academics became a focus of Felix's and he was afforded the necessary support (or opportunity structures) from a school to achieve academic success. It is also possible that schools that focus on academics, might also address students' other concerns. But until this fifth transfer, Felix experienced false empowerment from school choice as he had the assumption that when he transferred, his schooling experiences would get better. Rather, they often became worse. This false empowerment resulted in disempowerment, as Felix experienced a decrease in level of empowerment when transferring (often moving from Level 3 to Level 2). As a result, Felix experienced the empowerment that comes with choosing to transfer schools but he did not experience any benefit from transferring schools. If Felix

had not experienced so much false empowerment, and therefore disempowerment, as a result of transferring, he may have been academically successful earlier. Luckily, his mother was a strong advocate for the importance of high school graduation and was a source of strong psychological assets; otherwise, Felix's disempowerment from school choice may have resulted in him dropping out of high school.

Discussion

The opportunity structures surrounding school choice allow students to transfer schools whenever and for whatever reason they choose. While this structure may be beneficial at times, there are some nuances that the school choice community does not yet understand, for example, making sense of when engaging in school choice may be helpful, and when it may be problematic. Developing such an understanding would ensure that marginalized youth experience both school choice empowerment and academic empowerment.

The challenges of limited school choice for marginalized youth. The current understanding of school choice is often viewed through the experiences of advantaged, or non-marginalized, students (i.e., Dauter & Fuller, 2016; Fiel et al., 2013). For many of these students, deciding to transfer and engage in school choice is often a nice and neat tidy braid because all of their schooling concerns (e.g., educational achievement, safety considerations, location of school, social fit, etc.) are intertwined and addressed by one advantaged school. Frequently, when these advantaged students do transfer, they are transferring to a better school, one that offers better academic opportunities and social advantages (Fiel et al., 2013). It is also possible that their parents may have engaged in school choice by mortgage before these children were even in school, again with one

advantaged school addressing all of their schooling concerns (Renzulli & Evans, 2005). Therefore, many of these advantaged youth easily achieve Level 3 empowerment (both in school choice and academic empowerment) from their school choice decisions. These schools, in addition to being safe, being in a good location, and being socially a good fit, they often also provide the students with access to productive opportunities to achieve mathematical and academic success. Yet, not all students experience such ease in achieving academic success while engaging in school choice, especially marginalized youth.

When marginalized youth engage in school choice, frequently their concerns are not all addressed by one school. Felix transferred in sixth grade due to concerns of proximity. While the school was near to his home, it did not address Felix's academic empowerment, nor was it very safe as there were fights almost every day. Therefore, when deciding to transfer, a marginalized student may focus on location over academics, among other concerns. For marginalized youth, school choice is not a nice and neat tidy braid with all schooling concerns being met by transferring to just one right school. Instead, marginalized students focus on the most pressing concern and reach Level 2 empowerment, choosing a school. While these students may achieve Level 3 empowerment for school choice empowerment, as the school meets the needs of individual specific concerns (i.e., proximity), it is not the same as achieving Level 3 academic empowerment. For example in middle school, Felix achieved Level 3 empowerment regarding proximity, but he did not have access to productive opportunities to achieve mathematical success (as I will explain in detail in Part 3). As a

result of limited school choice, it is much more challenging and complicated for marginalized youth to engage in school choice.

As Felix demonstrated, it can be challenging for marginalized youth to find a school that improves on their specific concerns, especially social concerns as there are a number of variables that impact this. Thus, engaging in school choice may give marginalized youth the promise of improving their schooling concerns, but the results often fall short, further disempowering these students. Ideally, it should not be the student's responsibility to find a good schooling fit. Society and the opportunity structures that create and maintain neighborhood schools, should be ensuring that all students can choose between good and better schools, not poor and worse schools. Marginalized youth should not have to make schooling decisions based upon proximity, but end up at a "bad" school as Felix did in middle school. Felix, and other marginalized youth, should be afforded with a neighborhood school that addresses all of their schooling concerns and provides productive opportunities to achieve academic empowerment. These students should be offered schooling situations that unify all of their concerns, much as advantaged students are.

Part 3: Mathematical Experiences—Learning Mathematics versus Earning Mathematical Credit

In Part 2, I examined Felix's engagement in school choice. Now, in Part 3, I explore his mathematical experiences at the various schools he attended. I focus specifically on the opportunity structures Felix encountered, his resulting mathematical achievement, and the impact this had on his assets (specifically psychological and mathematical informational assets). Figure 4.3 highlights these aspects within my framework.

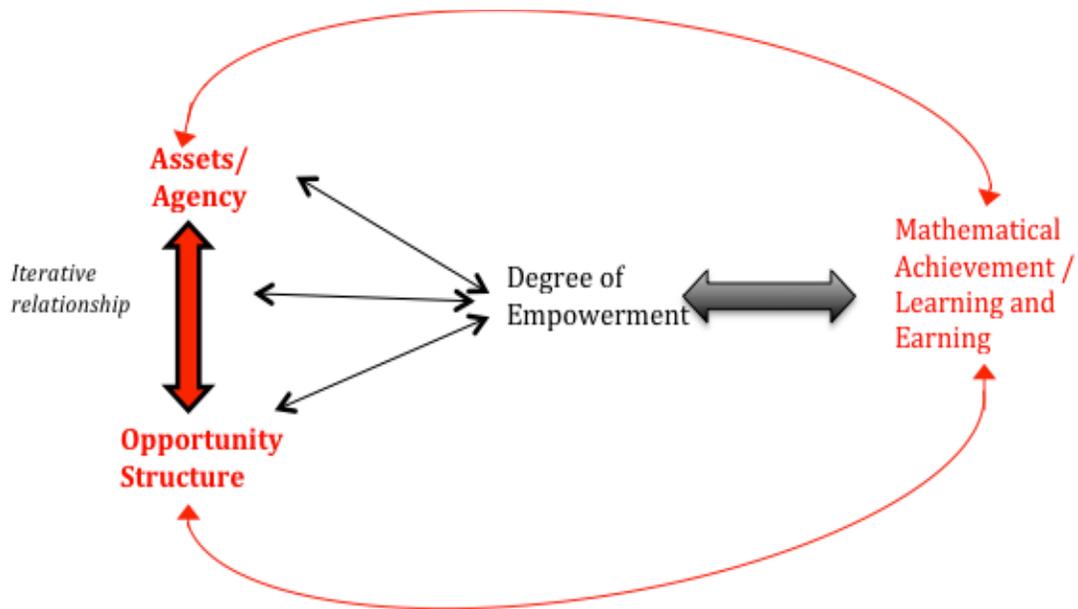


Figure 4.3. Empowerment framework for Felix, Part 3.

There are a variety of experiences students encounter in mathematics class. For example, they may learn mathematics, or they may learn more about social interactions and hierarchies in the classroom. Often the opportunity structures of the class and school influence a student's mathematical outcome. Felix's case offers the opportunity to examine the various outcomes a mobile student may experience when transferring. Specifically, his experiences earning credit and learning mathematics were a key

component of his schooling and mobility experiences. In addition to often feeling disempowered after transferring schools, from fourth grade through tenth grade Felix was often disempowered learning mathematics.

Early mathematical success gives way to long-term challenges. In elementary school, students may be socially promoted to the next grade, even if they are not fully on grade level. With this, learning mathematics and earning credit are supposed to go hand in hand. In theory, students learn a year of math (and other subjects) and are promoted to the next grade level. While students may be held back a year, it is not common—especially if a student is struggling in one area, like mathematics. Therefore, in elementary school learning and earning mathematics are intertwined and entangled factors, creating a specific opportunity structure for learning mathematics. Before fourth grade, Felix was successful within this structure (for whatever reason) and enjoyed math, as he was learning. Here he shared his early experiences learning mathematics:

Pre-interview, lines 282 - 284

282	Felix	28:56.6	I don't know, I think it was just because it was easy. During addition and stuff, I would just do it all in the book. Just like count it with my fingers and stuff, and I just found that really easy. I would always be the first done, so uh, yeah.
283	Jen	29:15.5	And do you remember, like was that what you were suppose to do, count on your fingers? Or was that something that you just found worked for yourself?
284	Felix	29:22.2	It's just something I learned on my own.

He recalled using the direct modeling method of counting on his fingers to complete addition problems (line 282). Early on this strategy of direct modeling and technique of working alone proved successful. Through third grade he was able to learn mathematics, evident by his engagement in mathematics class, and earn credit, as evident by his promotion to the next grade. However, in fourth grade, this structure became

unsuccessful for Felix, and the entanglement of credit earning and learning began to have negative ramifications for his mathematical learning.

Around the end of fourth grade, he recalled his experience with mathematics changing, and he stopped doing much in class as he struggled to learn math:

Pre-interview, lines 246 - 249

246	Felix	25:30.9	My elementary years, I remember I used to be really good at math. That was only like in 1st and 2nd grade and then, and third grade too. I think I got like an award for mathematics or something like that.
247	Jen	25:45.2	Wow.
248	Felix	25:45.8	But then, I remember like 4th grade came and we had to learn about long division and stuff and I don't know why but my brain at the time, it just couldn't handle all of those numbers and um. I don't know if I had, they probably thought I had dyslexia in math.
249	Jen	26:07.6	Oh?
250	Felix	26:08.1	Cause um, I remember I had to go see this one lady, at our school in elementary and she would do these tests on me and stuff like that.
251	Jen	26:23.6	And did they change anything? Or?
252	Felix	26:25.5	Mm-mmm (no).

It is unclear why Felix had trouble learning long division; perhaps his success with direct modeling in his early elementary years no longer served him well in long division and he had yet to build other productive mathematical understandings. Or maybe his fourth grade teacher was not a good fit for Felix. The following excerpt, about fourth grade, supports this possibility:

Pre-interview, lines 459 - 463

459	Felix	46:49.5	. . .I got in trouble a lot too.
460	Jen	46:53.0	Were you acting up or?
461	Felix	46:53.4	No, no, like in trouble, like because I wouldn't understand it or do it.
462	Jen	47:00.7	Oh no, what did that look like, like how did you get in trouble?
463	Felix	47:03.4	Um, she used to yell at me.

Felix recalled getting into trouble because he "wouldn't understand [the mathematics];" this phrasing almost suggests he chose not to learn. As he was successful and engaged in mathematics up until this point, it appears he might have been placing the burden for not learning the mathematics on himself, instead of on other outside influences such as the mathematics changing or the teacher's pedagogy differing from his early teachers. Regardless of the reasons for Felix's struggles, it was clear being yelled at was not a good motivator, especially when he did not understand the mathematics (line 463).

Felix had limited psychological agency because he was being tested for math dyslexia (line 250), an indication his teacher thought he had trouble learning mathematics. In addition, the opportunity structure of this classroom, particularly lacking a patient teacher, left Felix little room for success. Perhaps these are a few of the reasons why third grade was the last year Felix remembered learning anything in mathematics until he was in high school. Yet, due to the entanglement of learning and passing, Felix continued to be promoted each year to the next grade during elementary and middle school.

Mathematical earning empowerment. The entangled structure of promotion without ensuring learning in specific subjects (e.g., math) allows students to be empowered as they continue to be promoted. However, it does not offer full empowerment. In this section, I suggest that such an entangled structure can lead to *mathematical earning empowerment*, successfully earning, or passing, a class with or without learning, as opposed to *mathematical learning empowerment*, success in learning mathematics. For example, even though Felix did not recall learning any math in fourth grade, he was still promoted to fifth grade. Therefore, in fourth grade Felix's

mathematical success was detrimentally impacted by the entanglement of learning and earning mathematic, as while both were implied by promotion, they were not ensured. As a result, Felix began to experience mathematical earning empowerment without mathematical learning. Here he explained how learning mathematics changed:

Pre-interview, lines 253 - 258

253	Jen	26:25.9	. . .how was it [learning] after the long division?
254	Felix	26:30.2	It was still hard. I didn't learn anything after that in math.
255	Jen	26:34.2	Oh, wow.
256	Felix	26:34.2	Yeah.
257	Jen	26:34.8	Just even, in 4 th grade, 5 th grade and middle school?
258	Felix	26:37.9	Yeah. I remember I used to get like ones and twos [on a scale from one to four, with 1 being the lowest] at elementary and then uh, in middle school I would get like all F's in every class.

Even though Felix can't recall learning after 4th grade, he was moved on to the next grade each year. In other words, Felix explained that he neither explicitly learned nor earned credit, yet he implicitly passed math in both elementary and middle school by being moved onto the next grade.

One strategy Felix relied on was to find other things to fill his time with, instead of learning math, during math class. For example, he reported often being on his phone:

Pre-interview, lines 346 - 351

346	Jen	36:46.4	And so, how were classes like in middle school and at these other high schools with math. What did you do in them?
347	Felix	36:53.2	I just um, I just talked to my friends. I was on my phone a lot.
348	Jen	36:57.6	Really, and the teacher never said anything?
349	Felix	37:01.4	Yeah, I would always hide it, I wouldn't take it like, take it out in front of them. Maybe they saw once or twice and took my phone away, but I was always careful, like really careful.
350	Jen	37:12.7	Wow, and so did you just never do any homework.
351	Felix	37:15.9	Naw, [I] never did any homework in my life. In math at least.

This demonstrates how Felix was not engaged in learning math but rather focused on social components of the mathematics classroom and school. It also highlights a specific challenge students might face involving earning and learning. These two concepts become entangled, but one (earning) does not ensure the other (learning). Felix may have believed he was learning enough mathematics because he continued to move along with his peers into the next mathematics class each year. Socially, both in terms of engagement in social aspects of the math class and his social perception that he was sticking with his peers as he was promoted to the next class, Felix was successful in mathematics. The later of these two translated to his mathematical earning empowerment (he was promoted to the next class), but neither positively impacted his mathematical learning empowerment (he did not learn the mathematics in the course). In fact, his social focus, as shown in the transcript above, may have detracted from learning mathematics. There was one year during middle school when he was in danger of being held back. He explained that the school "asked my mom [to retain me], but I told her to say no, cause I just didn't want to be held back, that's embarrassing" (pre-interview, line 278). Felix was never held back a grade during middle school.

What is striking was that Felix had enjoyed learning mathematics until fourth grade when he experienced significant challenges for a number of reasons. At this time, the entanglement of earning and learning in both elementary and middle school resulted in Felix being passed along without learning the mathematics. As a result, Felix's mathematical earning empowerment obscured his overall understanding of his mathematical achievement, as he was not confronted by the fact that he was not learning, a matter I take up in the next section.

The long road to mathematical learning empowerment. The entanglement of learning and earning which may lead to mathematical learning empowerment can be advantageous to students, increasing their psychological assets so they continue to be invested in school. Yet, it can also be challenging to recover from limited mathematical learning once learning and earning are no longer intertwined (i.e., high school). Felix's case offers both the benefit he experienced from earning empowerment and the resulting challenges he faced trying to achieve mathematical learning empowerment in high school. While Felix readily admitted that he did not learn math after third grade, he had mixed feelings as an eleventh grader regarding passing mathematics without learning. Overall, though, he believed it was beneficial for him to solely experience earning empowerment:

Pre-interview, lines 767 - 795

767	Jen	58:15.1	. . . What's the difference to you between learning and passing?
768	Felix	58:42.8	Uh, I think that learning is where you actually know something; you get knowledge of something. And I think passing is just making it through. Just hustling.
769	Jen	59:01.1	And can you learn when you pass? Or are they two different things?
770	Felix	59:04.3	It depends. It depends, sometimes you get lucky, and you just barely pass without actually knowing something.
771	Jen	59:16.2	And that's lucky?
772	Felix	59:19.4	Mm-hmm [yes].
773	Jen	59:20.8	Because it's better to pass than to learn?
774	Felix	59:20.9	Mm-hmm. I think that's lucky.
775	Jen	59:22.5	Why is it better to pass than to learn?
776	Felix	59:23.3	No, no, I actually meant it's better to learn than to pass.
777	Jen	59:28.9	Are you sure?
778	Felix	59:29.4	Yeah.
779	Jen	59:30.4	But, why is it lucky then to pass?
780	Felix	59:32.8	I meant it's lucky to pass, if you don't know something cause some teachers they'll just pass you, when you actually don't know something. Like how I did throughout middle school.
781	Jen	59:49.3	Every class or?
782	Felix	59:50.9	Yeah.

783	Jen	59:51.6	Yeah?
784	Felix	59:52.5	Yeah, They could've easily held me back.
785	Jen	59:56.1	And it was lucky that you passed?
786	Felix	59:56.4	Yeah I think it was luck.
787	Jen	1:00:00.1	And so that's the only reason you got through?
788	Felix	1:00:02.2	Mm-hmm [yes].
789	Jen	1:00:03.2	Okay, but it didn't necessarily help you?
790	Felix	1:00:04.9	Mm-mm [no]
791	Jen	1:00:07.4	Got it got it got it. And what did you prefer?
792	Felix	1:00:12.7	Um, I wouldn't want to be held back. So I think I'd prefer to pass. Right now, I wouldn't care because it's high school. Like everybody, you know, a lot of people go through this [failing a class], but when you're younger and you get held back that looks, it makes you feel bad. You get teased about it.
793	Jen	1:00:36.2	Do you think it would have helped you learn though? And maybe not get behind in high school?
794	Felix	1:00:39.8	It probably would've made me, even more upset and made me want, it probably would've made me stop going to school at a much younger age.

Felix felt it was acceptable to move up a grade when he had not learned the mathematics because it would have made him feel "bad" to be held back in middle school (line 792). Added to this he explained that if he had been held back in middle school, it would have encouraged him to drop out of school at a younger age (line 794). Here he is specifically talking about the positive impact of mathematical earning empowerment on his psychological assets. Even though Felix reported not learning mathematics in middle school, he implicitly passed math, which increased his psychological assets and in turn increased his agency to choose to stay in school.

While achieving mathematical earning empowerment (without also achieving learning empowerment) proved beneficial for Felix in middle school, it also set Felix up for failure when he entered high school. The opportunity structure changed in high school, such that Felix now had to explicitly pass each individual class. No longer were

passing and learning entangled as they had been in elementary and middle school. Rather, Felix had to rely on his mathematical informational assets, and the opportunity structure of the classroom to learn mathematics and in turn earn credit. He struggled to engage in learning mathematics, perhaps as a result of his limited mathematical informational assets and was unsuccessful in earning and learning in his first two mathematics classes in ninth grade, as he did not earn credit and stated that he did not learn mathematics until tenth grade. When he first transferred to Portal during his freshman year, he took the mathematics placement test and earned a score of 13.33%, correctly answering six out of 45 questions. For the first time, he realized how far behind he was in learning mathematics. Until this point, he had felt "lucky" that he was passing, but he was not aware of the full negative impact this was having on his overall mathematical achievement.

What is interesting is that Felix had never felt embarrassed about or, as he explained, even aware of his lack of mathematical knowledge prior to the placement test at Portal. The result was that Felix lacked the informational assets informing him that he was behind in his mathematical learning. Here he commented on this:

Post-interview, lines 384 - 395

384	Jen	30:34.1	And so did you know that you didn't know very much when you were in the other classes, like did it bother you that you had trouble with division or multiplication in other classes?
385	Felix	30:42.1	Never. Never thought about it. Never thought about it.
386	Jen	30:44.3	And why is that?
387	Felix	30:44.9	Uh, I don't know, I never thought about math. I never thought about it.
388	Jen	30:49.8	Even when you weren't passing?
389	Felix	30:50.9	Mm-mmm [no].
390	Jen	30:52.8	It just wasn't something you worried about?
391	Felix	30:54.0	Yeah.
392	Jen	30:56.6	And when did you start worrying about it or thinking about

			it?
393	Felix	30:58.0	When I realized how far I was actually behind on it. And knowing that I actually had to finish something. To do something.
394	Jen	31:09.5	So, it was when, when you did the pretests or the placement test here?
395	Felix	31:14.0	Mm-hmmm [yes].

In not "thinking about math" for almost six years, Felix had "never thought about" his mathematical knowledge. It just was not something he worried about. It took gaining the informational assets from the placement test at Portal for Felix to start thinking about how far behind he was and to realize he had to "do something."

While Felix had a better grasp of his mathematical understanding, this did not help him achieve mathematical success. His limited mathematical informational assets made it challenging for him to engage in learning math, even though the overall opportunity structures of Portal seemed to be productive. Here he talked about his first experience transferring into Portal, during his freshman year, and his specific struggle to understand how little he knew and how many credits he still had to earn:

Pre-interview, lines 124 - 132

124	Felix	10:47.1	I was really, really, really bad in math. I think when I first, my freshman year, when I came to Portal I never got a math credit and when you come here, you take a placement test to see where you are, you know, in subjects like that and for me, I scored low on math. So, they started me on the Purple Book, which is pre-algebra
125	Jen	11:52.3	Okay.
126	Felix	11:53.1	And you just finish that course and then they move you into Algebra I. But, I was so bad in math that I had to take Basic Mathematics, which was the Red Book, which was probably 3rd grade math.
127	Jen	12:04.8	Before the Purple Book?
128	Felix	12:06.1	Yeah.
129	Jen	12:07.0	And that was your =
130	Felix	12:07.3	My freshman year.
131	Jen	12:08.5	Oh, wow.

132	Felix	12:10.3	Yeah, and so yeah. I never even finished that book [my freshman year] either because it was still hard.
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After taking the placement test at Portal, Felix recalled that he was "really, really, really bad in math" and ultimately he was placed into a self-paced course in the Red Book. Felix characterized this basic mathematics class as "third grade mathematics," (line 126), which is somewhat accurate as it began with adding and subtracting single- and multi-digit numbers but moves on to include sections on division, long-division, fractions, percentages, and decimals. Felix's first attempt to pass Basic Math was unsuccessful because "it was still hard" (line 132), meaning he struggled with the mathematical content due to his limited mathematical assets. While he now had the information to know he was behind, he lacked the mathematical informational assets to succeed at first. But through this experience, Felix clearly recognized that he had to both learn mathematics and pass the classes, as these two aspects of mathematics were now separate.

After completing his freshman year at Portal, Felix transferred back to Century. At Century he was motivated and doing mathematics homework for the first time ever, as recounted in Part 2 of this chapter. Most likely, the combination of his informational assets about how far behind he was, the basic mathematical knowledge he gained from working in the Red Book at Portal, and a Geometry teacher who started the year with a review of basic mathematics provided Felix with both the assets and opportunity structures to be successful. However, this success was short-lived as his class schedule was changed, and he was placed in a new geometry classroom where the teacher had started the year right away with the geometry curriculum. This meant Felix found himself two weeks behind, lacking the necessary mathematical informational assets (both from

this and previous years) to be successful in his new classroom. As explored in detail above, Felix was disempowered at Century and transferred back to Portal for the spring semester of his sophomore year.

Felix faced many challenges returning to Portal, as he was further behind in credit earning and found it more difficult to be motivated to take classes that did not help him directly earn the four required mathematics credits he needed to graduate:

Pre-interview, lines 134- 138

134	Felix	12:16.3	Then when I came back um, my sophomore year, last year. They started me in the Red Book, again. And I was kind of mad you know, cause I only had three [total] credits and I had to like start on this Red Book.
135	Jen	12:32.9	That wasn't gonna give you [core] credits?
136	Felix	12:33.8	Yeah, it was gonna give me elective credits, but I needed a core credit. Cause elective credit you can get that easily, but like the core credit, that's the hard part. So, I did that. I still hated it a lot. I think I fought with like every teacher here [at Portal] about math. And I think they almost kicked me out, because I just refused to do anything in my math classes. One day, I remember um, I just ate a bag of chips the whole period and I got in trouble for that.
137	Jen	13:08.0	Oh no. Do you know why? Just cause you were frustrated or.
138	Felix	13:11.9	Yeah, I was really frustrated. I couldn't do math at all. I was probably in a third grade math level at the time, but um, I just remembered working really hard, you know. Even though I still hated it and sometimes fought with the teachers about it, I still managed to just get past it. . .so I finished the Red Book, I finished basic mathematics my sophomore year.

When he returned to Portal, Felix struggled trying to gain access to mathematical information but managed to "finish the Red Book," (line 138) working mostly one-on-one with a supportive teacher at Portal (line 415). In working to finish the Red Book, Felix was fighting both his limited mathematical knowledge and psychological assets, a result of achieving only mathematical earning empowerment for six years. This was an

artifact of the opportunity structure Felix experienced, in both elementary and middle school, which entangled passing and learning.

Felix had to accept that he was behind in math and "do something," but this was a significant challenge, as he had not done much in math for the last six years of school. His limited mathematical informational and psychological assets made it difficult to envision that he could be successful in mathematics. Specifically, Felix often talked about how embarrassing it was to not know much mathematics and for others to be aware of how little he knew:

Post-interview, lines 376 - 383

376	Jen	29:35.4	In the pre-interviews, you said it was embarrassing to be behind in math, why do you think that is?
377	Felix	29:41.5	Yeah because when I first came here, I was in the Red Book. That's below the Purple Book, which is pre-algebra. That's math essentials; you know what I'm saying. The first section is really like 4+8 and stuff. And, looking at what other people were doing it was just embarrassing cause you know some people would be like, "wow, you don't know how to like divide?"
378	Jen	30:18.8	Was that here at this school [Portal]?
379	Felix	30:20.4	Yeah.
380	Jen	30:21.2	And how did you feel?
381	Felix	30:22.8	I felt embarrassed. It was embarrassing.
382	Jen	30:25.5	Yeah, and at other schools did you think about what other people were doing?
383	Felix	30:28.4	Mm-mmm [no], as we were all in the same class. We were all in the same class.

Felix revealed how he would compare the mathematics he was doing with the mathematics of others and felt embarrassed (line 377). Whereas, in other schools everyone was in the same classroom, working to learn at the same level (line 383). The social empowerment Felix experienced by being in a classroom with his peers obfuscated Felix's learning. The opportunity structure of learning and earning being entangled, but

not ensured, allowed Felix to focus on the social component of passing (or earning credit) along with his friends, but diverted his attention away from his mathematical learning empowerment. The change in opportunity structures at Portal increased the comparison of ability between students at Portal and may also have played into Felix's limited psychological assets he faced in completing both the Red and Purple books. Yet, it also set the stage for Felix achieving mathematical learning empowerment and in turn mathematical earning empowerment.

Mathematical learning empowerment. The opportunity structure of high school, which separates learning mathematics from earning mathematical credit, can be a challenging adjustment for students. In fact, students may not be aware of the mathematical work they must now engage in to keep up with their peers who progress to the next class. As a result students may become more aware of how they are mathematically successful (or not) in high school compared to middle school. The opportunity structures of Portal further increased the comparison of abilities in mathematics, as students worked on varying coursework in one class. For example, while Felix was working on the Red Book, the student next to him may have been working on pre-calculus. This structure prevented Felix from feeling like he was keeping up with his peers and made it more obvious that he was behind. It also provided Felix with informational assets about what mathematics he still needed to learn and offered him the structure and support to learn this mathematics. Yet, it was not until he was given an ultimatum that he either had to attend summer school to learn pre-algebra or find a new school that he began to experience substantial mathematical success. Here Felix explained what happened:

Pre-interview, lines 140 - 152 (italics added)

140	Felix	13:52.3	I had to do summer school and in summer school, I would do pre-algebra [the Purple Book].
141	Jen	14:02.2	Okay.
142	Felix	14:02.7	And I told Ted [the counselor], I told him I did not want to come to summer school at all, cause if I didn't, if I missed a lot of the school year, what made him think I would come to summer school?
143	Jen	14:14.3	Right.
144	Felix	14:15.1	He was like, 'oh well you got to, or you got to find another school' and stuff like that. I was like, 'well I don't have a lot of choices left,' you know. There's other charter schools, but they're pretty far and I don't really want to go to another one, so I was like, 'alright, I'll go [to summer school].' So you know, <i>that's when I really started thinking about my future and what I wanted to do and stuff</i> , so I just finished the Pre-Algebra book. <i>I worked so hard in summer school.</i>
145	Jen	14:45.5	That summer?
146	Felix	14:46.3	Yeah
147	Jen	14:47.2	Oh good.
148	Felix	14:48.2	I did like, I started [doing] two chapters a day.
149	Jen	14:49.5	Wow.
150	Felix	14:50.5	Yeah, just to finish it. I finished the whole thing and then um, this year I started, <i>I just came ready to work. I got a lot of credits this year.</i>
151	Jen	15:02.8	Nice.
152	Felix	15:03.4	I finished all of Algebra and I'm about to finish Geometry right now. Hopefully, in a couple days I can start on Algebra II.

Given that Felix did not have too many other choices for schools, he chose to attend summer school at Portal instead of transferring schools. He was successful during summer school and this success translated to increased psychological assets and mathematical informational assets that supported him in "coming ready to work" his junior year. Felix was offered the opportunity structure and then required, by Ted and in turn the school, to make use of it to further his mathematical learning.

Felix only earned elective credit, rather than mathematics credit, from completing Pre-Algebra, as the content and skills were at the middle school level. However, he

achieved mathematical learning and thus experienced mathematical learning empowerment. Felix's goal to graduate and the clear personalized opportunity structure at Portal gave him the psychological agency he needed to become more mathematically empowered. As he learned the mathematical skills he needed during summer school, the following school year he was able to learn the content from both Algebra I and Geometry as well as earn the core credit for these classes (line 152 and school transcript).

For the first time since third grade, Felix experienced both earning and learning empowerment. It is not surprising that when I asked Felix when he most enjoyed learning mathematics, he answered it was his junior year at Portal (the year of this study). This was the year he became mathematically empowered. He explained, "after [I] finished Pre-Algebra in summer school that's when it started to make sense. That's when [I] could apply like what [I] learned in Pre-Algebra to Algebra 1" (pre-interview, line 387). Here Felix articulated that he enjoyed math because he was able to apply his mathematical understanding from Pre-Algebra to Algebra 1. This is a right all students should have, being able to apply previous knowledge to gain further knowledge. Yet, Felix had been denied this right, as he had not been learning math since 4th grade, but rather being passed along without gaining mathematical knowledge. Again, this was an artifact of the entanglement of learning and earning credit in elementary and middle school.

Why full mathematical empowerment now? Essential opportunity structures.

Finally, I briefly explore why Felix was able to re-engage in mathematical learning. Felix's experiences point to the importance of not only passing math but also learning math for mathematical empowerment. The impact of Felix being falsely empowered in mathematics began his slow decline from skipping full days of school and ultimately

days and weeks of school. As a result, Felix came near to dropping out of school and earning a GED. Luckily, he had the familial asset of his mother to both "ground him" (punish him) and push him to work harder in school, working towards earning a high school diploma. Then Felix transferred to Portal, which provided him with the opportunity structure to ultimately become mathematically empowered both in learning and credit earning.

As a junior, Felix blamed himself for his earlier challenges learning mathematics explaining, "I think it's just, my lack of effort that I was giving in math. You know not paying attention. Uh, I think it started in elementary though. That fourth grade year" (pre-interview, line 453). Whereas, when explaining his mathematical success his junior year, Felix compared the opportunity structures at Portal to a local, competitive, college-preparatory high school (which he would not have been able to enroll in due to his prior school failures). He stated that, "If you fail [at the college-prep high school] they kick you out. . .you have to work hard," explaining that it was the same at Portal (if you fail they kick you out) and this opportunity structure, "it makes you feel smart" (post-interview, lines 822 - 828). Here Felix was comparing the high expectations at Portal with similar expectations at an elite school, which in turn made him "feel smart."

While at first Felix found this opportunity structure at Portal to be difficult, ultimately it provided him with the opportunity to experience true empowerment and not a false empowerment of being passed along. Felix both learned math and earned credit at Portal, explaining the importance of not being able to choose to fail:

Pre-interview, lines 232 - 236 (italics added)

232	Felix	23:38.2	They're [the teachers at Century] willing to help you, but at the end of the day, it's your choice. But right here, here at this school [Portal], like <i>it's not a choice</i> . You know [laughs]. And you know. <i>It's like you don't get to choose. If you fail you can't come here</i> , cause that's what this school is about you know, <i>it's about moving forward</i> , you know. Why would you come here if you're already doing bad and then you continue to do bad, you know cause, at this school, at this school they just want to help you. So, that's what, those are the differences that I've noticed. Um, like right here. This school is not, <i>you don't get to choose to fail, it's just not an option</i> .
233	Jen	24:27.1	Nice.
234	Felix	24:27.1	I think that's good you know. I think that's why, most people really, like once they come here. I think that's why most people really like uh <i>move forward and start doing better because this school actually helps them</i> .
235	Jen	24:44.1	Great.
236	Felix	24:44.7	<i>You actually learn too. I thought that I would never learn anything in math and I learned a lot.</i>

Felix saw the fact that he could not fail as what supported him to "move forward." He no longer had the choice to fail, something he had a choice over at each other school he attended. In fact, he even had the choice to be promoted (by convincing his mom) in middle school when he had not learned the coursework. But at Portal, he *had* to take two math elective courses to learn the mathematics he needed to be successful, before he could even begin the core math courses. To do this, he *had* to attend summer school and pass in order to stay enrolled at the school. He saw these opportunity structures, and the support of the staff, as what did not give him a choice to fail. In the end, he surprised himself and "actually learned" math too.

The entanglement of learning and earning created challenges for Felix in becoming mathematically empowered. Felix was passed along and experienced earning empowerment, which obscured his understanding of how little mathematics he earned.

As the opportunity structure changed in high school, with earning and learning becoming separate considerations, Felix struggled to earn or learn. Given the specific opportunity structure of Portal, where he was not given the option to fail, Felix finally achieved both learning and earning empowerment.

Discussion

In this section, I examined how learning mathematics and earning credit can either be entangled or separate factors of mathematical success throughout a student's educational experience. For example, in middle school learning and earning are entangled, as students do not pass individual courses, but rather the entire grade level, sometimes resulting in promotion without learning mathematics. I also explored how this entanglement in kindergarten through eighth grade, and the later separation in high school, can impact students' future mathematical empowerments. Felix's case is a particularly illustrative example of both the entanglement and separation of learning and earning, as well as the successes and failures related to these.

The importance of both learning and earning empowerment. Specifically, Felix's case offers an opportunity to revisit and revise my empowerment framework. In theory, mathematical empowerment should increase a student's assets, specifically increasing their mathematical informational assets. In turn, these assets and increased agency would provide the student with future mathematical achievement (represented by the original, or black, double-headed arrow in the framework between mathematical achievement and agency). Yet, from fourth grade through tenth grade, Felix often had a one-way arrow from mathematical achievement to assets/agency, as his mathematical earning empowerment only impacted his psychological assets in moving up a grade and

did not offer the mathematical informational assets that are cyclic (represented by the double headed arrow) (see figure 4.4). As his informational assets were not increased by mathematical earning empowerment (as a result of his achievement passing math class), his psychological assets were negatively impacted when earning and learning became separated factors in high school. It was not until Felix experienced the opportunity structure of Portal, a second time, that he was able to achieve the (original) double-headed arrow indicating full mathematical empowerment (both earning and learning).

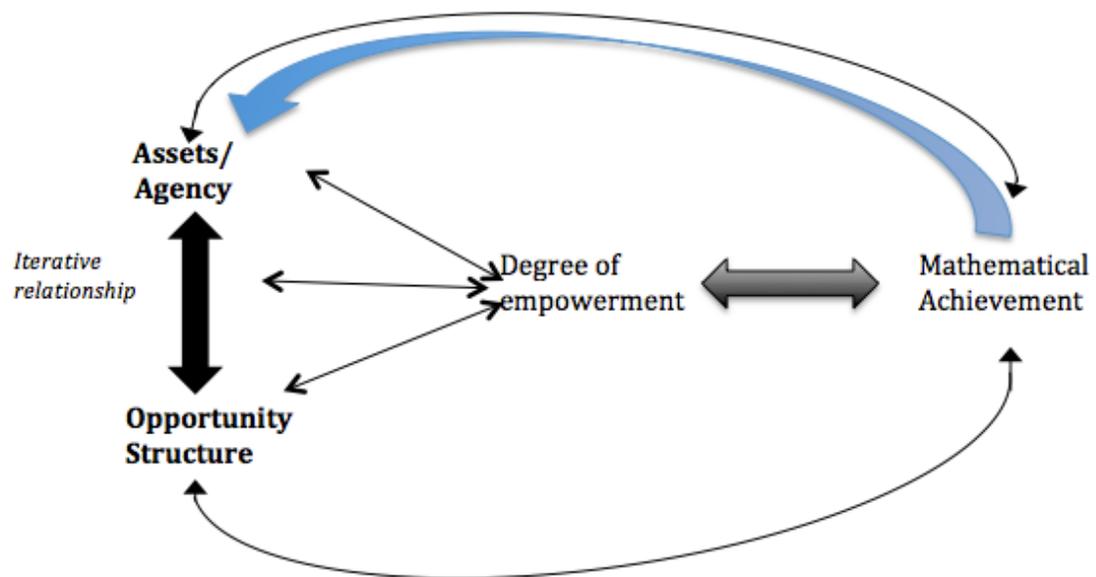


Figure 4.4. Modified Empowerment Framework, taking into account learning and earning empowerment

Felix's case demonstrates experiencing only earning empowerment in middle school may be better than nothing, as it helped him stay in school (and not drop out). This highlights the short-term benefits of mathematical passing empowerment, offering psychological assets of keeping up with classmates during the school years when passing

and learning are entangled, but limiting psychological and mathematical assets during school years when passing and learning are separate.

In summary, over the course of Felix's school experiences he recounted enjoying mathematics before fourth grade and again in eleventh grade. During these grades, Felix experienced both learning and earning empowerment, thus highlighting the importance of achieving complete mathematical empowerment. Therefore, Felix's case illuminates the importance of high school students achieving both earning and learning empowerment. It also highlights the importance of students experiencing schooling opportunities that offer the opportunity structures necessary for them to recover from possible years of solely experiencing mathematical earning empowerment.

This close analysis of a student's mathematical empowerment allows for a better understanding of the impacts of: the opportunity structures related to how students pass courses (implicitly or explicitly); the entanglement of learning and earning throughout elementary and middle school; the separation of learning and earning in high school; the resulting informational and psychological assets; and ultimately the student's mathematical empowerment, achieving Level 3 empowerment (earning and/or learning). Felix's case highlights the importance of helping marginalized youth re-engage in mathematical learning in high school as the opportunity structure changes; specifically, earning and learning are no longer intertwined. This is especially important for marginalized youth as they often attend elementary and middle schools where mathematical learning opportunities are reduced (Sattin-Bajaj, 2012). Additionally, it is of particular concern for highly mobile students whose mobility may mean that they

have even fewer mathematical information assets, ensuring that they find a school that supports them in this re-engagement of learning mathematics and earning credit.

Mathematical learning and school choice engagement. Highly mobile, marginalized youth face a school system that puts them in double jeopardy for dropping out. Unfortunately, from upper elementary through middle school, Felix did not receive equitable mathematics instruction, as he was passed along without learning mathematics. As Felix became highly mobile during his first year and a half of high school, this limited empowerment only intensified, and Felix was left believing he would never learn mathematics. When he transferred to Portal a second time, he was finally able to become mathematically empowered both in terms of learning mathematics and earning mathematics credit. Felix was finally mathematically successful at this credit-recovery school, but that does not mean this was the only type of education he was suited for. Rather, it indicates that he was failed by school choice and was forced into a situation where a credit-recovery school was what he needed. This highlights the concern of the limited schooling options highly mobile, marginalized youth encounter.

Felix recounted he was given an ultimatum—he could either attend Portal's summer school, passing math, or find a new school to attend. At this point, his choices were further limited and his concerns for schooling had become intertwined (he wanted a safe, nearby school where he could be academically successful). When his schooling choices were limited, his school concerns intertwined, and his mathematical learning supported, Felix had finally encountered the trifecta necessary for his success. Understanding Felix's case offers insights into how charter schools and district schools may support marginalized, mobile youth in being successful earlier.

CHAPTER 5: PERSISTENCE IN ADVERSITY, THE BENEFITS OF NEW CHANCE TRANSFERS AND THE LIMITATIONS OF PROCEDURAL UNDERSTANDING

"I'm gonna do it. It's gonna take me a while and I'm gonna struggle, but I'm gonna graduate." (Sofia, Post-interview, line 339)

Overview

This second case, building on the case of Felix, presents the experience of another student, Sofia, whose experiences transferring schools challenges the current categorization of transfers (i.e., reactive or strategic transfers). Additionally, the case of Sofia builds further understanding of the difficulties highly mobile, marginalized youth face learning mathematics.

This chapter is broken into three distinct parts. Part 1 offers an introduction to Sofia, including her mobility experiences and familial assets. Part 2 explores Sofia's experiences transferring schools, the assets she utilized to transfer, and why these transfers should be classified with new terminology. Part 3 highlights the impact of the opportunity structures Sofia experienced in mathematics classrooms and her resulting view of mathematics as a procedural discipline. I conclude Part 3 by discussing the implications of Sofia's experience engaging in school choice and mathematical learning.

Part 1: Sofia

In Part 1, I offer background on Sofia, including her assets and the opportunity structures she experienced, as well as her mobility experiences. Figure 5.1 highlights these aspects within my framework.

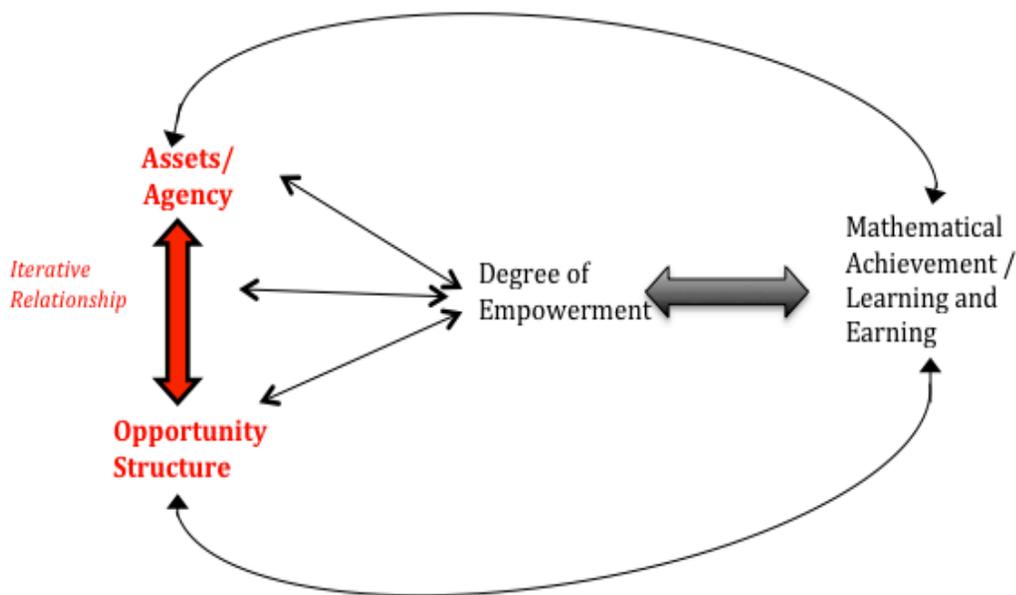


Figure 5.1. Empowerment framework for Sofia, Part 1.

Sofia, a bilingual Mexican-American, was a sixteen-year-old sophomore at the time of this study. She explained that her mom "talked to [her] in both English and Spanish when [she] was a kid" (pre-interview, line 9), but that Spanish was her primary language until she started school and began to learn English. She recalled needing glasses for as long as she could remember, but not acquiring them until sixth grade (post-interview, line 14). Sofia lived with her mom and younger sister until eighth grade, when she and her sister moved in with their maternal grandparents. Sofia did not talk about her father. Sofia was very family-oriented and often spent time with her "Tia" (her mom's sister). She spent her other free time watching TV and playing with her dog. Sofia also reported that she smoked pot most days, which played a significant part in her educational story. She liked to garden, especially at the school garden of King's Academy during the first semester of her sophomore year. Her grandparents also gardened, and she

would occasionally help them with the garden at home. Sofia was determined to graduate from high school, and after graduating, she had several aspirations, including becoming a nurse, owning her own business, or working at her relatives' tax company in California (pre-interview, lines 705 - 709).

Mobility experience. Similar to Felix, Sofia had minimal school mobility until high school. Sofia attended her neighborhood elementary school, Franklin, from kindergarten to fifth grade. She intended to transfer to the neighborhood middle school for sixth grade, but due to decreasing enrollment, her neighborhood middle school and elementary school combined, creating one school, Franklin-Benton. Because of the school mergers, Sofia had a *very* stable schooling trajectory until the middle of her seventh grade year. At this time, she was suspended for two months because she was "caught with drugs" (pre-interview, line 51). Sofia finished up the school year passing seventh grade at Franklin-Benton despite her two-month suspension. Yet, her mom thought it was important for Sofia to transfer schools the following year to get her away from the environment and her friends at Franklin-Benton.

Sofia successfully transferred to Summit Middle School for eighth grade. However, Sofia's mom was deported during this school year and in turn, Sofia's home stability was dramatically shaken. Sofia and her sister moved in with their grandparents and Sofia's mom encouraged her to attend high school, "wherever [Sofia] felt most comfortable," and since Sofia "had family at South West High. . .that's where [she] went" (pre-interview, line 69).

Sofia and her family learned of a charter high school, King's Learning Academy, associated with her sister's new middle school. Because the school was smaller and

closer to her home, Sofia decided to transfer, explaining, "It looked like a good school since it was just a little bit of people and everything, so I had, I wanted to go there" (post, line 166). Sofia also thought it was a credit-recovery school where she would be able to catch up on her credits. This is a testament to Sofia's awareness of her progress in school; while she had earned five credits, her freshman year (a very typical number to earn), she recognized that she was behind in math and social studies.

Sofia was happy at this school. However, at the end of her first semester here, a teacher reported that she "smelled like weed" (pre-interview, line 173). This surprised her because, despite the stated rules, there were many students who came to school smelling like weed. This was her second drug offense in her educational career, and as a result, she was expelled a few days before the first semester ended. Sofia learned about Portal from a cousin and went to the school on her own to register. Sofia had been attending Portal for two and half months when my study began and was "trying to catch up on most of the credits" she could and then hoped to transfer back to South West High School so she could graduate with her class (pre-interview, line 686). The following table is a summary of Sofia's school trajectory [see Table 5.1] and may be helpful to refer back to, as I, again, do not necessarily report my findings in chronological order.

Table 5.1
Sofia's School Trajectory

School	Reason for Move	How they found out about school
Franklin District Elementary School (K - 5)	NA	Neighborhood School
Franklin-Benton District School (6-7)	Franklin Elementary and Benton Middle School were combined.	Neighborhood School
Summit District Middle School (8)	Mom did not like friends she was around.	Unknown
South-West District High School (9) Algebra (F)	High School	Had family at South-West High
King's Learning Academy, Charter High School (10th grade) Aug - Dec Geometry (F)	Smaller school and near house	Sister registered for the connected middle school and they told Sofia about the high school
Portal Charter High School (Jan - End of study) Algebra (Incomplete)	Expelled from King's Learning Academy	Cousin

Familial assets and resulting resources. Sofia faced a number of challenges in being successful in school. Here, I briefly discuss Sofia's familial and social assets. As Sofia was very family-oriented, her family provided Sofia with many assets (i.e., being offered a job, upon completion of high school, as a secretary at her aunt and uncle's tax business). Yet, at other times Sofia and her family lacked many of the assets typically used by more advantaged families, or so-called traditionally defined assets, for success in school and society (i.e., money, legal status in the US, etc.). Here it is important to note that these traditionally defined assets, which Sofia's family lacked, took meaning only

because of the system and opportunity structures surrounding schooling and structures available to Sofia. For example, had there been high quality, nurturing high schools in every neighborhood, Sofia would not need the financial assets necessary for transportation.

Part 2: School Choice Experiences—Moving Beyond the Dichotomy of Strategic and Reactive Transfers.

In Part 2, I further explore Sofia's experiences transferring schools. I focus on Sofia's assets and the positive outcomes she experienced upon transferring. I conclude by suggesting why these transfers should be categorized with new labels not currently used in school choice research. In this section, I specifically focus on Sofia's assets/agency, the opportunity structures she encountered, and the resulting outcome. Figure 5.2 highlights these aspects within my framework.

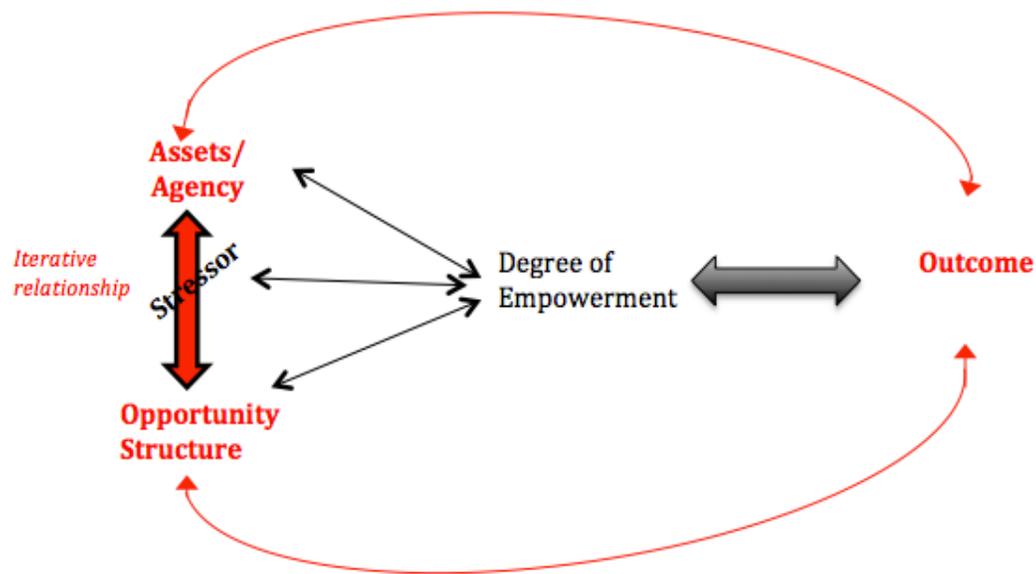


Figure 5.2. Empowerment framework for Sofia, Part 2.

In the diagram, I have replaced “Mathematical Achievement” with “Outcome,” as in this section I will be focused on Sofia's general outcomes from transferring school, not just those specifically related to mathematics. I will use Sofia's resulting transfers to suggest that she experienced both *new chance transfers* and *strategic, non-academic transfers* instead of reactive transfers.

Sofia's new chance transfers. The majority of school choice research dichotomizes school transfers into two categories: strategic and reactive. Several researchers (Fiel et al., 2013; Hanushek, Kain, & Rivkin, 2004; R. W. Rumberger, 2003; South, Haynie, & Bose, 2007) have begun to delve into understanding these transfers (Fiel et al., 2013). Reactive transfers are often defined as "school moves to get out of poor or dangerous situations" and often include academic or disciplinary troubles (R. W. Rumberger, 2003, p. 10). In a reactive transfer, improving the student's schooling experience is not a factor in the transfer; therefore, transfers resulting from home moves are often included in this category. In contrast, strategic transfers are often defined as school "moves to improve [the student's] educational prospects" and occur when a family chooses to find a better fitting or more challenging school, with schooling being a top reason for the move (R. W. Rumberger, 2003, p. 10).

Given the limited amount of qualitative research on the topic, Sofia's experiences engaging in school choice add nuance and complexity to this simplistic, dichotomized categorization that unfairly delineates marginalized youth to primarily engaging in reactive transfers due, in a large part, to the poor schooling opportunities they often face. Sofia's two transfers after she got into disciplinary trouble for drug use would be classified as reactive transfers. However, rather than focusing on why students such as Sofia needed to transfer, we can learn much more about school choice for marginalized youth by focusing on how they select schools to transfer into and the resulting outcome. In particular, Sofia engaged in transfers that offered her a *positive turning point*, defined as "a change in trajectory, pointing to a break in the sequence which leads from the past to the future" (Yair, 2009, p. 353). Therefore, I suggest a new term to capture a transfer

that is a positive turning point, *new chance transfers*. As the name suggests, these school moves offer students a break in their current schooling sequence and often lead to a positive educational outcome.

In the sections that follow, I use Sofia's case to illustrate two new chance transfers and then, after the description of the transfers, I analyze the assets that enabled these transfers.

New chance transfer #1. Throughout her first seven years of school, Sofia was a stayer. It may have benefited Sofia to move earlier, as she faced several inadequate schooling situations including, but not limited to "no math teacher" for several years, being placed in the ELD class in fifth grade with limited mathematical support, and the merging of two neighborhood schools. Yet, Sofia persisted in her neighborhood school. School choice researchers may explain Sofia's decision to "stay" as a result of her limited personal assets and/or of her family's understanding of what makes a "good" schooling situation. However, Sofia was safe at this school. She had friends, and the school was close to her home. Perhaps due to these reasons, Sofia and her family decided to keep her enrolled at Franklin/Franklin-Benton.

However, after Sofia was suspended for two months during seventh grade, her mom decided it was time for Sofia to transfer schools for eighth grade. This disciplinary trouble might have been the last straw in her mom deciding that Franklin-Benton was no longer a "good" school for Sofia. Therefore, while her trouble coincided with a transfer, the transfer offered Sofia a new chance to succeed in school, especially since her mom had thoughtfully found a school, Summit Middle School, with productive opportunity structures.

Sofia explained that her mom had two specific reasons for the transfer:

It was both because, this was a self-contained class and my mom was like, 'okay you've never been, your gonna go to high school next year, [and] you have no idea how it would be, to be moving classes and stuff.' She's like 'this would be a good school.' And then I would, she didn't want me to get in trouble again because of all my friends and she wanted to get me out of that environment too (post-interview, line 120).

Sofia's mother recognized the negative situation Sofia was facing at Franklin-Benton and wanted to remove her from the negative influence of her friends. Sofia's mom took this opportunity to be very forward facing and consider what other aspects needed to improve to ensure her child's academic success (i.e., changing classes each period).

This new school allowed Sofia to be successful. The outcomes of her transfer were overwhelmingly positive. For example, she explained that "the teacher's the math teacher," meaning that the math teacher knows math, and she "learned a lot from that teacher" (pre-interview, lines 391 & 393). While Sofia and her family were prompted to make the decision to transfer schools because of a negative event, through her mom's careful consideration this new chance transfer resulted in a very positive outcome for Sofia.

New chance transfer #2. The second example of Sofia engaging in a new chance transfer occurred after her expulsion from King's Academy. Sofia explained that she had to leave King's Academy because she "smelled like weed" (pre-interview, line 173). This transfer out of King's Academy was a school enforced transfer, as she was expelled, and as such would be considered a reactive transfer in the current classification system. Yet, Sofia used this opportunity to find another school that would improve her schooling experience.

Sofia relied on her cousin to learn about Portal. Here, Sofia explained why Portal was a good decision for her:

Pre-interview, line 178 - 181

178	Jen	11:09.5	And then how did you find out about Portal?
179	Sofia	11:13.7	My cousin Josephina. She comes here.
180	Jen	11:14.7	Okay.
181	Sofia	11:15.4	And she told me about it and then when I went to . . . they had took all my credits away at the King's Academy when I got kicked out. So, I needed to catch up on credits, so I have to go to, I decided to come here to get my credits faster because I lost all of my credits. . .

Sofia was committed to graduating high school and recognized that she needed to purposefully select a new school that would allow her to catch up on credits because she "lost all of [her] credits" from the first semester of her sophomore year when she was expelled. Through her cousin, she learned that at Portal she could "get [her] credits faster." In addition to this, many of the opportunity structures of Portal further supported Sofia in being academically successful. For example, the location of the school was close to her home, and she could select to attend the afternoon session, thus decreasing the likelihood she would sleep through her morning classes. Additionally, she was motivated by the school's policy of having to make-up every school hour she missed, and she would often choose to attend school instead of ditching to hang out with her friends (Post-interview, line 549). While Sofia was forced out of King's Academy, she purposefully chose a school that would not only support her in having better attendance, but also allow her to earn credits faster, supporting her goal of graduating high school. Therefore, this transfer should be considered a new chance transfer as the outcome of the transfer improved Sofia's schooling experience.

Further evidence of Sofia's mom (and family) as an asset. Several assets afforded Sofia the chance to engage in these two new chance transfers. She often talked in detail about the conversations she had with her mom regarding her educational progress. Here is one such example of conversations Sofia had with her mom:

Pre-interview, lines 688 - 695 and 698

688	Sofia	55:35.1	. . .I'm trying not to be a super senior [graduating senior after five years of high school] cause my mom's like, she asks how many credits I had and I was like 5 and a ½ [as a sophomore]. She's like you're gonna be a super senior, I was like no am I not. I'm not gonna be a super senior.
689	Jen	56:04.8	Does she ask you about school often?
690	Sofia	56:04.9	Yeah, like she's not happy about it, she's disappointed.
691	Jen	56:10.5	Oh no, and does she give you any tips or advice?
692	Sofia	56:13.0	She just tells me to work hard and it would get me somewhere in life, like I'm gonna use it.
693	Jen	56:17.7	Right. Right. And do you believe her?
694	Sofia	56:19.3	Yeah but, she gets mad because I throw it in her face a little, like "what you didn't graduate, so why do I have to graduate?"
695	Jen	56:28.6	Yeah, I bet that's hard for her.
698	Sofia	56:29.8	I stopped it though, cause like you had me, so it wasn't your fault.

Sofia's mom did not graduate from high school because she was pregnant with Sofia her junior year (line 698). Perhaps as a result, her mom was a large resource of motivation for Sofia, and in turn, a large resource for improved psychological assets, in talking with her about graduation and the number of credits she had earned (line 688). They talked about their concern of Sofia becoming a "super senior," a senior who is in her fifth year of high school (line 688). This is a concern as Sofia may struggle to stay motivated to graduate that fifth year as classmates have finished high school and are off getting jobs. Instead, her mom was hoping to motivate her to graduate on time. Additionally, Sofia recounted that when she visited her mom, "She tells me like you gotta do good because you're about

to be 18 and come on, like I'm not gonna be supporting you for the rest of your life" (post-interview, line 321). With this, Sofia's mom offered Sofia reasons for graduating; i.e., that graduating high school will get her "somewhere in life" (line 692).

These conversations with her mom demonstrate the psychological assets Sofia's mom offered Sofia to both engage in new chance transfers and stay motivated to graduate from high school. Additionally, these conversations further demonstrated the attention Sofia's mom placed on Sofia's education, ensuring both that she had a productive schooling environment to be successful, and the psychological assets necessary to engage in these new and more productive opportunity structures. In summary, Sofia's mom was an important asset in creating the opportunity for this new chance transfer. Not only did she want to give Sofia a new chance to do well in school, but she also provided Sofia with the assets necessary to make the most of these new chances.

Sofia's determination to graduate may have been a result of her mom, and other family members, not having graduated. In her own words, she explained she wanted to graduate "Because my mom never graduated, like none of her brothers or sisters graduated" (post-interview, line 329). Sofia was able to rely on the inter-generational family support (Aaltonen & Karvonen, 2015), explaining, "Yeah, my family, most of them didn't graduate. But now they're [the family] more strict on their kids, which are my cousins and stuff like that, and they [we] have to do it [graduate]" (post-interview, line 527). Sofia had a family that valued and supported education. While the previous generation did not graduate, Sofia explained that they did expect her to graduate. This valuing of and importance placed on education was powerful and most likely provided Sofia with additional assets to stay motivated to graduate.

Sofia's determination as an asset. Perhaps, given the crucial support of her mom, Sofia was determined to graduate stating, "I'm gonna do it, it's gonna take me a while and I'm gonna struggle but I'm gonna graduate, cause I mean you need your diploma, and I don't want a GED" (post-interview, line 339). Sofia further demonstrated her determination when her grandparents said she should drop out of school following her suspension at King's Academy:

Study Session 12, lines 9 - 19

9	Sofia	00:48:46.48	. . .They were gonna make me drop out, because I had got in trouble. Like this was my second time getting in trouble at the school.
10	Jen	00:48:50.64	Who was gonna make you drop out?
11	Sofia	00:48:51.91	My grandparents.
12	Jen	00:48:52.07	Oh really?
13	Sofia	00:48:52.80	Yeah, and I was like, "no I want to go to school."
14	Jen	00:48:58.93	Wow, and why were they gonna make you drop out?
15	Sofia	00:49:03.92	Cause they said I wasn't like trying in school and I was just wasting people's time.
16	Jen	00:49:07.33	Hmmm. Did you convince them that you were gonna try.
17	Sofia	00:49:10.58	Well, I was like "no, like I'm gonna go to school cause I'm gonna finish school" and they were like okay. (I'm just gonna sign myself up.)
18	Jen	00:49:16.13	You signed yourself up?
19	Sofia	00:49:17.99	Yeah, I came for the paperwork and everything and like I just made her [grandma] sign everything out.

While Sofia's grandparents were the ones to enroll her in King's Academy, they were also the ones to tell Sofia to stop wasting everyone's time and drop out when she was expelled from King's Academy. Sofia informed her grandparents she was going to go to school, stating "I'm gonna finish school" (line 17). To demonstrate how committed she was to graduating high school, Sofia found a new school, Portal. She went to the school alone and completed the orientation process. Perhaps Sofia's grandparents were offering tough love to motivate Sofia to start taking school more seriously, but more likely the larger

support of her mom motivated and inspired Sofia to continue to work towards graduation. Wherever Sofia's psychological assets derived from, it is clear that her determination to graduate was an important asset in transferring to Portal.

In summary, school choice offered Sofia the chance to make purposeful choices to transfer to new schools with productive opportunity structures. These purposeful choices to improve her educational experience signified Sofia's engagement in new chance transfers. At Summit Middle School and at Portal, she was able to successfully engage in academics, including mathematics. Therefore, while the reason for the transfers were negative (suspension and expulsion) the outcome of the transfers was positive.

Strategic, non-academic transfer. As explored in the previous section, by utilizing the current school choice labels for transfers, reactive and strategic, many nuances are hidden. Earlier, I highlighted the importance of examining the nuances surrounding a transfer, specifically examining the outcome of a transfer. In this section, I explore the importance of identifying and better understanding the reasons for a strategic transfer.

Strategic transfers are defined as "moves to improve a [student's] educational prospects" (R. W. Rumberger, 2003). This definition does not necessarily limit strategic transfers to improved academic prospects, yet school choice research often assumes, perhaps unfairly, that the improvement is an academic one (e.g., Fiel et al., 2013). The case of Sofia offers yet another example challenging this simple dichotomy of school choice labels, as she offers the importance of a *strategic, non-academic transfer*. Here, I define a strategic, non-academic transfer as a purposeful school move that improves a

student's educational experience for reasons outside of scholastic concerns (i.e., social support).

Youth face a number of challenges, or stressors, while they also work to be academically successful. Here, I will use the term *stressor* to identify "problematic external circumstances and experiences apt to challenge people's adaptive capabilities" (Dupéré et al., 2014, p. 13). These can be discrete events (e.g., being expelled from a school) or long-term challenges (e.g., Sofia's mom being deported). As shown in Figure 5.2, stressors occur when one faces opportunity structures that are the result of limited assets (e.g., mom's deportation due to the limited opportunity structures that surround avenues for citizenship in the US) or when one's assets limit opportunity structures (e.g., not having access to high-performing neighborhood schools). For example, a student may face his parents' divorce, a parent's imprisonment, or the death of a parent. These stressors may limit a student's access to familiar assets and therefore impact a student's ability to engage productively in school for a time. This situation may warrant special attention to a student's educational experience outside of academic achievement. Unfortunately, marginalized youth face a greater risk for encountering these stressors due to limiting opportunity structures and limited assets (Dupéré et al., 2014). Here, I explore one significant stressor Sofia faced, her mom's deportation, and the result it had on one of Sofia's school choice decisions.

Mom's deportation. The opportunity structures that guide the rules and regulations for obtaining legal status in the US assume a great many things. For example, the assumption is that individuals will have the time and resources to obtain legal entry before coming to the US. However, due to many factors including the poor economic

realities of neighboring and nearby countries, this is not always possible. The conflict of reality and regulations can create many hardships for families, as the structures offer limited pathways for people like Sofia's mom to acquire legal status. The case of Sofia offers insights into how this may specifically impact a family as well as a student's engagement in school choice.

As mentioned earlier, Sofia's mom was deported when Sofia was in eighth grade. While Sofia's mom had lived the majority of her life in the US, she had not attained official permission to enter and live in the country. As a result of her mom's deportation, Sofia faced a major and long-term stressor (e.g., Brabeck & Xu, 2010).

Sofia and her sister moved in with their grandparents (their mother's parents). Her grandparents worked to provide her with a stable home; however, Sofia did not turn to them for academic guidance. Her mother continued to provide this support from afar. They talked on the phone nearly every day. In addition, Sofia visited her mom in Mexico at least every third weekend during the school year and spent the summers in Mexico. Given the support Sofia's mom offered while they lived together, it is not surprising that Sofia's mom continued to be a tremendous asset for supporting Sofia's education.

The resulting strategic, non-academic transfer. Sofia's mom was deported just as Sofia was moving to high school. Sofia turned to her mom for help in deciding which high school to attend. Sofia's mom encouraged her to attend high school, "wherever [Sofia] felt most comfortable" (pre-interview, line 69). This advice is in contrast to her earlier advice about transferring to Summit Middle School. Sofia's mom selected Summit because it would be more like high school and was a "good school." Her mother's advice to go where she felt most comfortable suggests her realization that this was a time to

support Sofia in staying engaged and comfortable in school. Sofia decided to attend South West High because she had family there (pre-interview, line 69).

This transfer was not in any way reacting to a negative situation at a school; rather, it was a purposeful transfer seeking to further support Sofia through a strategic school transfer due to a long-term stressor, her mom's deportation. As this transfer was not motivated by academic concerns, it would be labeled a reactive move. However, this transfer provided Sofia with important ways to maintain her educational engagement. Specifically, it was a purposeful transfer in helping her build a support structure, as being near family can be important during challenging times. In summary, this transfer was purposefully made to help Sofia maintain her psychological and social assets and offer her the support she needed to continue engaging in school. Thus, it warrants the label strategic, non-academic transfer, to capture these nuances and the agency both she, and her mother, exhibited in purposefully choosing to transfer to Southwest High.

Discussion

In this section, I explored the details of transferring above and beyond labeling a transfer reactive or strategic. This simple dichotomy of reactive/strategic limits insights into marginalized youths' agency in transferring, especially when considering that researchers have constructed these categories and then found reactive transfers to be more common among minority and low SES families, and strategic transfers are more common among White and higher SES families (Fiel et al., 2013; Powers et al., 2012). Added to this, researchers have found (perhaps as a result of this dichotomy and negative framing of marginalized youth) that students who engage in reactive transfers are more likely to experience negative academic impacts from the transfer; whereas, students who engaged

in strategic transfers were more likely to experience positive academic impacts (R. W. Rumberger, 2003). These research findings seem to be self-supported in the definition of reactive and strategic transfers. For example, given these definitions and research, if a student, such as Sofia, is a minority and faces poor neighborhood schooling experiences, she has no option but to engage in a reactive transfer. This labeling of reactive suggests that school choice cannot offer them a better schooling experience. Essentially, the label reactive transfer simply parses students, again, into the categories of marginalized and advantaged. As such, this labeling dichotomy of transfers further marginalizes these youth.

Rejecting the term reactive transfer. The case of Sofia pushes the problems of this dichotomized categorization of transfers further. Despite the clear focus on improving Sofia's schooling experiences, the current school choice literature would classify all of her transfers as reactive because they were either precipitated by a suspension or expulsion or did not focus on academic concerns. This classification limits both the agency Sofia, and her mom, could enact in making purposeful choices in Sofia's educational trajectory. Furthermore, what is missed in classifying transfers as reactive is the importance and impact of assets (i.e., Sofia's mom and Sofia's determination) in enabling students to be agentive in their schooling experiences. Through this qualitative study, I am able to capture both of these details. In summary, the construct reactive transfer hides the complexity and nuances of students' transfers by focusing on the cause and not the outcome. Rather, as discussed above, reactive is a deficit-based label and should not be used.

Possibilities arising from school choice. What is missed in the term reactive transfers is the positive aspects of school choice, especially for marginalized students. Sofia made bad choices and faced challenging situations, yet school choice offered her the chance to find productive schooling opportunities and may have helped to prevent her from dropping out. For example, prior to this era of school choice, Sofia would have faced limited choices upon an expulsion. She could have dropped out or attended the district's alternative high school. Now, because of school choice, Sofia was able to find a school (i.e., Portal) that offered her a new chance to focus on school and make up her credit. Sofia did not have unlimited choices in where she could attend; there were constraints due to the unwritten rules of school choice and her disciplinary record. Yet, school choice offered her a new chance, through her enrollment at Portal, to achieve academic success. Below, I further elaborate on two new transfer labels to better capture the positive aspects of school choice for marginalized youth as well as the nuances of Sofia's school transfer experiences.

New chance transfers. I have labeled two of the transfers Sofia experienced, as *new chance transfers*. Through these transfers, Sofia relied on her assets to experience a positive turning point, where a current pattern (i.e., a negative schooling experience) was stopped and she experienced a forward facing change (i.e., a new environment in which to succeed). Sofia's case highlights the importance of recognizing the assets from which these transfers derive. For example, she relied on two different types of assets when engaging in a new chance transfer: her mom's assets and her own psychological assets, specifically her determination. In summary, the current literature would classify Sofia's transfers as reactive, because they were in response to negative events—a suspension and

expulsion for drug use (Fiel et al, 2013). However, this framing limits the agency available to marginalized youth and their families. Identifying this as a new chance transfer, may be a better way to classify the move as it evokes the nuances of the transfer. In particular, it helps to highlight the agentive work of Sofia's mom and Sofia in improving her schooling experience.

Strategic, non-academic transfer. Sofia also engaged in a strategic, non-academic transfer. This transfer points to the many stressors youth face throughout their schooling career (e.g., experiencing their parents' divorce or a parent being imprisoned). For Sofia, this stressor was her mom's deportation, and the transfer was inspired to make Sofia socially comfortable supporting her non-academic needs during this trying time. This example from Sofia was a parent-supported transfer, offering Sofia important structure and support during this time.

As Sofia's case demonstrates, students may be able to engage in a transfer that, while precipitated by a negative situation, results in an improved educational experience for the student. Additionally, a student and/or family may be agentive in purposefully selecting a school in which to transfer to support non-academic concerns. Moving beyond the dichotomy of reactive and strategic is essential to stop further marginalizing these youth. Utilizing the terms new chance transfers and strategic, non-academic transfers will allow researchers to capture the complexity of student transfers as well as highlight the agency of students and families when engaging in school transfers. Hopefully, this increased understanding will further support youth, marginalized youth in particular, to engage productively in school choice.

Part 3: Mathematical Experiences—Challenges of High Mobility and a Procedural Understanding of Mathematics

In Part 2, I examined the impact of Sofia's resiliency on her engagement in school choice. Now, in Part 3, I explore her mathematical experiences at the various schools she attended and the impact of mobility on her mathematical learning. I focus specifically on the opportunity structures Sofia encountered and the impact this had on her mathematical learning and achievement. Additionally, I examine the impact on her mathematical informational assets. Figure 5.3 highlights these aspects within my framework.

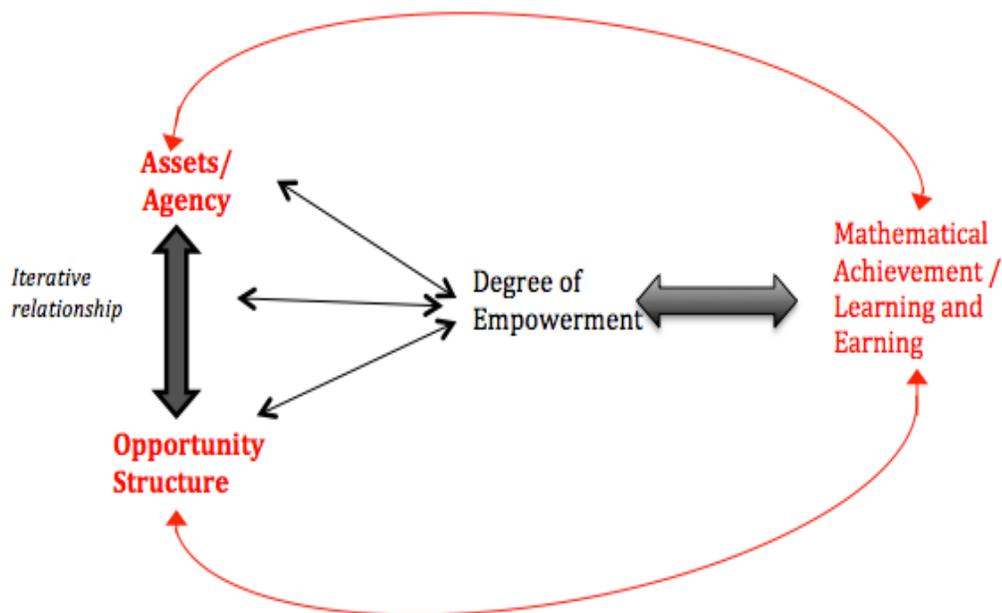


Figure 5.3. Empowerment framework for Sofia, Part 3.

Marginalized youth score significantly lower than other students on standardized tests with mathematics acting as a gate-keeper, preventing them from progressing educationally if they struggle mathematically (Schoenfeld, 2004). At the forefront of this concern is a debate over which curricular strategy is best for these students: direct instruction or an alternative such as dialogic instruction. Direct instruction is the most

traditional instruction used in marginalized students' classrooms (Darling-Hammond, 2004). Teachers share a procedural lesson at the board while students work on practice problems at their seats; the focus is on right answers (Ma, 1999). Several researchers claim this is the best method to teach marginalized students, as it is the instruction they often prefer (e.g., S. T. Lubienski, 2000). Yet, other researchers argue that such instruction limits students' ability to recall mathematical knowledge. These researchers contend that students recall more mathematical concepts through reform-based dialogic instruction (e.g., Schoenfeld, 2002). Dialogic instruction includes challenging problem-based curriculum, group work, and an emphasis on mathematical thinking over finding correct answers (NCTM, 2000). While many teachers and schools have adopted conceptual-based approaches, a gap in access to and success in dialogic teaching exists between marginalized youth and White, middle-class youth (Anyon, 1981).

In this section, I examine the intersection of high mobility and this opportunity structure, or unwritten rule, that marginalized students are most likely taught mathematics through direct instruction. Specifically, I examine how Sofia's understanding of mathematics developed as a procedural discipline, the challenge Sofia faced viewing mathematics as a procedural discipline and transferring, and the struggles she faced as she tried to succeed mathematically after transferring.

Mathematical learning experiences impacted Sofia's mathematical achievement. Often there is a connection between the delivered curriculum, or what is taught, and the received curriculum, or what is learned. Like many marginalized students, Sofia experienced the opportunity structure of direct mathematics instruction (i.e., her teacher often stood at the front of class offering instruction), as well as subpar classrooms

where she often lacked a qualified mathematics teacher. Sofia was willing to take advantage of potentially productive opportunity structures available to her (i.e., tutoring), but she was unable to transcend the overall limited opportunity structures of her classrooms. In this section, I present examples of Sofia's mathematical experiences that developed her understanding of mathematics as a procedural discipline.

Developing a procedural understanding of mathematics. Students' experiences learning mathematics have an impact on the mathematical understandings they develop. For example, direct instruction often develops a procedural understanding and dialogic instruction often develops a conceptual understanding (Munter, Stein, & Smith, 2015). Therefore, it is likely that the opportunity structures of direct instruction impacted Sofia's understanding of key facets of mathematics as a discipline. Specifically, through her experiences, she developed an understanding of mathematics as a procedural discipline, with little mathematical connections from one lesson to the next. For example, here Sofia explained her experience trying to learn her multiplication facts in fourth grade:

Pre-interview, lines 406 - 411 (italics added)

406	Jen	29:17.0	. . .It sounds like maybe when you were supposed to learn your multiplication tables it didn't go so well?
407	Sofia	29:25.0	No. We would, they [the teacher] would just give us like the worksheet and then like we all had to finish it in 5 minutes, <i>that's how we learned it.</i>
408	Jen	29:35.1	Wow.
409	Sofia	29:36.2	I think if I would have learned it, it would have been easier if I had the multiplication chart and <i>I would go through the whole list, like straight down.</i>
410	Jen	29:46.8	Right, right.
411	Sofia	29:48.2	And so when we would do like the sheet, like you'd have to do like the first problems in the front and then like you could use those to figure out the rest. That's how I would do it. <i>I'd fill in one and I'd be like okay here's the answer for that one. Oh, here's the answer for that one. So, I wasn't really learning it, but that's how I would get it done, [so] I could go onto a different level.</i>

The challenge for Sofia was that she believed she was supposed to be learning her multiplication facts during the five minute timed multiplication tests. Sofia did learn important strategies for completing the timed tests, explaining that she figured out answers to several multiplication facts and matched those answers to subsequent facts. This process was procedural, lacking a conceptual understanding of how the math facts related (e.g., the answer to 6×4 is twice the answer to 3×4) and, as a result, Sofia "wasn't really learning it, but that's how [she] would get it done" (line 411).

Sofia summed up her challenges attempting to learn multiplication stating, "Math, it was just so hard for me, especially since I didn't know my multiplication chart" (line 419). Not only was Sofia unsuccessful learning multiplication in fourth grade, but this experience also fostered her understanding of mathematics as a procedural, fact-based discipline. Sofia was not given the opportunity to understand how the facts conceptually related. Rather, she wanted to be able to successfully memorize a sequence of numbers so "she could go straight through the whole list" (line 409). Sofia continued to struggle with her understanding of multiplication and multiplication facts into high school. When I met her in tenth grade she still relied on a multiplication chart. In summary, her experience trying to learn her multiplication facts in fourth grade was the first time a procedural understanding of mathematics was clearly revealed in Sofia's talk and experiences.

Sofia continued to be faced with the experiences, or opportunity structures, that further developed a procedural understanding of mathematics in middle school. In sixth and seventh grade, as mentioned earlier, her classes were self-contained—with the same teacher for all of the subjects. She explained that some of the teachers, "Were only there

for [teaching] writing and. . . would be like, I don't know math, how am I gonna be a math teacher too" (pre-interview, line 315). For example, in sixth grade, Sofia described math class as the following:

Um, the teacher would, he pulled out the book, we had a math hour and he would pull out the book and he'd be like, 'okay you guys, you need to get these sections done,' but he would never teach it to us on the board like that (pre-interview, line 337).

As a result of the opportunity structures Sofia experienced in sixth grade, of opening a book and working through problems section by section, it is hard to know what type of instruction she received. Her general understanding that a mathematics teacher should teach at the board is both fitting with direct instruction and a procedural or linear understanding of learning mathematics and an indication that the book was not a dialogic based textbook. In response to the opportunity structures, Sofia struggled to learn in this classroom. Interesting is Sofia's juxtaposition of learning straight from the book with that of direct instruction or "never teach[ing] it to us on the board like that." Here Sofia revealed a very specific version of how teaching should happen—the teacher shows you what to do and you do it, and Sofia seemed to feel that working her way through the textbook was not the same or as beneficial.

Sofia also faced challenges in high school. She struggled significantly to remember all of the procedures necessary when solving mathematical problems as a sophomore. For example, here she talked about the challenges of trying to factor the following expression, $x^2 - 9 + 18$:

Post-interview, lines 668 and 675 - 678

668	Sofia	51:46.2	I didn't know if I was gonna add the three or subtracted the three. Like the sign. Like to get it to the negative, to be a negative. That's just the only part.
...			
675	Jen	52:56.9	. . . and why are you struggling with that [the signs] do you

			think?
676	Sofia	53:04.4	Because, I guess it's different when you have so many problems put together and you have to do it different ways when you're adding or subtracting and that's where I get confused.
677	Jen	53:14.1	And this one, this problem, this type of problem is probably particularly hard because you have to multiply and add the negatives.
678	Sofia	53:24.8	Mm-hmm [yes], and you have to get a certain sign to equal it.

Sofia explained that it was challenging to do these types of problems, because she would get confused recalling the "different ways" or procedures. In solving this particular problem Sofia had to recall both the "rules" for adding and multiplying integers, or in her own words, "You have to get a certain sign to equal it." (line 678). There is little in this example that indicates a conceptual understanding of integers.

These examples demonstrate that Sofia experienced and viewed mathematics as a procedural discipline. This view of mathematics fostered Sofia's understanding of the discipline and created many challenges. Specifically, Sofia developed an understanding that speed matters, and she faced challenges in thinking she needed to be able to do the math at the same pace as everyone else. In turn, I now explore Sofia's focus on speed and pace.

The Importance of Speed. Direct instruction, when presented in an ideal situation, can be very successful in increasing students' mathematical learning (Munter et al., 2015). Munter et al., (2015) offer the following description of ideal direct pedagogy:

[D]escribing an objective, articulating motivating reasons for achieving the objective and connections to previous topics; presenting requisite concepts (if they have not been presented previously); demonstrating how to complete the target problem type; and providing scaffolding phases of guided and independent practice, accompanied by corrective feedback (p. 7).

The challenge is that ideal scenarios are difficult to come by, especially in schools that are attended by marginalized students. These schools have limited funds and often cannot attract highly qualified teachers, which creates less than ideal schooling environments. In addition to developing a procedural understanding of math within these less than ideal opportunity structures, Sofia's understanding of key facets of mathematics as a discipline hinged on the importance of speed.

Sofia felt that quick completion of mathematics problems was an indication of mathematical understanding. For example, when I asked her what happens when you understand mathematics, Sofia responded, "It's easy and you get it done quick" (pre-interview, line 726). Here I present two examples of Sofia believing one should do math quickly and her struggle to keep up with the fast pace of the mathematics classroom.

Sofia discussed her struggle with speed most often when I asked her about how she was doing at Portal compared to her previous schools. Specifically, the frustration Sofia faced by viewing mathematics, as a speed-based discipline was evident when I asked Sofia, "If you were in charge of a school, how would you make sure that a new student felt welcomed Welcomed by the people at the school, but also successful mathematically?" (pre-interview, line 661). Here is Sofia's response (italics added):

Pre-interview, lines 662 - 670

662	Sofia	53:46.0	Um, I would have him work with people like that are in the same <i>pace</i> and like if you don't know certain subjects, it's okay because that person doesn't know certain subjects so they're not gonna be <i>waiting</i> on you to do it.
663	Jen	53:55.0	Ah,
664	Sofia	53:56.4	And be like well get it <i>over with</i> you know. You have, people take in things differently. Like they have <i>their own pace of learning</i> and understanding how to do it themselves.
665	Jen	54:10.2	Right, right. So, you would put people that learned at the same pace together?

666	Sofia	54:14.4	Yeah.
667	Jen	54:15.1	Nice.
668	Sofia	54:15.8	And people who are already <i>ahead</i> , in a different group or a different class, they won't have to stay <i>behind</i> with those people.
669	Jen	54:21.5	Right.
670	Sofia	54:22.5	or, the person that doesn't know how to do [it] and <i>having to like hurry up and try to learn everything fast and getting it all wrong just to keep up with the rest of the people.</i>

Here in five talk turns, pace or speed related topics come up seven times. In line 662, Sofia offered that putting a new student with other students who are at "the same *pace*" would ensure that a student would feel welcomed and mathematically successful. She continued explaining that both individuals in the group might not know everything, and as a result, they will not be "*waiting* on you to do it." To explain her rationale for this pace-based grouping Sofia added that people "have *their own pace of learning*" (line 664) and "that people who are already *ahead*. . .won't have to stay *behind* with those people" (line 668). Up until line 670, Sofia is speaking in somewhat general terms from her own experience of learning mathematics and improving students' experience, but in line 670 she becomes more specific, perhaps revealing her own experience trying to keep up, "having to like hurry up and try to learn everything fast and getting it all wrong just to keep up with the rest of the people." In this line, Sofia emphasized both the frustration she most likely felt learning mathematics and her understanding that mathematics is a speed-based procedural discipline with clear right and wrong answers.

In this next example Sofia is clearly speaking from her own experience struggling to keep up with the pace of mathematics class:

Pre-interview, lines 307 - 311

307	Sofia	21:25.6	Like now I understand it better, now that I'm working here at the school where they give me a certain section to work on, and you focus on that for a little bit and then you move on. And when you're at a regular school, you have to keep up with everybody. Like if you don't get a certain subject, they're not going to wait on you.
308	Jen	21:42.4	Right.
309	Sofia	21:43.5	They're gonna hop on to the next one.
310	Jen	21:45.2	Right, and so this speed works better for you?
311	Sofia	21:48.2	Mm-hmm, because I'm at my own pace and if I don't understand it I can go back to it at anytime. If it's necessary or I'm gonna need it, you know.

The opportunity structure of having to keep up with everybody at a "regular school" was challenging for Sofia. Rather, she preferred being a Portal where she was given "a certain section to work on and you focus on that for a little bit and then move on." This preference of a smaller scope and sequence reiterated Sofia's procedural experiences in mathematics, but it was also helpful for her as she was able to work at her "own pace and if she doesn't understand it, [she] can go back to it at anytime" (line 311). This is in stark contrast to being left behind when "you don't get a certain subject" and the class does not "wait on you" (line 307), rather "they're gonna hop on to the next one" (line 309). In the traditional classroom, Sofia struggled to keep up with the pace of the class and when she could not keep up, she missed content and was left behind, as her class moved on to the next topic. With experiences like this, it is not surprising that Sofia saw understanding math to mean "it's easy and you get it done quick" (pre-interview, line 726).

Equating mathematical understanding with ease and speed reinforced Sofia's understanding of mathematics as a procedural discipline. In turn, this belief that math should be completed quickly hindered Sofia from struggling with mathematical concepts. As a result, Sofia was unfamiliar with the experience of struggling with mathematical

concepts in order to gain a better understanding of the concepts, or a conceptual view of mathematics. This view of mathematics as a procedural, speed-focused discipline is an artifact of Sofia's experiences. Connecting this back to my framework, Sofia's understanding that mathematics is a procedural, speed-based discipline often frustrated her, and in turn limited her psychological assets. Additionally, the opportunity structures that developed Sofia's procedural understanding of mathematics clearly framed her relationship with mathematics. I now turn to the impact Sofia's procedural, speed-based understanding of mathematics had on her continued learning when she became highly mobile and transferred schools.

Challenges of procedural learning and mobility. Highly mobile youth face a number of challenges learning mathematics when they transfer. These can include differing curriculum, sequencing of content, and higher or lower standards to name a few. As Sofia began to transfer schools, she faced a number of these challenges. Specifically, Sofia often struggled to build on her knowledge of mathematics when she transferred due to her understanding of mathematics as a linear, procedural discipline.

Sofia was stable through seventh grade, and then she transferred four times between eighth and tenth grades. As she transferred, she encountered four new and different mathematical environments, or opportunity structures, that all seemed to provide her with direct instruction. Yet, all four teachers had varying procedures and language to explain these procedures. Here Sofia articulated the challenges of transferring schools and learning a mathematical concept, order of operations (*italics added*):

Pre-interview, lines 653 - 661

653	Jen	52:30.9	. . .Do you think moving schools has impacted your math career at all?
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654	Sofia	52:38.8	Yes, because like the <i>different ways</i> people teach you how to do it and then, like I learned, I don't know what math it was, <i>I learned one math how to do it one way and the other teacher was like 'that's not how you do it.'</i> And I'm like well <i>I've been learning this way and it's just so easy and simple and you're teaching me a whole 'nother hard way.</i> Which is the right work you know?
655	Jen	53:00.6	You don't remember what it was?
656	Sofia	53:01.6	I think it was the Please Excuse My Dear Aunt Sally. And then it'd be like, <i>well you have to multiply then subtract or something like that.</i>
657	Jen	53:13.0	PEMDAS?
658	Sofia	53:15.2	Yeah, they were teaching us like, well first you have to add and then you have to subtract and then stuff like that, the whole situation.
659	Jen	53:22.6	So, you learned it one place and it wasn't quite right and then you learned it another and, or they=
660	Sofia	53:29.3	Yeah.

In line 654, Sofia expressed her frustration with being taught varying procedures, or the opportunity structure of direct instruction, at two different schools for one concept. She wondered, if the procedures varied from each other, which one was correct. If Sofia had previously experienced the opportunity structure of dialogic instruction, she may have been able to apply her conceptual understanding to this new classroom to understand why and how the procedures differed, and in turn, feel more mathematically empowered. Rather, with her understanding of mathematics as a procedural discipline, Sofia was disempowered because she was frustrated by having to both learn a harder procedure and determine which was the "right" procedure. This one example highlights the challenges Sofia faced when transferring schools, as she felt she had to learn all new procedures, essentially starting over again learning mathematics.

Positive opportunity structures and Sofia's determination. Opportunity structures in mathematics classrooms and the resulting mathematical experiences may

impact students' understanding of mathematics and resulting mathematical informational assets and psychological assets. Yet, students enter the math classroom with other additional assets that may support their efforts in learning mathematics. Sofia offers an example of this, as she often responded to challenging situations with determination to succeed. Throughout her schooling, Sofia was very aware of her poor relationship with mathematics, knowing when she was behind and needed more help. Here she explained how learning math was going for her at the beginning of the study:

I think it's fu(n), I think, I mean I could learn how to like it, but it's just, it's gonna take time and it's gonna take a lot of practice and working on it. But it's not the worse subject, I used to think like, 'oh my god, I hate math, it's the worse,' but now that I'm actually working on it, I learn how to do it and I'm like, 'oh my god this is awesome, this is so easy.' And like you just finish through it and then another assignment and you're like 'damn, how do you do this one now?' (pre-interview, line 724).

This one quote summarizes Sofia's challenges and successes learning mathematics. First, it highlights the benefit of the productive opportunity structures of Portal, namely self-paced classrooms, where Sofia could take "time" and "a lot of practice. . .working on it [math]." Next, it suggests that she enjoyed learning mathematics until she started a new assignment and had to recall or learn the new procedures. Here, her prior experiences both learning and understanding mathematics as procedural discipline disempowered her to be as successful as she could. But she kept going despite these struggles. Sofia's positive psychological assets, including her determination, limited the negative cycle she was experiencing in mathematics. With this, the productive opportunity structure of Portal may have also helped her begin to reform her belief of mathematics, no longer seeing it as heavily speed-based. Rather, she began to see math as something she could learn to like.

Discussion

In this section, I examined how experiencing opportunity structures representative of direct instruction in mathematics class can create a speed-based, procedural understanding of mathematics. This particular construction of mathematics can have negative implications for students' (especially highly mobile students') mathematical learning, mathematical informational assets, and psychological assets. Yet, students bring their own experiences and assets to the classroom and may have resources to draw upon in order to have greater success and enjoyment in learning mathematics.

Importance of dialogic instruction for highly mobile youth. Sofia's experience transferring and learning mathematics points to the importance of highly mobile students learning mathematics, to at least some extent, dialogically. Transferring from one classroom of direct instruction to another classroom of direct instruction prevents students from feeling successful and trusting mathematics, especially given the wide variety of procedures and languages used throughout mathematics classrooms. This diversity across schools and districts makes it challenging for highly mobile students to transfer their procedural mathematical learning from one classroom to another. Therefore, a procedural construction of mathematics is even more problematic for highly mobile students, like Sofia, who are often behind in mathematics credit, because their ability to transfer mathematical understanding is compromised. Students who transfer schools frequently should not be trying to memorize new procedures or question which is the right procedure; rather, they should be supported in understanding how new procedures connect conceptually to their mathematical understanding.

While Sofia maintained a positive outlook and was determined to graduate, her case reveals the challenges marginalized youth face trying to be successful transferring and learning mathematics. Lauen (2009) found that Chicago students who transferred from their district school to a charter school were less likely to graduate due to their mathematical challenges. Ultimately these students who transferred could not earn the mathematics credits needed for graduation. Sofia's case offers a possible explanation for why school mobility and mathematical learning may not mix for marginalized youth. Specifically, the challenges of a procedural understanding of mathematics simply make it too challenging to encounter similar but different mathematical opportunity structures (i.e., direct instruction classrooms) and still be successful. In turn, Sofia may have been more mathematically successful if she had stayed in one school district and encountered a single unified curriculum where the key mathematical procedures were regularly revisited with similar language and steps (Lauen, 2009). In summary, transferring should not, but often does, put marginalized youth at a further disadvantage when learning math if these students develop a procedural understanding of the discipline. If school choice is an option for students, the importance of a productive opportunity structure for mathematical learning, namely dialogic instruction, and the support when transferring to a new mathematical learning environment is essential.

School choice and considering mathematical learning. In Sofia's talk about what she hoped would improve when she transferred, she rarely mentioned mathematics. Twice she talked about how mathematics improved when she transferred: 1) in eighth grade Sofia recognized that as a result of her new chance transfer she had a "real" mathematics teacher, but she still faced the challenges of learning a procedural speed-

based discipline without the necessary foundational knowledge and 2) in transferring to Portal, Sofia discussed the many opportunity structures that she felt offered her the chance to catch up and succeed in math at her own pace. Yet, these improvements were a side effect of transferring to schools that provided better support for Sofia in mathematics. In other words, learning experiences in math were not a factor in the decision to transfer, but rather a benefit of transferring. The omission of thinking about mathematics when transferring suggests that Sofia did not recognize that she deserved better in math.

All in all, Sofia's experiences in mathematics had formed an understanding for Sofia that mathematics is a speed-based, procedural discipline. In thinking about how to change her relationship with mathematics (specifically her relationship earning credits), Sofia explained she just "wanted to finish up already. . . I just want to catch up on the most [credits] I can" (post, line 398). Sofia perceived her mathematical construction to be appropriate and acceptable, not in need of any significant changes.

Nussbaum (2000) argued that rational choices are challenged by underlying differences in capabilities, including the capacity to imagine alternative options. Here Sofia gave no indication that she could imagine an alternative option (or choice) other than catching up on mathematics credits. This is most likely because she did not have the experiences or assets to realize she could not only catch up on math, but also excel in mathematics if she had been provided with different resources in her mathematics classes. Namely, qualified mathematics teachers and access to dialogic curriculum that allowed her to see mathematics as a whole, rather than a series of procedures.

Sofia's case highlights the need to better understand the intersection of school choice and mathematical learning. Sofia (with her mom's support and advice) actively transferred to schools that she felt would provide her with a better educational experience, yet improving her mathematics learning was not a component in their consideration for schools. Improving marginalized youths' experiences with mathematics may create the capacity to imagine alternative options in learning mathematics. In summary, providing equitable mathematics instruction to all students would increase the equitability of school choice as marginalized youth would be agentive in making school transfer decisions with a consideration to their mathematics learning (and not just earning at credit-recovery schools).

CHAPTER 6: TRYING ON SCHOOLS AND THE IMPACT OF OPPORTUNITY STRUCTURES ON MATHEMATICAL EMPOWERMENT

"I'm a smart person; math just made me feel so dumb."

-Chris [post-interview, line 293]

This case, building on the first two cases, presents the experience of one student, Chris, whose informational assets were a key factor in both his mobility experiences and his experiences learning mathematics. In this chapter, I explore how Chris's informational assets were influenced by opportunity structures he encountered. In Part 1, I introduce Chris, explain his mobility experiences, and describe his assets. In Part 2, I explore how Chris engaged in school choice by "trying on schools" to access informational assets in order to find a good school choice fit. In Part 3, I explore the opportunity structures at Portal that empowered Chris to be mathematically successful.

Part 1: Chris

In Part 1, I offer background on Chris, including his assets, the opportunity structures he experienced, and his mobility experiences. Figure 6.1 highlights these aspects within my framework.

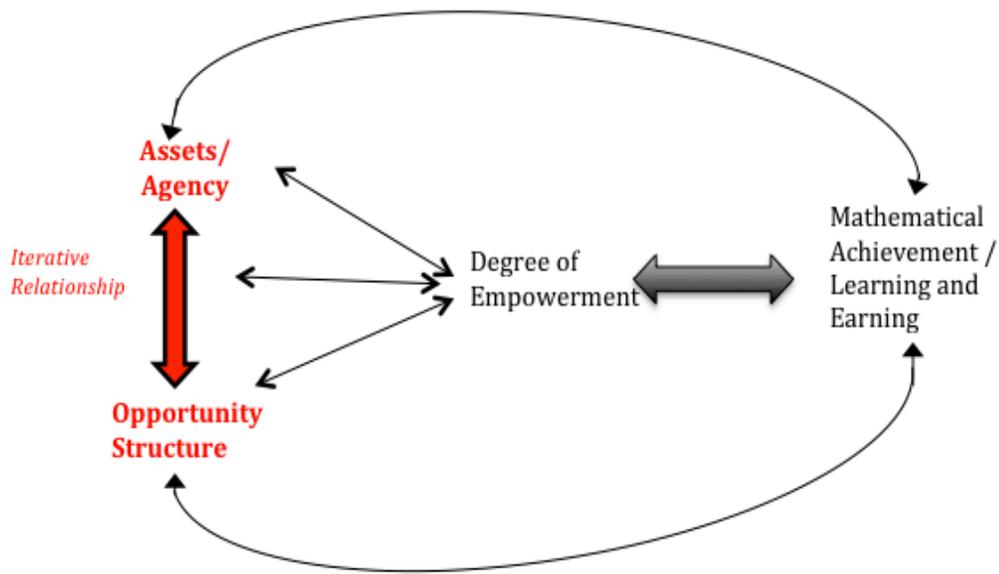


Figure 6.1. Empowerment framework for Chris, Part 1.

Chris, a seventeen-year-old senior at the time of my study, was a multi-racial English-speaking American with Black, White, and Cherokee ethnicities. His parents were separated and he had four brothers, one of whom is a half brother (same father), aged 19, 15, 11, and 11. Chris lived with his mom and two of his younger brothers; his older brother lived on his own as he "has his own house now and has a baby, and all that" (post-interview, line 113).

Chris was very athletic and aspired to play basketball in the NBA. Yet, his high standards prevented him from playing on school sports teams because often "[t]he coaching, the team, it [was all] terrible" (pre-interview 214). At the time of the study, he was playing pick-up basketball almost everyday at a local sports complex and worked at a local business 20 to 25 hours a week. Additionally, he wrote both poems and raps in his spare time. Perhaps given his penchant for writing, English was the subject in which he thought he most excelled. He planned to go to college because he felt he needed to play

basketball collegiately in order to play for the NBA. When attending college, he had planned to major in business and minor in psychology with the goal of eventually owning a business, perhaps a barbershop.

Mobility experience. Chris was fairly stable in his early schooling experiences, transferring schools only once before ninth grade when his family moved apartments. However, during his four years of high school, Chris transferred six times, with half of those transfers occurring during his freshman year. A third of those transitions (or two transfers) during high school were a result of moving to a new apartment with his mom and brothers. In this chapter, I describe Chris's experiences related to mobility, but often my description is non-linear in an effort to highlight specific themes and findings.

Therefore, I have included the following table of Chris's schooling trajectory (Table 6.1).

The table includes the schools Chris attended, the high school math courses he took including if he passed (P) or failed (F) the course, reasons he moved schools, and the informational assets he used to learn about the specific school.

Table 6.1

Chris's School Trajectory

School	Reason for Move	How they found out about school
Hawkins District Elementary School K - 3	NA	Neighborhood School
Beverly District Elementary School 4-5	Moved Houses	New Neighborhood School
Navarre District Middle School 6-8	NA	Neighborhood School
Blanco District High School 9 (August - October) Algebra (F)	NA	Neighborhood School
Horizon District High School 9 (October - December) Algebra (F)	Moved homes and transferred schools to play football (good team)	Friends
Blanco District High School 9 (December - February) Algebra (F)	Did not like Horizon High School	Returning to Neighborhood School
Rogers Charter High School 9 (February - May) Algebra (F)	Got jumped at Blanco and mom did not want him going there anymore.	Friend went to Rogers and said it was a good school to "get your credits."
Navarro District High School 10 Geometry (F)	Moved back to Mom's house	Neighborhood School
West Oso District High School 11th (Aug - March) Algebra (passed first semester) and Geometry (F)	Moved houses	Could not get into Sandia High School (full). Cousin went to West Oso High School, so he went there.
Portal Charter High School 11th (March - May) and 12th Algebra Prep (P), Algebra (P), Geometry (P), Algebra II (P), Pre-Calculus (P), and Trigonometry (P)	To catch up on credits	Brother attended Portal.

Assets. While agency is the ability to make purposeful choices, assets are the enablers or limiters of one's agency (Alsop et al., 2006, p 58). This means that choices are hindered or facilitated by the assets one has available. Again, it is important to note that assets have an iterative relationship with opportunity structures (see Figure 6.1). For instance, there were a number of opportunity structures that influenced Chris's familial assets, such as the inequitable gap in wages between genders and the laws and politics that do not support single mothers. In the iterative relationship between assets and opportunity structures, these opportunity structures (i.e., the wage gap) limited Chris's familial assets and Chris experienced certain schooling options because of these limited familial assets. Additionally, as a direct result of the unfair opportunity structures funding public schools from property taxes, Chris did not always have access to high quality schools in his neighborhood. Combining this inequitable distribution of high quality schools and Chris's high mobility, there was very little likelihood Chris would find a strong school. In this section, I present the *familial assets*, specifically personal and financial assets, available for Chris to draw upon as he, and his family, tried to exercise his agency when engaging in school choice and mathematical learning.

Personal assets. Chris's mom and older brother both graduated from high school. Also, his mom completed some additional schooling to become a medical assistant, and his older brother was enrolled at a local community college at the time of the study. With regards to his friends, Chris only knew "a small percentage, like three or four" people who had dropped out of high school and only one person who had earned a GED. Therefore, the majority of his friends had, or would, graduate from high school. As a result, Chris had role models (both family and friends) who had both graduated high

school and completed some additional schooling. Additionally, Chris was knowledgeable about college, including both scholarships that were available to him given his Native American ethnicity and completion rates at nearby community colleges in his home city and nearby metropolitan areas. This information most likely came from his older brother, who Chris explained received a scholarship to attend the local community college. These various personal assets, which seemed to highlight education, may be why Chris is the only case study student who did not significantly ditch school and never talked about dropping out or earning a GED. Rather, he had significant psychological assets that increased his agency and helped him maintain his commitment to graduate from high school.

Financial assets. Chris's family had limited financial assets. His mom worked as a medical assistant and struggled to make ends meet while raising four boys on her own. Added to this were the family's frequent moves when the leases ended; Chris explained that they moved frequently for cheaper rent. His mom had a car, but Chris rode the city bus or school bus when available, to and from school. Additionally, Chris did not have a cell phone until a year before the study.

Unfortunately, these limited financial assets impacted Chris's empowerment in school choice, as Chris explained that they moved frequently for cheaper rent. For one move in particular, Chris's empowerment was impacted as he was finally happy at Navarro High School as it was a "good" school because the classes were small and the teachers would help him. But over the summer, his family moved apartments, and he lived too far from Navarro to stay enrolled. He summarized, explaining that he "kinda wished I didn't move from Navarro High School." This example highlights the impact of

financial assets on Chris's attempts to exercise his agency as the limited financial assets of his family limited the agency he could employ when deciding which school to attend. In this case, his family's limited financial assets made it so that there was not even the existence of choice for Chris regarding which school he attended as he had to leave Navarro; this placed him at level 1 (the lowest level) in terms of his limited empowerment.

Personal mathematical informational assets. Chris felt relatively confident in math until starting high school, stating, "It was alright, I didn't struggle that much in middle school" (pre-interview, 547). With this, he was somewhat surprised by the challenges he had faced in high school, "because I've always been good at math till high school, and then I wasn't ready for it" (pre-interview, 791). Like many marginalized students, Chris faced limited mathematical support outside of school. He explained that his eleven year old younger brother "struggle[d] in math" and his "mom was never really good in math either" (pre-interview, line 873). He continued saying, "It's funny when she tries to help my little brother out in math; she just doesn't know how to do it." While his mom was willing to help, she was not always able as her prior schooling experiences failed to provide her with the traditionally defined personal mathematical informational assets she needed to offer mathematical support to her children. As she struggled to help Chris's younger brother with mathematics, it was not surprising that she could not offer Chris any support on his high school mathematics. While Chris's older brother was good at math, he lacked the time needed to offer mathematical support to the family. When taking into account Chris's wider circle of support, he did not think his friends liked math either, adding that they never talked about mathematics.

Chris started his high school career thinking he was good at mathematics, but towards the end of his high school career, he no longer talked about being good at math. Rather, he said he excelled in "reading, writing, history, science, basically, everything besides math" (Line 781, pre-interview). These limited mathematical informational assets, personally, familial, and friend-related, impacted Chris's agency as he had fewer assets to draw upon (i.e., individuals to ask for mathematics help) when he needed additional support learning mathematics. Throughout his high school career, these limited assets impacted Chris, especially when he faced large classrooms where individual help was minimal. Therefore, he lacked access to help both inside and outside of his mathematics classroom. In summary, these limited mathematical assets negatively impacted Chris's agency to choose to excel in mathematical learning.

Part 2: School Choice Experiences—Trying on Schools, a Two-Part School Choice Decision Making Process

"Freshman year I went to a lot of schools actually. I went to Blanco, and then I transferred to Horizon, and then I went back to Blanco, and then I went to [Rogers]."
-Chris (pre-interview, line 8)

In Part 2, I examine the process through which Chris engaged in school choice and the impact of this on his empowerment levels. In doing this, I will focus on his assets/agency, opportunity structures, and degree of empowerment. Figure 6.2 highlights these aspects within my framework.

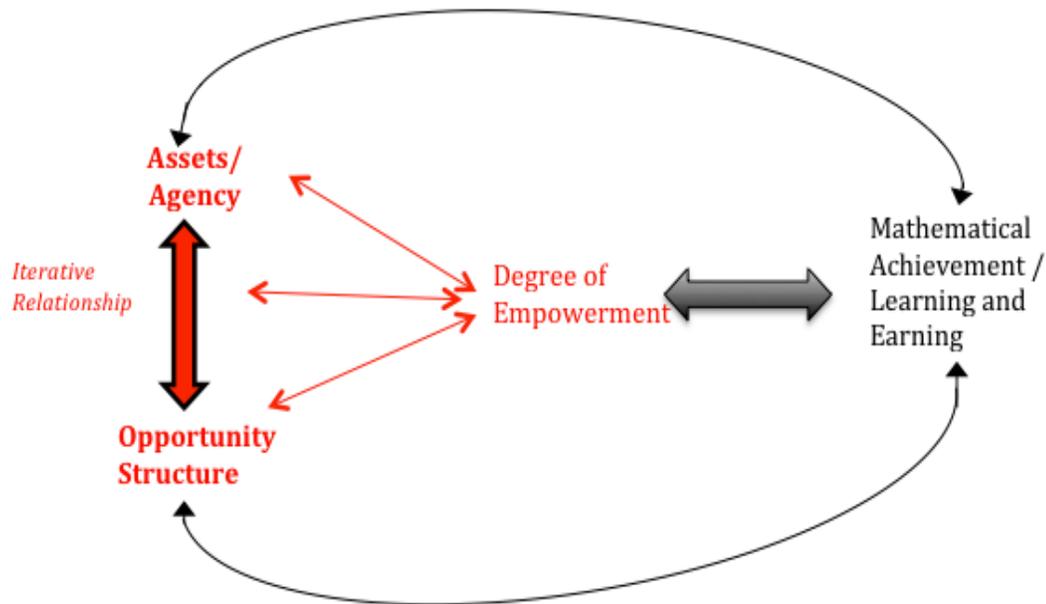


Figure 6.2. Empowerment framework for Chris, Part 2.

Students transfer schools for a variety of reasons, and they draw on a variety of assets to learn about schools and make the decision of where to transfer. Some researchers have worked to describe the assets students and families draw on to make decisions and have found that assets often include traditional media sources such as the internet, the student's friends and family, the parent's coworkers and friends, and visits to

schools (i.e., Villavicencio, 2013). Specifically, *informational assets* are the resources one draws on to learn about various schools and the attributes of these schools. In this section, I explore Chris's school transfers and his efforts to gain informational assets in trying to find a good school. Then, I suggest that Chris's decision-making process offers an alternative understanding of how marginalized youth engage in school choice, including both the challenges and benefits of this engagement.

Chris's experiences transferring school. Ideally, transferring schools should improve students' experiences and increase their academic empowerment. This means that students need access to substantial information regarding their schooling options in order to make the decision to transfer to a school of good fit. Here, I define a *school of good fit*, as a school that meets the social and academic needs of a student. Within this definition is room for great variation as students' needs and goals vary. For example, if a student is planning to enroll in an Ivy League school, she will have different needs and expectations from a high school than if she is planning to enroll at the local community college. As I show later in this section, the challenge for Chris when deciding on a school of good fit, was that he needed and expected a good social fit, including the quality of sports teams and caring, approachable teachers. Determining these criteria about a school was not readily available by reading school rankings or examining test score data. Nor could his friends, family, mom's co-workers, or even a visit to the school necessarily offer the needed information to ensure this good fit. While these additional forms of information are often a better litmus test than test scores and school rankings, they too are limited.

At first glance, it appeared that Chris relied heavily on his friends and family (namely his brother and cousins) to learn about other schooling options. He reported solely using information from friends or family four of the six times he transferred during high school. He relied on these individuals for information regarding reasons he should transfer and details about the schools into which he transferred. For example, Chris explained how he made the choice to transfer to Rogers High School, a credit recovery charter school, at the end of his freshman year (his third transfer that year): "I had a friend that went there and he said it was a good school, a good elective school to get your credits. So, I was like, 'okay'" (pre-interview, line 154). It appeared Chris did not do any further research to learn about the schools or visit the schools before transferring—with the exception being Portal, as an orientation visit was a requirement for transferring to the school.

Yet, Chris had a vast array of knowledge about both high schools and community colleges in the area, making him quite knowledgeable about schools. During the pre-interview, he wanted to make sure I spelled the high school he attended during his sophomore year correctly (Navarro), because there was another school in the northern part of the state with the same name but spelled differently (Navharo) (pre-interview, lines 16 - 18). Additionally, Chris knew about the various bussing options for the public schools that were out of his district, but near his home (pre-interview, lines 60 - 68). He also researched online the different graduation rates from nearby community colleges (pre-interview, line 729). While it's unclear where *all* of this additional information came from, it is clear that Chris was able to access schooling information. Of particular interest is that Chris was able to obtain information about the community colleges from an online

source, specifically a source outside his usual friends and family that he reportedly relied on for the majority of his transfers in high school. To better understand Chris's use of informational assets in transferring schools, I now turn to his experiences engaging in school choice.

Initial stability leads to high mobility and trying on schools. School choice researchers have found that White, middle- and higher-income students engage in school choice at an earlier age, while minority and lower-income students engage in school choice starting in middle or high school (Goldhaber & Eide, 2002). Similarly, Chris did not engage in school choice very much during his first nine years of school, as he and his family decided he would attend the neighborhood school. Only once did he transfer outside of promotional moves, as a result of moving homes between third and fourth grade. This relative stability at district schools quickly changed after his first few months in high school.

Like other marginalized youth, Chris began actively engaging in school choice in high school. Chris's switch from relative school stability to high mobility coincided when his family moved homes during his freshman year:

Post-interview, lines 48 - 59

48	Jen	02:50.5	Okay. Okay so you moved again. Um, did you move or did you move to Horizon to play football? [Drawing from pre-interview information.]
49	Chris	03:01.9	Oh yeah, I wanted to play for play football for Horizon.
50	Jen	03:04.6	Okay and you moved houses?
51	Chris	03:06.5	We were already gone and move[d] houses and it was already by Horizon, but they already had a really good football team so I really wanted to join.
52	Jen	03:13.2	So, it kind of worked out?
53	Chris	03:13.5	Yeah, mm-hmm.
54	Jen	03:14.1	Okay and then you didn't like Horizon is that right?
55	Chris	03:18.4	Mm-mmm [no].
56	Jen	03:19.8	And then you moved back to Blanco?

57	Chris	03:22.7	Yes.
58	Jen	03:23.0	And that worked because you had the transfer bus [a district bus providing transportation for students in limited area out-of-district]?
59	Chris	03:26.2	Yeah.

When they moved closer to Horizon School (the new neighborhood school), there were transfer buses that allowed Chris to continue attending Blanco despite the home move (line 58). However, Chris had heard from friends that Horizon had a good football team, so he decided to transfer there to play football when they moved (line 51). Chris's reliance on friends and family for information about schools provided him with several good school fits. However, this information was not always sufficient, and upon enrollment Chris often learned more about the various schools, quickly recognizing they were not good fits for him.

Transferring to Horizon is the first example of Chris engaging in a two-part transfer, or *trying on a school*. Trying on a school is a transfer move that involves two steps. First, a student decides to which school he will transfer. Then, having transferred, he gathers more information to help decide if he will stay at the school or transfer again. For example, Chris had made the initial decision to transfer to Horizon to play football, but when attending Horizon he decided he did not like the school. Within a month, Chris realized Horizon was not a good fit, explicitly stating he "didn't feel like he fit in," and further explaining, "I didn't get along with some of the kids I was on the team with so I was just kinda like, 'whatever'" (pre-interview, line 128). In addition to his social concerns, Chris was not happy with his mathematics class:

Pre-interview, lines 265 - 277

265	Chris	14:35.0	Um, I didn't really get along with the math teacher.
266	Jen	14:38.7	And what does that mean?

267	Chris	14:39.1	Like, I don't know. He was rude to me.
268	Jen	14:41.4	Yeah?
269	Chris	14:42.1	Cause I didn't really like his class and I wanted to switch and they said I couldn't. That's part of the reason I left too.
270	Jen	14:46.9	Oh really?
271	Chris	14:47.3	Yeah.
272	Jen	14:48.1	And why was he mean?
273	Chris	14:54.1	He just had an attitude a lot and he wouldn't give out good instructions.
274	Jen	14:57.7	Okay and would you ask questions or would you?
275	Chris	15:00.5	Yeah.
276	Jen	15:01.4	And that was when he was mean or?
277	Chris	15:04.1	Yeah, he's like you guys should know this or whatever. It wasn't just me either; it was like a couple other people.

Chris was not happy with his math teacher at Horizon but was unable to switch classes. His unhappiness in this class was one of the reasons he decided to transfer back to Blanco (line 269).

In this case, Chris engaged in his first-part of a transfer decision, deciding to transfer to Horizon in an effort to increase his organizational assets by joining the football team. However, when he tried out Horizon, he realized he did not "fit in" socially; thus, his organizational assets were not increased. Additionally, he was not pleased with his academic experience, specifically with regard to his mathematics class. Therefore, with this additional information he gained by enrolling at Horizon, Chris made the second part of his transfer decision and decided to transfer out of Horizon. As a result, Chris decided to return to Blanco High School, taking the transfer bus (or Incentive For Open Enrollment Bus). Chris stayed at Blanco until he was jumped, when he and his family decided it was time to transfer again—his third and final transfer of his freshman year—this time to Rogers.

Reasons for a good fit. Often, mobile students are concerned about social fit before academics (Rhodes, 2008). This was evident for Chris as well. He struggled to find a good social fit during his freshman year, but was unable. For the beginning of his sophomore year, he decided to transfer to Navarro because he had a number of friends there. He explained that this meant, "After I went there I was already in" (post-interview, line 81). In addition to having friends at Navarro, Chris chose the school because of its proximity to his house and the school's open-enrollment status.

Upon enrollment at Navarro and as Chris tried out the school, he found that the school was a good school fit overall and decided to stay until his family moved homes:

Pre-interview, lines 174 - 182

174	Chris	09:37.0	I liked Navarro. It was a good school.
175	Jen	09:39.3	What made it good?
176	Chris	09:41.1	Uh, like the teachers, they helped me out a lot and [there were] kinda small classes, and I had a lot of friends there so. It was cool.
177	Jen	09:48.4	Nice, how did you know, did you make the friends there or did you know them from the other schools?
178	Chris	09:52.5	I knew a couple friends from other schools that went there. And then I made some friends there as well.
179	Jen	09:56.3	Nice, that's great. And you stayed there your whole 10th grade year?
180	Chris	09:58.7	Yeah. Mm-hmm.
181	Jen	10:00.4	And then why did you decide to go to West Oso?
182	Chris	10:02.5	Oh, cause uh, we moved.

Chris found Navarro to be a "good" school due to its small class sizes, teachers that helped him out, and lots of friends (line 176). He decided to stay at Navarro as it was a good fit overall. Unfortunately, Chris's family's limited financial assets impacted his empowerment in school choice as he and his family moved apartments during the summer following his sophomore year, and Chris had to transfer yet again. He explained that it was not an option to stay at Navarro because in his new apartment he "was way too

far away" (pre-interview, line 204) from Navarro. Therefore, he had to go through his two-part decision-making process of finding a new school to transfer into and then deciding if it was a good fit or if he should transfer again.

Two school transfers later, Chris recounted how he made his final transfer decision to Portal:

"I think it was because my brother was coming here [Portal] and I was like yeah I need to catch up, make up my credits, and he was like, 'just come over here' and I was like, 'he's right'. And so I talked to my mom and [she] just pulled me out and took me here." (post-interview, line 241).

When I clarified that this decision was made within a day, Chris said, "Yeah, basically." While it may be hard to understand how such a quick decision, with limited information, can be successful for a student, it is important to remember that these were not quick decisions but rather two-part decisions. This decision, and his other schooling decisions, appeared to have been frequently reevaluated as Chris tried on each new school. Chris recounted how he had thought about leaving Portal at the beginning of his senior year:

"Yeah, I was going to go back to West Oso, but then they [West Oso] said that. . . I wouldn't be able to get the credits that I need[ed] [to graduate]. So, I was like oh well, I'll just stay here [at Portal] and get my credits here" (pre-interview, line 234).

Owing to the opportunity structure at Portal, Chris decided to stay, because it was a good fit and allowed him the chance to earn the three and a half credits of math he needed in order to graduate. Not only did he earn these credits at Portal, but he also graduated a month earlier than his cohort.

Discussion

Researchers have explored the informational assets students draw upon when engaging in school choice and the inequities inherent in gaining access to varying informational assets (e.g., Goyette, 2008; Rangel, 2013; Villavicencio, 2013). For

example, low-income families usually rely on a small network of family to learn about new schools, while middle and higher-income families rely on a larger network including family, friends, and co-workers, thus providing these families with access to more informational assets about schooling choices.

From the vantage point of school choice research, it may be challenging to understand why Chris relied on information from friends to empower him during transfer decisions, especially when he was able to gather information about colleges online. Perhaps Chris was gathering a wide variety of information about schools before transferring, but considering his goals for a school of good fit (i.e., caring teachers and fitting in socially), he may have found friends to be the most useful resource. The other possibility is that during the interviews Chris only gave me the most important piece of information when deciding schools, friends, and ignored the other sources of information he relied on. While this could be the case, I believe the post-interview with the member-checking would have revealed further sources of information if he had drawn upon them, as this interview proved useful in gaining key insights into his school choice decisions. The other possibility is that he really needed to experience the school to know if it was a good fit, thus "trying on schools."

Chris's experiences learning about schools offer a reframing of how and when marginalized, highly mobile students draw upon informational assets. Chris used a method I refer to as *trying on schools* in order to gain information. What I mean by this, is that Chris engaged in limited information gathering before he transferred to a school, but truly evaluated the school when he enrolled, to determine if the school was a good fit

for him. To further explain Chris's method, I suggest an adaptation to Level 2 Empowerment.

Level 2 empowerment, a two-part decision-making process. Frequently, school choice researchers view the decision of where to transfer to be decided on after these informational assets are collected and before enrollment in a specific school (Goyette, 2008). These decisions are what I call *one-part* decisions because the student and/or family gather enough information before transferring to have a good idea that the transfer will be a good fit. Here the decision is made once, and is limited to deciding to transfer into a school. Chris's case suggests another method of making the decision to transfer, that of *trying on a school*. This type of school transfer is two-part. The first part occurs when a student, such as Chris, gathers some information and chooses a school into which to transfer. The second part includes gathering additional information about the school upon enrollment and making a decision about whether to stay or transfer again, depending upon whether the school was or was not a "good fit." The main difference between the two types of transfers is that the two-part transfer relies upon informational assets students gather after making the decision to enroll at a new school in an effort to finalize their decision. Basically, in a two-part transfer a student is *trying on a school*. As described above, first, a student gathers some information on the school, the student thinks it may be a good fit, so he decides to try it out. Upon enrolling, the student is able to truly determine if the school is a good fit and if so decides to stay. Below I explore why students may engage in such transfers.

Here, the previous transfer examples suggest that Chris did experience school choice empowerment at level 2, as he was empowered to frequently make a choice to

transfer. Yet, these examples highlight the complexity of Chris's choice to transfer schools based on the information he received from a friend (or relative), specifically why these transfers were only occasionally successful. This analysis suggests that Chris's empowerment in choosing to transfer schools was two-fold. First, he was empowered to make a choice (Level 2a), but that choice was not final until he chose to stay at the school (Level 2b). At Level 2a, it is almost as if Chris is simply trying on schools until he knows it is a good fit and decides to stay, Level 2b. Thus, he ensured that he achieved Level 3, school choice empowerment.

Chris's process differed from the findings in school choice literature as he gathered the majority of his informational assets upon transferring to a new school instead of gathering all the information ahead of time to make a choice about transferring schools. Additionally, his process of engaging in school choice impacted his empowerment differently than Alsop et. al (2006) suggested as Chris's use of choice to transfer, or Level 2 empowerment, was actually a two-part process. See Table 6.2 for a summary of the original and revised frameworks; the changes are highlighted in gray.

Table 6.2.

Original and Revised Empowerment Levels

Original Framework (supported by Alsop et al. (2006) and School Choice Literature)	Revised Framework Using the Case of Chris
Level 1: <i>Existence of choice</i> --does the student (or family) have the opportunity, through agency and opportunity structures, to make a choice?	Level1: <i>Existence of choice</i> --does the student (or family) have the opportunity, through agency and opportunity structures, to make a choice?
Level 2: <i>Use of choice</i> --does a student actually make a choice?	Level 2a: <i>Trying on schools</i> --is the school a good fit? Level 2b: <i>Use of Choice</i> --does the student actually make a choice? Deciding to stay at the school or transfer?

Level 3: <i>Achievement of choice</i> --Does the student achieve the desired outcome, which is influenced by the student's agency, opportunity structure, and empowerment?	Level 3: <i>Achievement of choice</i> --Does the student achieve the desired outcome, which is influenced by the student's agency, opportunity structure, and empowerment?
----------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Considering Level 2 empowerment as both Level 2a, the decision to look for a good fit by transferring into a school, and Level 2b, the decision to stay at a school of good fit, helped clarify Chris's empowerment when engaging in school choice.

Differentiating Chris's Level 2, into Level 2a and Level 2b offers insights into how some marginalized youth find schools of good fit. A good school to Chris had caring teachers, small classes, and a good social fit. Traditional informational assets, such as school rating systems, could not provide Chris with the information necessary to make a meaningful decision. Perhaps as a result, Chris engaged in school choice by trying on schools to determine a good fit.

In contrast, Felix decided on transferring to a school based on information from friends, but when he was not happy at the new school, he stopped attending school, or ditching, instead of transferring again like Chris. This model of trying on schools may have helped Felix, as well as other marginalized, highly mobile youth, experience greater school choice and academic empowerment.

Yet, this differentiation also highlights challenges marginalized youth may face when trying to become academically empowered by school choice. From Chris's case, it becomes clear that gaining information about schools and engaging in trying on schools can set the stage for a large number of transfers. Of Chris's six transfers in high school, all six could be considered reactive due to the timing and reasoning for his transfers (such as moving homes). Yet, simply labeling these transfers as reactive misses the nuances of

Chris's efforts to learn more about schools while transferring and the couple of positive outcomes he experienced. Of these six transfers, Chris was able to achieve Level 3 school choice empowerment, or full empowerment, only twice. This empowerment, signified by a student achieving his desired academic outcomes, signified (as with Sofia) a new chance transfer, a negatively motivated school transfer with a positive schooling outcome. This empowerment occurred at Portal (as I explore in more detail in the next section) and at Navarro High School. Unfortunately, his empowerment in deciding to attend Navarro High School was tempered by his limited financial assets, as I explored earlier.

A new framing of informational assets. Chris's case reveals that there may be nuances to how students engage in gathering information on schools not yet captured by school choice research. In order to gather information about school concerns that are more difficult to quantify (i.e., safety, caring teachers, etc.), marginalized students may rely on social informational assets like friends. As school concerns are not easily intertwined for marginalized youth (see Chapter 4), these students cannot rely on the more quantifiable concern of academics as White advantaged students can to ensure a good school fit (Renzulli & Evans, 2005). Therefore, students, marginalized students in particular, may gather information, make a choice, transfer, learn more about the school, and finalize their decision, rather than learning information about a school, finalizing their decision, and transferring, as higher-income students are more apt to do. Applying these findings to the empowerment framework demonstrates that engaging in school choice may not be as simple as gathering informational assets and making a choice, but rather a two-step decision-making process.

Such an approach to gathering information from friends about schools is not necessarily problematic. However, given the current opportunity structure of most schools (specifically when and how credit is awarded), this method of engaging in school choice is detrimental to marginalized students. Chris had earned only six total credits by the time he began his junior year (normally students should earn 10 - 12 credits by this time) and had already transferred five times. Therefore, the detriment may come as an increase in transfers and in turn a decrease in credit earning. This reliance on friends and/or families as key informational assets, combined with further information gathering upon enrolling in the school, points to the need for more consideration regarding how students learn about schools and the possible responsibility of the new school to help the student consider if the transfer would be beneficial for the particular student (Blazer, 2007; Lauen, 2009).

Part 3: Mathematical Experiences—Opportunity Structures Supporting Mathematically Empowerment

If math was a person, I'd want to backhand him.
-Chris [pre-interview, line 805]

In Part 2, I explored Chris's engagement in school choice. Now, in Part 3, I examine his mathematical experiences at the various schools he attended. The majority of my focus is on the productive opportunity structures at Portal that supported Chris in becoming mathematically empowered. Therefore, my attention in this section is on the opportunity structures and the subsequent impact on Chris's assets, specifically psychological and mathematical informational assets. I will also examine the resulting impact on Chris's mathematical learning and earning. Figure 6.3 highlights these aspects within my framework.

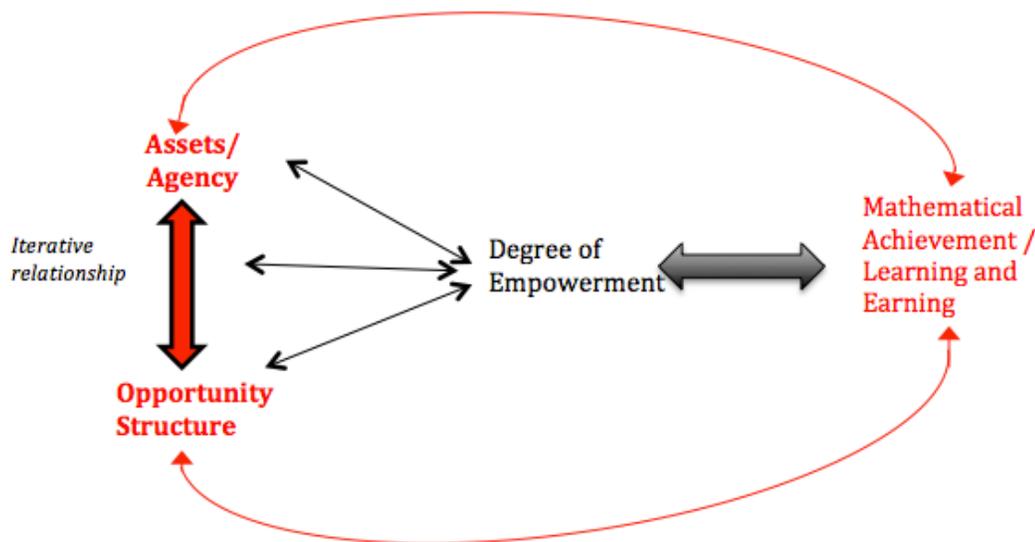


Figure 6.3. Empowerment framework for Chris, Part 3.

There are a variety of structures students may encounter in a mathematics classroom. The case of Chris demonstrates the importance of opportunity structures in providing students with the assets necessary to succeed mathematically. As a reminder,

opportunity structures are "the mix of rules, incentives, obligations, and sanctions that govern human interactions" (Alsop et al., 2006, p. 84). Opportunity structure can also be viewed as the relative space for achievement (Alsop et al., 2006), making schools and especially mathematics classrooms a key consideration for thinking about students' possible mathematical achievement. In this section, I will explore the opportunity structures and assets at Portal that ultimately allowed Chris to be successful in mathematics. First, I will examine the whole school structures at Portal that supported Chris in both learning mathematics and earning credit. Then, I will examine the structures of the individual mathematics classrooms at Portal, with special focus on both the curriculum used and teacher actions.

It is important to understand Chris's prior experiences learning mathematics before he encountered the opportunity structures of Portal. Chris had strong feelings about mathematics when he first joined my study. This is not surprising as he began his senior year having only earned a half credit of math in three school years (at six different schools), when he should have earned three credits. There were a number of reasons Chris had such limited mathematical success. He did not care and was often a "goofball" in math class (post-interview, line 383). His classes were often "loud and abrupt" (post-interview, line 387), making it challenging to focus on mathematics. He was promoted to the next class without passing the previous course. Finally, he could not get the help he needed from his teacher. Additionally, Chris explained that his high mobility played a role in his limited mathematics success in his first three years of high school, as he had transferred six times. He stated, "I didn't feel like I have much knowledge of math because of all the school moving and stuff" (post-interview, line 235). In order to

graduate, Chris, as a senior, needed to earn three and half credits of math by completing the following courses (here A and B, respectively, refer to the first and second semester of the course): Algebra B, Geometry A and B, Algebra 2A and B, Pre-calculus, and Trigonometry.

Portal's school-wide structures. Exploring the specific opportunity structures of Portal is important when seeking to understand students' experiences transferring and learning mathematics. Portal, a self-paced credit-recovery school, was unique in many ways, particularly in the supportive structures they offered to new transfer students. First, when students registered at Portal, they and their parents, if available, were required to meet with the principal or guidance counselor to learn about the school. Second, the student had to successfully complete an enrollment week, which among other things included taking placement tests, following the dress code, attending class, and completing work in his/her classes. This is a brief overview of some of the supports Portal offered when students enrolled. These individualized aspects of the structures surrounding enrollment at Portal provided students with informational assets about Portal and expectations of them in order to be successful, something not often offered when students transferred into larger district schools.

Mathematics placement test and support class. Highly mobile youth often transfer from school to school with school staff more focused on their transcript and/or year in high school than on their pre-existing knowledge. In contrast, Portal's mathematics placement test and mathematical support were two opportunity structures that provided students (perhaps for the first time) with specific informational assets regarding their mathematical knowledge and individualized support to fill in any gaps in

that knowledge. Chris's mathematics teacher used the results from his placement test to identify the key areas of mathematics where he needed additional support. Therefore, Chris was assigned specific sections of the Algebra Preparation course (similar to Pre-Algebra) in order to strengthen his mathematical understanding and knowledge, ensuring he had a comprehensive knowledge of the eighth grade standards. Unfortunately, this was an elective course that did not help Chris acquire the three and a half math credits he needed. At first, Chris struggled to stay motivated to learn the concepts in the support class, but he quickly recognized the benefit:

Post-interview, lines 541 - 545

541	Chris	36:38.7	I just wanted to get through it. At first I saw like (inaudible) oh whatever, so then when I got to it I was just like this is a lot easier so I just started getting through it, and I guess it was a little fun cause it was easy and I was getting through it and I just got to where I was at.
542	Jen	36:53.6	Okay and so you were able to feel successful and get it.
543	Chris	36:57.2	Yeah. Mm-hmm [yes].
544	Jen	36:57.4	That's great, that's great.
545	Chris	36:58.0	And it motivated me to do higher classes like geometry and things like that.

As Chris continued with the self-paced mathematics class, the concepts became easier, even fun. He felt successful completing the course (line 541) and he felt prepared and motivated for future mathematics classes (line 545). Added to this, it is possible that because Chris found the work easy, it may have meant he understood the mathematical ideas. These two opportunity structures, the placement test and the remediation course, offered Chris much needed informational assets regarding his mathematical knowledge.

In contrast, Chris shared how he felt when he did not pass Algebra at any of the three schools he attended his freshman year, but was placed into Geometry in tenth grade at Navarro High School. He explained his frustration in not having the mathematical

knowledge necessary to be successful, stating (emphasis added), "Because I feel like I didn't get enough *knowledge* in Algebra and I got sent on to Geometry and I was just kind of waiting" (post-interview, line 339). Therefore, he felt less motivated because he was placed in the next class, Geometry, without having the necessary mathematical informational assets from the previous course, Algebra (post-interview, line 343). In turn, the opportunity structure at Portal of assessing students' mathematical knowledge and addressing any gaps, offered Chris the opportunity to be mathematically successful that he had not experienced at his other high schools. In summary, Chris spent a month gaining the mathematical knowledge he should have had when he left eighth grade. With this, the month long remediation course most likely motivated him because he felt successful learning mathematics, as the difficulty level was appropriately individualized. As a result of these opportunity structures, Chris was, for the first time, motivated to tackle learning algebra and geometry.

Multiple mathematics classes in one day. Often students struggling in math at district schools are given a core subject course (i.e., Algebra II) and then a support course to help build skills. Portal supported students in a different way, enabling students the chance to enroll in multiple hours of the same course. As the courses were self-paced on a computer or out of a book, this structure of multiple classes in one day allowed the students more time to make mathematical progress. Through this individualized opportunity structure, Portal provided students with both informational and psychological assets. They gained informational assets, because the students could, in theory, learn more each day, gaining additional mathematical knowledge. This offered the students the

opportunity to feel mathematically successful and capable, in turn increasing their psychological assets.

At Portal, most students were behind in mathematics; as such, it was customary for seniors to automatically be placed into two, hour-long mathematics classes as part of their four-hour school day. This structure allowed Portal students to be successful as they spent more time learning math. Chris explained how he had all the support he needed to be successful learning mathematics at Portal because as he said, "I have three math classes and a tutor now. So, I'm good. [Laughs]" (pre-interview, line 517).

Chris did request an extra math class (putting him in three math classes), to "catch up on math," and finish high school (line 537). Portal's structure of automatically placing seniors into two mathematics courses helped provide seniors with the support to be successful in learning the subject and earning their credits. As Chris demonstrated, it also encouraged seniors in asking for the additional support of an another class hour, ensuring that the students had the time necessary to earn their needed mathematics credits and graduate on time. This opportunity structure of taking additional math classes allowed Portal to support students, like Chris, who were significantly behind in their credits, something district schools struggled to do within their schooling structures.

Self-paced courses and credit recognition. District high schools offer semester-long courses and award credit (or not) when they send home report cards. These opportunity structures can be challenging for highly mobile youth, because they transfer at times other than the end of the semester. At traditional high schools, credit is awarded at the end of a semester; therefore, when students transfer before the semester ends they often do not earn credit. Whereas, the opportunity structures of self-paced courses at

Portal and the immediate public recognition of earning credit, afforded Portal students informational assets as well as psychological assets.

With this self-paced set-up, Portal students could finish courses at various times throughout the year. For example, Chris earned his second semester credit for Algebra I on September 15th, 2014 (analysis of transcript). In turn, Chris was able to start his Geometry course on September 16th, 2014. He did not have to wait for the semester to end, as he would in the typical structure of high schools. To support and recognize students in this unique credit-earning environment, Portal created a structure to recognize students for making progress and earning credit. When a student completed a course, the academic counselor visited his/her classroom and recognized the student's effort by announcing the credit earned and ringing a bell. While students sometimes found it embarrassing to be recognized, Chris explained the motivating aspect of this structure:

Pre-interview, lines 612 - 615

612	Jen	32:55.9	So, if you think about like the credit, is it helpful here when they kind of acknowledge you when you get credit?
613	Chris	33:01.3	Yeah,
614	Jen	33:02.3	And what's helpful about that?
615	Chris	33:05.0	It brings you up; you accomplished something so you want to do more.

This opportunity structure of recognition for earning credit helped keep Chris motivated, increasing his psychological assets and encouraging him to accomplish more. He found this recognition of credit so beneficial that he wished he had experienced it earlier, explaining this "recognition for accomplishments, [it] would push students to do more" (pre-interview, line 657).

In addition to providing students with the opportunity to earn and be recognized for credit as they finished a course at their own pace, Portal offered another opportunity

structure, allowing students to graduate at any point throughout the year. This opportunity structure was beneficial both to the graduating senior, as well as to underclassmen. An informal graduation took place around 11 am each Friday. Thus, any student who finished his high school coursework during the week was recognized as a graduate. For example, when Chris completed his required coursework in April, he officially graduated that same Friday. For informal graduations, all of the students were called out of their classrooms to line the hallways, and the principal or counselor would introduce the graduate, sharing how many credits they earned at Portal and the community service they completed. The graduating senior then walked up and down the hallway as the students clapped, with high-fives being exchanged. As Chris explained, watching these informal graduations was inspirational:

Pre-interview, lines 641 - 645

641	Chris	34:08.0	. . .Seeing them. Cause they bring up how much credits they got and where they went to for volunteer work and things like that.
642	Jen	34:15.2	And do you, you like to hear that?
643	Chris	34:16.3	Yeah, because it puts you in a position if they said that about you, you'd be happy too, so.
644	Jen	34:23.2	Nice, nice. And why is it interesting to hear how many credits they've gotten, cause it's just about from here [Portal], right?
645	Chris	34:28.4	Yeah, just to see how much they've accomplished in the time that they've been here.

Chris appreciated hearing about the success of the students graduating (line 641), but he also put himself in their place, stating he would be happy if the principal shared his success with others too (line 643). This might be one of the most powerful opportunity structures at Portal, in terms of keeping students' psychological agency up, as students observed and celebrated graduation on a regular basis. With this, they were able to envision themselves earning the credits they needed at Portal and successfully graduating.

It should be noted that Portal also had a traditional and formal graduation ceremony at the end of the school year. In summary, Chris was supported by the overall opportunity structures of Portal, which included the enrollment process, the mathematics placement test and support course, the ability to take multiple mathematics classes in one day, the self-paced nature of these courses, and the recognition for both earning credit and graduating. I now turn to the opportunity structures at the level of the mathematics classroom.

Portal's structures in mathematics classrooms. Exploring the specific opportunity structures of the mathematics classrooms at Portal offers a more focused look at how students were further supported in learning mathematics. Specifically, the case of Chris is important as it provides a better understanding of the opportunity structures related to student success learning mathematics and earning credit at Portal, with special focus on teacher actions as well as both the curriculum used and the implementation of the curriculum. The staff described the classrooms at Portal as library settings, where students quietly worked on the self-paced curriculum. In the mathematics classrooms, students were assigned *Pacemaker* mathematics books for both the Algebra and Geometry courses. Students in Algebra II, Pre-calculus, and Trigonometry were assigned ALEKS courses, a self-paced computer program through which students learn mathematics. In these courses, the student would decide the order of topics to learn and had to achieve an overall completion and assessment score of 80% for one credit courses (i.e., Algebra II) and 60% for half credit courses (i.e., Pre-Calculus). In each of the mathematics classrooms, the teacher was responsible for ensuring that all students had

the necessary curriculum and one-on-one support to learn the material. Class sizes were kept under 20 students to ensure teachers were able to support this style of learning.

ALEKS. The individualized and flexible opportunity structure of ALEKS offered mathematical informational assets, procedural knowledge related to solving a certain type of problem, as well as informational assets regarding student completion and/or success, visually representing the student's progress towards finishing the course. Additionally, these two types of informational assets often translated into psychological assets as students could immediately see how successful they had been.

At the beginning of the study, Chris was working on his second ALEKS course and had many thoughts on how ALEKS supported his learning. Specifically, Chris found the numerous examples ALEKS offered beneficial, and he found the feedback ALEKS provided on his progress motivating. When I asked Chris to compare the book courses at Portal to courses on ALEKS, he had the following to say:

Pre-interview, lines 511-515

511	Chris	27:27.2	Um, I feel like ALEKS works better.
512	Jen	27:29.3	And do you know why?
513	Chris	27:31.7	Um, I don't know, just the explanations, in a book, they give you the explanations too, but they're not as detailed.
514	Jen	27:42.0	Right.
515	Chris	27:42.8	Mm-hmm. And ALEKS shows you like everything.

Chris valued that, "ALEKS shows you everything" as ALEKS offered almost unlimited examples. Students could request help from ALEKS on every question and the computer program would provide a detailed explanation of the solution.

Chris appreciated these detailed explanations over his experience in a traditional Algebra class where he had trouble making sense of the teacher's varying methods to solve problems, "The teacher's teaching different ways of doing [mathematics], I don't

know he taught different ways, it kinda confused me" (pre-interview, line 421). Whereas, Chris thought learning Algebra II on ALEKS was easier:

Pre-interview, lines 437 - 443

437	Chris	23:18.7	Um, honestly I think it was easier on ALEKS.
438	Jen	23:21.5	Yeah?
439	Chris	23:22.6	Mm-hmm [yeah].
440	Jen	23:23.7	And why do you think that was?
441	Chris	23:24.3	Cause like they can explain to you and I can write down the explanation; try and actually study it.
442	Jen	23:27.5	Nice! And did you always take notes?
443	Chris	23:32.3	Mm-hmm

Rather than being confused by the varying methods in the traditional classroom, Chris was able to "write down the explanation" and "study it" (line 441). As Chris explained (line 443), he took notes. In each study group he attended, I observed him take notes, refer back to his notes, work out problems from ALEKS, and include key examples in his notes.

Documentation of progress. Chris's progress was documented by ALEKS, which further supported him in being motivated to finish mathematics courses. Here Chris recounted an example from Pre-Calculus, where he had to complete 60% of the sections to finish the course:

Just cause I was getting closer and closer. Like it was 333 [completed topic sections] to get to 60% [there were 556 topic sections total, and for credit Chris needed to complete 60% of these, or 333] and when I got closer and closer I was like 'I gotta keep going, gotta keep going.' (post-interview, line 181).

ALEKS clearly documented Chris's progress as he worked through the various 556 topic sections of Pre-Calculus. While needing to complete 333 of these topic sections may seem daunting, Chris and other students found that they could make quick progress through these sections. Each topic section was rather short, with one to two examples and

then students were to correctly complete three problems in a row. Therefore, students could typically make it through three to ten topic sections in a class period. Completing this many sections daily helped motivate students. For example, Chris explained that the clear documentation of progress helped motivate him to "keep going" (line 181).

The opportunity structure of ALEKS provided Chris with the informational assets he needed to increase his psychological assets. In other words, easily making progress and seeing a clear depiction of this progress motivated Chris to achieve more and complete the Pre-Calculus course. When I asked Chris to compare this experience of knowing how close he was to finishing a course in ALEKS with how he was informed of his progress in traditional high schools, he explained they were very different experiences:

Post-interview, lines 184 - 193

184	Jen	12:44.6	And did that ever happen [increased motivation] when you were at a traditional high school? Like knowing you were closer to the end of the semester did you stay [focused], like can you translate the motivation?
185	Chris	12:56.1	It was not as much motivating because I didn't know exactly where I was at, or supposed to be going.
186	Jen	13:00.7	With your grade?
187	Chris	13:01.8	Yeah. This year was easier because I knew exactly where [I] was going.
188	Jen	13:05.7	And so, can you talk a little bit more about the motivation in traditional high schools?
189	Chris	13:08.3	Um, I mean a lot of kids slack off, it's hard to find motivation in school unless your teachers like really motivating you or you know (inaudible).
190	Jen	13:22.8	No it's okay, and did your other, your math classes in the traditional high schools, did your teachers post grades or keep you, did you have any sense of where you were at in the class?
191	Chris	13:34.9	Yeah some of them did. But it was a matter of catching up, like when I asked for extra credit they were like 'we don't have extra credit, for you.' So, I was basically running in the same place.

192	Jen	13:45.2	What do you mean running in the same place?
193	Chris	13:46.3	Like because I was behind and I wanted extra credit, cause, I just wanted, he said I couldn't get extra credit, so basically I was moving at the same pace but I was still behind.

Chris explained that he often did not know where he was, or supposed to be going, in his mathematics courses at traditional high schools (line 185). When his grades were posted, Chris felt as though he was "running in the same place" because he was behind. Chris asked about extra credit, as it was the one opportunity structure he was aware of for improving his grade in a traditional class. Unfortunately, this structure of extra credit was not available to him (lines 191 - 195).

In contrast to running in place at traditional schools, Chris felt like he was "going somewhere" (pre, line 663) when he took tests on ALEKS, at Portal, and saw how much more he had accomplished. Through the opportunity structures both ALEKS and Portal provided Chris, it is not surprising that he felt most successful learning mathematics on ALEKS (pre-interview, lines 461-463).

One-on-one help of teacher. ALEKS provided a wealth of support for students, but for students who struggled with mathematics in the past, these supports were not enough to ensure mathematical success. When I encouraged Chris to further explain why he was successful learning mathematics on ALEKS, he revealed the importance of the one-on-one support he received from his teachers:

Pre-interview, lines 466 - 471

468	Jen	24:34.8	. . .[what is] the difference between being in a classroom and being on ALEKS, what do you think the difference is for you?
469	Chris	24:47.0	Um, your being in [traditional] classrooms, like group work it's kinda more hard because the teacher will help other people too and like you're more likely not to get help or one-on-one time.
470	Jen	24:58.5	Right.

471	Chris	24:58.5	And I just felt like that was easier to do in ALEKS, you just call the teacher over and she'll help.
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Chris again compared his experience at Portal to traditional schools. At traditional schools, he explained that he was less likely to get one-on-one help because there are other students to help (line 469); whereas at Portal when he and other students were engaged in learning from the self-directed curriculum, he was able to ask for help and receive it (line 471). When using ALEKS, Chris was provided with multiple examples, but when he faced a mathematical idea that he struggled with, he could get help almost immediately from the teacher.

Less obvious in Chris's interpretation of the two classrooms (traditional and Portal) are some of the opportunity structures, such as class size and curriculum used. Again, Portal does not have class sizes over 20 students to ensure that the one-on-one help is available; whereas, traditional school teachers may have as many as 35 to 40 students in their classrooms, limiting the one-on-one support they can offer to their students.

I now offer a contrasting example from another school Chris attended, explaining the importance of the two layers of help from both ALEKS and his teachers. The last few months of his freshman year, Chris attended Rogers High School. Rogers had similar curriculum as Portal, in that it was self-paced computer curricula. Two important differences were that Rogers had curriculum developers who developed the school's curricula, instead of using a nationally known curriculum like ALEKS, and the students were in two big rooms with teachers for all subjects monitoring the students. Here is how Chris explained his experience:

Post-interview, lines 325 - 327

325	Chris	23:10.9	No, they didn't really have like teachers, like sometimes you just do-it-yourself, but sometimes you'd ask for help, it was like a big, it was like a big classroom.
326	Jen	23:21.6	Right, right.
327	Chris	23:22.2	And so sometimes you can get help, sometimes you did, but I didn't know their names, I didn't, they didn't really help me.

The large classroom size seemed to impact Chris's opportunity to get to know his math teacher and to feel comfortable asking for help (lines 325 & 327). Unknown is what support the curriculum offered Chris as he worked to excel in mathematics. Yet, what is clear is that Chris had limited access to one-on-one help at this school, as a result of the differing opportunity structures from Portal (i.e., large class sizes and limited interactions with the math teacher).

In contrast, at Portal, it only took Chris a few days to learn the opportunity structures of gaining access to help:

Post-interview, lines 250 - 257

250	Jen	18:36.6	That's great and did it take you some time to get used to the school here [at Portal]?
251	Chris	18:38.8	No.
252	Jen	18:40.2	You just jumped right in and did you start asking for help right away, or did that take you some time?
253	Chris	18:44.6	Yeah, it took me a couple days.
254	Jen	18:47.7	Then you realized like, "hey?"
255	Chris	18:50.3	Yeah, I started realizing [you] raise your hand and get help.
256	Jen	18:54.6	That's awesome. Did anybody explain that to you or did you just?
257	Chris	18:56.9	I just kind of like picked it up, yeah.

Chris quickly learned, most likely by watching other students that he simply needed to raise his hand to get help (line 255)¹. While Chris said he wished for more one-on-one support at his traditional schools, it was not available. Therefore, the opportunity structures at Portal provided Chris with two layers of help, from ALEKS and from the teacher; Chris used this help and excelled both in learning mathematics and earning credit.

Testing out of mathematics courses. To demonstrate Chris's success, I turn to his experience testing out of his final math course, another opportunity structure Portal offered Chris. Highly mobile youth have varying experiences learning mathematics and while a student may not have earned credit for a particular course, it does not necessarily mean s/he did not learn the mathematics. For example, a student may complete the majority of the mathematics class at another school and transfer right before the end of the semester, or credit-awarding time period. In an effort to honor and recognize these varying experiences, Portal offered students the opportunity to test out of each mathematics class. Portal staff and teachers wanted to ensure that students were motivated to learn and excel in mathematics and found that offering students the chance to test out of mathematics courses helped to do this.

Additionally, in an effort to keep students motivated to graduate, given their math deficiencies, Portal had students take the more challenging Pre-Calculus course (in terms of ALEKS curricula) before they took the easier Trigonometry course. Portal staff and teachers found this sequence more motivating as most seniors close to graduation were

¹ Portal had many strategies in place for students who did not ask for help. For example, teachers tried to check in with every student at least briefly each day, and rotated whom they started working with at the beginning of each class period to ensure that all students received one-on-one help.

left working solely on completing their mathematics credits in order to graduate. Needing to complete an "easy" and "quick" mathematics course kept students motivated during their final few weeks of school, helping them stay in school and graduate. With this ordering of courses, students were sometimes able to test out of Trigonometry if they had learned ample mathematics in their previous courses.

While Chris had not previously taken Trigonometry at another school, he had just completed the more challenging Pre-Calculus course at Portal. The possibility of testing out of Trigonometry (through the pretest) was well known. Chris offered how he stayed focused taking the Trigonometry pretest:

Post-interview, lines 162 - 175

162	Jen	11:07.6	How did you stay so focused and motivated?
163	Chris	11:10.1	Um, I don't know I was just like 'I've got to get done with it.' I wanted to get done with math. Math is not my subject; just wanted to get done with it.
164	Jen	11:20.1	Yeah and did it help knowing that it was possible to really do well on the [pre] test?
165	Chris	11:23.7	Yeah.
166	Jen	11:25.0	And get out of that class?
167	Chris	11:26.1	Yeah I was so happy when I saw my scores. I was like yes! (Inaudible.)
168	Jen	11:28.7	How long did you spend on that test?
169	Chris	11:31.8	Oh probably two class periods and a half, something like that.
170	Jen	11:36.7	Wow, wow and was it hard to stay focused?
171	Chris	11:39.2	Yeah, well not really I was like in my zone.
172	Jen	11:43.7	Nice and do you know how you got there?
173	Chris	11:44.9	Like what you mean?
174	Jen	11:46.9	How did you get into your zone?
175	Chris	11:47.0	Oh, I don't know, like when I started, I was just listening to music at first and I turned it off and then it just triggered in my head to keep going.

Chris wanted to finish his mathematics courses (line 163) and knowing that he could test out of the final course was highly motivating (lines 165 and 167). He was able to draw on his success in passing Pre-Calculus:

Post-interview, lines 222 - 223

222	Jen	15:58.6	. . .I'm gonna go back to the trig pretest. What kind of support did you receive when you are working on it? What kind of support did you get from Bridget or Arcelia [Chris's math teachers]?
223	Chris	16:15.7	She [Bridget] helped me out a little bit from the questions but mostly I felt like Pre-Cal pretty much got me ready for Trigonometry, because Pre-Cal was harder than Trigonometry.

Chris was able to rely mainly on his own mathematical knowledge gained during his previous courses, specifically Pre-Calculus (line 223), to support his success.

Prior to Portal, Chris had not been able to rely on his prior mathematical knowledge to be mathematically successful. The culmination of the productive opportunity structures at Portal and Chris's mathematical empowerment both learning mathematics and earning credit was Chris's changing viewpoint of mathematics:

Post-interview, lines 288 - 305

288	Jen	20:55.0	. . .So I thought this was a very interesting quote, in the pre-interview you said you "would backhand math if it was a person."
289	Chris	21:13.6	Yeah. [Laughs]
290	Jen	21:15.0	Why did you, why did you say that? Why do you think it?
291	Chris	21:18.1	Um I don't like math. [Laughs]
292	Jen	21:20.4	And so, like is there something math did to you or is it just, if it was a person?
293	Chris	21:24.4	It's just, I'm a smart person. Math just made me feel so dumb. It's like.
294	Jen	21:28.4	Yeah it's frustrating and that's kind of the main reason?
295	Chris	21:32.8	Yeah I'm just [makes backhand motion and laughs], backhand 'em.
296	Jen	21:35.0	And do you feel differently now that you tested out of Trigonometry?

297	Chris	21:39.5	Yeah I feel a lot better about math now.
298	Jen	21:40.6	Yeah?
299	Chris	21:41.7	I don't really want to backhand 'em; it's more like a push now. [Laughs]
300	Jen	21:44.3	Nice, nice. And do you think like if you keep having this success=
301	Chris	21:49.1	That it'll grow with me?
302	Jen	21:50.1	Yeah.
303	Chris	21:50.3	Yeah. Mm-hmm
304	Jen	21:51.5	Maybe you want to give 'em a hug sometime?
305	Chris	21:52.9	[Laughs] Yeah, perhaps.

As a result of his successes at Portal, earning three and a half mathematics credits in one year, including testing out of Trigonometry, Chris no longer wanted to "backhand" math, but rather "push" math (line 299). In line 293, Chris summarized how his experiences with math impacted his view of himself—in that he is a smart person, but math just made him feel so dumb. What Chris could not see was that his struggle was not with mathematical content per se, but rather with his mobility transferring into and out of unproductive opportunity structures at various schools.

Discussion

In part 3, I explored the importance of productive opportunity structures at both the school level and within the mathematics classroom. There were two particular aspects of the opportunity structures at Portal that seemed especially important—individualization and flexibility. In turn, these aspects had important implications for students' assets, particularly informational and psychological assets.

Individualization: The importance of mathematical informational assets. This analysis highlights the importance of mathematical informational assets for highly mobile, marginalized youth. Again, Chris did not recognize the substantial gaps in his

mathematical knowledge, nor did he understand the impact of these gaps. Chris wanted to learn mathematics and had felt successful until ninth grade, but struggled to gain traction in mathematics class from ninth through eleventh grade. Yet, when Portal provided the opportunity structure for Chris to fill in his mathematical knowledge gaps, he began to find mathematics "fun" and he was motivated to complete higher-level courses.

Portal provided Chris the opportunity to build up his informational knowledge, specifically his mathematical information around specific 8th grade standards. Chris may have needed additional support on the 8th grade standards when he initially entered 9th grade, or these holes may have developed over his first three years of high school when he seldom engaged in the math classes. It is unclear. What is clear is that once he could draw on his mathematical informational assets (or his mathematical prior knowledge), he was able to move forward in his mathematical learning and was not just "waiting" like he did during tenth-grade Geometry. In fact, he was off and running. He even asked to be enrolled in a third mathematics hour at Portal so that he had more time for completing his three and a half credits of mathematics his senior year.

Here Chris's experience highlights the importance of marginalized students having access to opportunity structures that individualize students' mathematical learning. Specifically, the placement test and personalized Algebra Preparation course provided Chris with mathematical knowledge, filling gaps that he had as a result of transferring. Additionally, Chris showed that having access to mathematical information allows one to have psychological assets to believe that he can achieve more—which was exactly what Chris did (Alsop et al., 2006, p. 87).

Flexibility: Mathematical empowerment from opportunity structures. Certain kinds of opportunity structures support mathematical empowerment of highly mobile, marginalized youth. Upon transferring into Portal, Chris's experience learning mathematics changed such that during his senior year, he had completed the three and a half credits he needed to graduate with his cohort. This change of mathematical empowerment seemed to occur as Chris was provided with a number of opportunity structures that were especially supportive for him as a mathematical learner. Initially, at the end of his junior year, Chris found the opportunity structure of the placement test and Algebra Prep Course challenging, as he was not earning the credit he needed. Regardless, he began to enjoy learning the mathematics, as it was easy and helped prepare him for courses that were more difficult.

The following school year, Chris experienced more mathematical success and empowerment from the opportunity structures of Portal, including the ability to take multiple mathematics classes in one day, the self-paced nature of the courses, the unique credit recognition, the numerous examples from the ALEKS curriculum, the clear information ALEKS offered of where Chris was in a course, the one-on-one help of the teachers, and the option to test out of Trigonometry. These individualized and flexible opportunity structures of Portal provided Chris with both increased informational and psychological assets. In turn, these increased assets resulted in Chris's Level 3 empowerment as he was successfully learning mathematics and earning the necessary math credits to graduate.

Utilizing the empowerment framework allowed me to highlight the importance of opportunity structures for highly mobile, marginalized youth. My analysis identified the

importance of an enabling environment for empowerment, that is, opportunity structures that allow students to translate their asset base into effective agency through raised consciousness, better information, more equitable rules, and expanded entitlement (adapted from Alsop et al., 2006). Specifically, Chris's case suggests that *individualized* and *flexible opportunity structures* are important if highly mobile, marginalized youth are to be mathematically successful and empowered, especially if they have had limited mathematical empowerment in the past.

Intertwining of school choice and high school mathematics. Finally, this analysis suggests that school choice and mathematical learning during high school are inextricably intertwined. When students are highly mobile, their mathematical learning may be negatively impacted. For example, Chris transferred six times in high school but only earned a half-credit of math before his senior year. Chris's negligible mathematical success is a result of his high number of transfers in high school and the opportunity structures he experienced (or did not experience) in these various mathematics classrooms. Ultimately, Chris was successful at Portal and became mathematically empowered as he earned three and a half years of mathematics credit in his senior year.

For this population of youth, school choice in high school has immense impact. Chris's story is of critical importance because his experience illustrates both how school choice in high school can create large problems for students learning mathematics, but at the same time, how school choice can allow students to transfer to schools that provide the structures essential for their mathematical success. Ideally, such engagement in school choice would not result in three years of very limited empowerment and success in mathematics, as was the case for Chris. While he ultimately succeeded, his relationship

with math was still perilous, as even after a tremendously successful year he still wants to "push" math. Yet, there is hope. When I asked if he might eventually want to hug math, he said, "maybe."

Chris's story is a warning. He was a "smart" kid who struggled to excel in mathematics until he encountered opportunity structures that worked for him at Portal. If Chris had not found Portal, it is possible he would have dropped out of school because he thought he was bad at math and so far behind. Students need to understand that there are varying ways to learn math and that examining how mathematics is taught at schools might be worth considering when they engage in transfers. It would be great if more students like Chris might be willing to "hug" math sometime.

CHAPTER 7: DISCUSSION & CONCLUSION

David Garcia, a school choice scholar and former candidate for state superintendent of Arizona, offers a coffee metaphor to explain school choice. He uses coffee as an example that advocates view school choice to be straightforward based upon simple principles of supply and demand, with quality playing an important role. Garcia's coffee metaphor is as follows. A consumer purchases coffee from coffee shop A. The coffee is not good. Therefore, the consumer starts buying his coffee at coffee shop B instead. Coffee shop B has good coffee and the consumer is happy with her choice. Meanwhile, coffee shop A is working to improve its coffee to bring the consumer back as a customer. If the improvements do indeed make the coffee better, the consumer may return to buying her coffee there. If not, coffee shop A closes, as it should since it offers an inferior product. Unfortunately, as demonstrated throughout this dissertation, school choice is not always as simple as choosing one outcome or factor, such as good coffee. The reality is much more complicated. In this chapter, I highlight these complicating factors and the resulting impact of mathematical learning by looking across the three case study students' experiences.

Overview of My Chapters

In chapter 1, I offered the example of Becki as to how I became interested in better understanding highly mobile, marginalized youths' experiences transferring. Specifically, through Becki's story, I recognized the struggles she faced staying motivated in learning mathematics due to her previous high mobility and struggles to be mathematically successful. Becki is not alone; there are a growing number of students doubly disadvantaged—first by demographics and then high mobility. My research goal

was to make sense of highly mobile, marginalized students' experiences transferring schools and learning mathematics.

In Chapter 2, I explored the literature surrounding both the inequities in mathematical learning and school choice, while also identifying opportunity structures that are often inequitable due to established and unwritten rules (i.e., location of elite charter schools and access to dialogic instruction). I also addressed the fact that the majority of school choice research is quantitative and as such, lacks a clear understanding of students' experiences and the resulting outcomes. Drawing upon empowerment research in mathematics education, I argued the importance of a framework that captures the complexity of mathematical learning and school choice while foregrounding students' mathematical empowerment (adapted from Alsop et al., 2006).

In Chapter 3, I outlined my research process. First, I explained my study design and then described the setting for the study, including the school context, mathematics classrooms, and study group. Next, I provided my methods for collecting and analyzing data. Throughout the findings chapters, I utilized my theoretical framework to provide insights into the students' experiences engaging in school choice and learning mathematics. Additionally, I suggested key factors (i.e., earning versus learning, new chance transfers, and the beneficial opportunity structures at Portal) in each student's school choice and mathematical learning experience.

The findings demonstrate the complexity of engaging in school choice, and reveal both challenges and successes students encountered engaging in school choice and mathematical learning. Each findings chapter offered two key findings, one related to school choice engagement, and one related to mathematical learning when experiencing

high mobility. The school choice findings indicate students may be falsely empowered when engaging in school choice, they may engage in new chance transfers offering them a new start, and/or they may increase their mobility by trying schools on for a good fit. The mathematics findings suggest that students may experience mathematical learning empowerment and/or earning empowerment, and that recognizing this difference is important; developing a procedural understanding of mathematics may create further challenges as highly mobile youth transfer schools; and experiencing productive opportunity structures may be essential in supporting students' mathematical empowerment. In this chapter, I summarize the claims from my three findings chapters. Then I look across all three to draw other conclusions about students' experiences transferring, their experiences learning mathematics, and the relationship between school transfers and mathematical learning. I will first specifically address my three research questions and then I will discuss other claims and concerns that arise from this study.

Marginalized Youth's Experiences Engaging in School Choice

My first research question asked how highly mobile, marginalized youth describe their decisions to transfer schools. Included in this question is exploring what options they considered, how they chose a school, and their perceptions of the outcome of their choice. Many studies have explored students' engagement in school choice. For example, Goyette (2008) examined how students gather information about schools (i.e., friends, family members, the internet, etc.) and Garcia (2008) explored the types of charter schools (i.e., elite or credit recovery). While this research is valuable, it has focused on a more quantitative understanding, offering a general perspective stemming from large-scale data sets. As I elaborated in each findings chapter, students consider a variety of

factors when deciding to transfer, make the decision in different ways, and have different outcomes when transferring.

This study demonstrates what a qualitative analysis of case study students' experiences transferring can reveal about marginalized youths' engagement in school choice. In this section, I will present patterns across the students regarding their mobility, how they made their decisions to transfer, and what schools they saw as options. Alongside these concerns, I also examine the impact on their high mobility of their engagement transferring to open-enrollment high schools.

Mobility experiences. Rumberger and Larson (1998) define high mobility as transferring three or more times throughout one's schooling career, kindergarten through twelfth grade. Added to this, Ream (2005) clarified that high mobility in high school is defined as transferring two or more times. Furthermore, youth from low-income families and/or minority students are more likely to be highly mobile during high school (Ream, 2005; Rumberger et al., 1999). Specifically, Mexican American students experience a significantly higher rate of mobility than White students; in high school alone they transfer twice as often as their White counterparts (Ream, 2005). Thirty percent of these transfers have been documented as transfers occurring without an associated home move (Ream, 2005). What is missing in the literature is a better understanding of these students' experiences, especially what choices they considered, methods of choice, and the overall outcome of the transfer. I now turn to understanding why these students transferred predominantly in high school to better understand their school choice engagement.

High school mobility. All three of my case study students were highly mobile in high school (having transferred more than two times). Furthermore, Felix and Chris were

both highly mobile when considering only their freshman years, both transferring three or more times within one school year. These frequent transfers most likely contributed to challenges in their high school experience, namely adjusting to new academic environments, staying motivated, and engaging in academic work. As a result, both Felix and Chris earned very few credits their freshman year, putting them behind their peers. The experiences of my study participants also suggests that student mobility may be occurring at rates higher than predicted in current research. For example, in a nation-wide study, Gasper, DeLuca, and Estacion (2012) reported that 71.9 percent of students did not transfer during high school, 19.8 percent transferred once, 6.6 percent of students transferred twice, and few students transferred more than two times. Also, mobility without a corresponding home move was much higher than research predicts. Specifically, Ream (2005) found that 30% of school transfers occurred without an accompanying home move; whereas, this multi-case study had a rate of students' transferring without a home move 82% of the time. While this was a small multi-case study, it highlights the importance of more recent and detailed studies to better capture the current mobility experiences of marginalized youth.

Transfers to charter schools: why and how. Charter schools are often touted to offer better opportunities for students and to increase educational achievement (Hill & Lake, 2010). Across the three case study students, transfers to charter schools occurred a total of six times, with each student transferring twice into a charter school (Felix's two transfers were into the same charter school, Portal). All six transfers occurred during high school. For each of these charter school transfers, catching up on credits was one of the main factors, or the key factor, when making the decision to transfer. For example, a

friend told Chris that Rogers (a charter school) was a good school to "get your credits" (pre-interview, line 154). As Chris was behind in credits, he decided to transfer to Rogers. Relying on friends and family members to learn about schools is fitting with the research on school transfer decisions for marginalized youth (Goyette, 2008). In concert with this research, all three students relied on the informational assets from friends or family members to learn about these charter schools. Added to this, the students all knew someone attending the school, with the exception of Sofia's transfer to Kings Academy.

However, as mentioned in Chris's chapter, the case of Chris adds nuance to this method of learning about schools in his approach of "trying on schools." Chris and Felix both learned about schools from their friends, but then tried on the charter schools to gain more information (making the choice to transfer, learning more about the school once enrolled, and then deciding to stay or transfer to another school). In the end, both Chris and Felix found that their first charter school was not to a good fit.

For Felix, this was somewhat more complicated by the fact the Portal was not a good fit his freshman year. Yet, when he returned his sophomore year, he found it to be a much better fit. Felix commented on this and said he found Portal challenging his freshman year as everyone was older than him, but he found it to be a much better fit his sophomore year. Staff interviews triangulated this finding, explaining that younger students often have a harder time being successful at Portal and frequently leave, with many of these students returning later.

Outcome of transferring to charter schools. The three case study students were only academically successful at Portal and not at other charter schools. While Sofia enjoyed the opportunities of King's Academy and felt as though she was part of

something bigger (acquiring organizational assets), she was expelled at the end of her first semester without having earned any credits. Additionally, Chris struggled to gain traction at Rogers Charter School as there was little social engagement, and he did not feel very comfortable asking questions of the teachers due to the opportunity structures of the large classrooms. As a result, he did not earn any credits at Rogers. As both Sofia and Chris transferred to these schools with the hopes of catching up on credit, they were ultimately disempowered at these schools, as neither earned any credit, let alone "caught up" on credit (or earned additional credits). This hints at the limited success marginalized youth may face at charter schools for a variety of reasons, such as transferring into a new charter school (Sofia's experience at King's Academy) or transferring into a for-profit charter school (Chris's experience at Rogers Charter School). The structures and regulations surrounding charter schools are not the same as public high schools. Therefore, students may experience less than ideal educational environments as new schools gain their footing or as for-profit schools try to earn the largest profit.

Felix was unique because he chose to attend Portal his freshman year, almost as a last resource since he could not return to Century High School. While attending Portal, he was successful in earning 3.25 credits in one semester. He encountered even greater success when he returned to Portal, earning 10.50 credits in just over one school year. At the time of the study, Felix had earned 93% of his credits from Portal. Chris was also successful upon transferring into Portal, both earning and "catching up" on credit. He earned 59% of his credits from Portal in just over one year. Sofia was less successful at Portal, perhaps because she was younger and/or because she had not been at Portal for

very long (only several months). She earned 1.75 credits in the one semester she had been enrolled at Portal, or 29% of her credits at that point.

All three students felt comfortable socially, mainly because of the opportunity structures at Portal, and knowing someone attending Portal before they enrolled, an organizational asset. They also reported that while they struggled with some of the opportunity structures (like the absentee make-up policy), they also felt that the teachers cared, highlighting the importance of a caring academic environment (Valenzuela, 1999), another result of the productive opportunity structures. At Portal, the students' academic and school choice concerns were intertwined, making it possible for Felix, Chris, and to a lesser extent, Sofia, to achieve Level 3 empowerment, both with regards to school choice empowerment (they were catching up on their credits and socially comfortable) and academic empowerment (they were earning credit towards graduation).

Confirming unwritten rules for school choice. The case study students' school choice decisions with regard to charter schools confirm the various unwritten rules of school choice. For example, all three students *only* transferred to charter schools as high school students, and then they only transferred to schools that focused on credit recovery. These actions are in concert with research on the second unwritten rule for school choice: marginalized youth have limited schooling choices when it comes to the type (i.e., credit recovery) and location of charter schools (C. Lubienski, Linick, & York, 2012). The charter schools these students attended were non-elite schools focused on credit recovery (Renzulli & Evans, 2005). Not surprisingly, none of the students talked about considering the local elite charter schools located outside the city center. Transportation was most

likely a factor in their decisions of what school to attend, as all three students commented that they relied on the fact that Portal was along a public bus route (Garcia, 2008).

Finally, maybe as a result of the opportunity structures limiting their charter school options, only one transfer for each of the students (or 17% of the combined transfers) occurred when they were at the elementary or middle school level, a time when the majority of White students engage in school choice (C. Lubienski et al., 2012). As a result of mobility timing (due to the opportunity structure of elite and non-elite charter schools), White students become more stable during high school, increasing their educational experiences, while minority students increase their instability (Garcia, 2008) and face a downward spiral in their educational experiences (Gomez, 2012). Felix, Sofia, and Chris experienced an increase in instability in high school, with the large majority of transfers (83%) occurring during this time. This increase may be due, in part, to the prevalence of schooling opportunities they faced in high school (as I will further explore in the section on open-enrollment). Contrary to the research, Felix, Chris, and to a lesser extent Sofia, were not facing a downward spiral in their educational experiences, rather they were finally improving. This improvement is likely a result of the productive opportunity structures at Portal, namely the small school size, the individualized and flexible curriculum, and the caring and attentive teachers.

While these students have avoided facing a downward spiral in their educational experiences, these findings do suggest that marginalized youth are not positioned to attain assets (i.e., financial assets including transportation) necessary to equitably use the current opportunity structures of school choice (location of non-credit recovery charter schools, elite/non-elite charter schools, and funding of public schools). As such,

marginalized youth often find it challenging to make a purposeful choice to transfer to a non-credit recovery charter school.

Open-enrollment schools encourage further mobility. One of the side effects of school choice is that district schools are facing decreasing enrollment as neighborhood students choose to attend nearby charter schools. In David Garcia's coffee metaphor, these district schools would strive to improve the experiences for students, thus increasing enrollment. Instead, researchers have found that schools are spending more money on advertising to attract students and, as a result, spending less money in the classroom (Arsen & Ni, 2008). In another attempt to increase student enrollment, some public schools are becoming open-enrollment schools, meaning students from out-of-district (or neighborhood) can enroll (C. Lubienski et al., 2009). In other words, there is little evidence that neighborhood schools are improving, rather they are engaging in various methods (i.e., advertising and changing enrollment methods) to increase student enrollment. Instead of improving the coffee, or product, schools are seeking other ways to entice more customers. Not surprisingly, this does not equate with improved schooling experiences as demonstrated by the case study students.

Yet, the structure of open enrollment gives students, especially students in urban areas where there is a high concentration of public schools, more options to try out. As a result of the increase in schooling options, student mobility also increases. Additionally, these schools tend to be very similar to students' original district schools and often do not provide a better fit. For example, many of the classes at open-enrollment schools are often large, making overcrowding a problem, and the schools engage in discipline

policies that heavily utilize suspensions and expulsions, often pushing students out (Blazer, 2007).

All three students engaged in transfers to open-enrollment schools at the same rate, or greater, than their transfers to charter schools. Felix transferred to two open-enrollment schools, transferring to one of these twice (Century), thus resulting in three transfers to open-enrollment schools. Sofia transferred to two open-enrollment schools and Chris transferred to five open-enrollment schools. In comparing transfers to open-enrollment schools to all school transfers, Felix and Sofia both transferred to open-enrollment schools 50% of the time (3 out of 6 for Felix, and 2 out of 4 for Sofia), whereas, Chris transferred to an open-enrollment school 57% of the time (4 out of 7 transfers). Additionally, both Felix and Chris returned to one of the open-enrollment schools they had previously attended. These students' experiences are similar to Powers' et al. (2012) research that found open-enrollment can create a situation more like revolving doors than a situation of competition. Students did not move to more advantaged districts but rather transferred between schools within the same district or among nearby districts. In addition, Powers et al. (2012) found that this type of school movement was more prominent in urban areas, with higher numbers of minority students. Felix, Sofia, and Chris supported this finding, being marginalized youth in an urban area engaging in high numbers of transfers to open-enrollment schools.

What this dissertation adds to research like Powers' et al. (2012) is why marginalized students engage in high numbers of inter- and intra-district transfers. Out of the nine transfers to open-enrollment public schools, only one transfer was specifically focused on improving a previous situation. This was Sofia's transfer (a new chance

transfer) to Summit Middle School, where her mom hoped she would meet new friends and get better experiences preparing her for high school. The other eight transfers focused on changing social experiences and/or leaving schools the students "hated" or found unsafe. These transfers were often the result of a quick decision focused on improving social situations. Yet, Felix's transfer to Blanco (an open-enrollment high school) demonstrated the challenge of improving social situations by transferring to a large public high school. Specifically his experience highlighted the many variables (i.e., lunch schedule) that may impact a student's social situation and resulting school choice empowerment.

Chris offers an alternative view on reasons why students transfer quickly to open-enrollment schools, while also supporting the revolving door idea. Chris often "tried schools on," and the policy of open enrollment offered Chris (and the other students) greater school choice as he looked for a good fit. This method of trying on schools, combined with open enrollment, may have been the reason Chris was the most highly mobile of the three students. The one good school fit Chris found did not last, because he moved homes, and his new home was too far away to continue attending. Thus, the challenge with open enrollment is that students are often limited to the schools near their homes. Unfortunately, as the students in this study demonstrated, nearby schools offer similar (or worse) experiences for the students and may only increase mobility while decreasing student achievement and empowerment at the school.

Only Sofia generally experienced academic and school choice empowerment when transferring to an open-enrollment school, and this may have been a result of her having the fewest transfers. Both Felix and Chris experienced fleeting school choice

empowerment, but rarely experienced academic empowerment when transferring to these open-enrollment schools. Rather, Felix and Chris became academically disempowered, as they became further and further behind in their credit earning, ultimately creating the need to attend a credit-recovery charter high school. The students did not actively talk about choosing to attend an open-enrollment school, but they did usually attend these schools until their credit situation got dire, at which time they transferred to a credit recovery charter school. Here it is important to note that my sample is not only small, but also taken from a credit recovery school where the students felt successful. Perhaps, if I had completed a similar study at an open-enrollment school, I may have dramatically different findings.

This study suggests that the current school choice landscape has large implications for marginalized youth, and that high mobility in high school creates (perhaps additional) challenges for these students to surpass. These findings raise some concerns and needs for future research. For example, one area for future research includes developing a better understanding of the relationship between inequitable school choice and the impact it has on creating, or encouraging, more high schools that are open enrollment. In other words, it would be worthwhile to compare the student movement between open-enrollment schools in areas with easy access to elite charter schools to areas that only have access to credit-recovery schools. Additionally, students would benefit from research exploring how open-enrollment schools could better support student achievement, instead of creating the need for credit-recovery charter schools.

Marginalized Youth's Mathematical Learning

My second research question asked, how do highly mobile, marginalized youth describe their experiences learning mathematics. Many studies have explored marginalized students' experiences learning mathematics. This research has found that marginalized youth do not have access to highly qualified teachers (i.e., Darling-Hammond, 2004) or high quality dialogic instruction (i.e., Anyon, 1981). Yet, marginalized students may prefer direct instruction, as this is what they have experienced (Lubienski, S 2008). Not surprisingly, this study demonstrates that marginalized youth still have limited access to productive opportunity structure in mathematics classrooms, but also adds nuances to these opportunity structures.

In this section, I will summarize and look across the students' experiences learning mathematics. Additionally, I explore two cross-case experiences in more detail—the students' similar mathematical experiences, especially the resulting procedural understanding of mathematics, and the importance of mathematical informational assets in being mathematically successful.

Mathematical experiences. Both Chris and Felix recounted enjoying and/or being good at learning mathematics at some point during elementary and middle school. In contrast, Sofia found learning math challenging across her schooling experiences. Despite these differences in elementary and middle school, all three case study students found learning mathematics especially challenging in ninth grade. Social factors played a significant role in the challenge of learning mathematics, as all three students recounted how loud their classrooms were and how they focused on social concerns in place of mathematical concerns. Additionally, both Felix and Chris recalled that one of their math

teachers, during their freshman year, quit in response to the challenging classroom environments. During freshman math, Sofia recalled being given the option to sit in the back (and not work) or sit up front and work. She chose to sit in the back. Sofia had extraordinary circumstances, as during ninth grade she was still struggling with her mom's recent deportation. Therefore, her lack of engagement may have been more psychological than a result of poor opportunity structures. In summary, despite the students' different initial relationships with mathematics, all three students faced especially challenging (or unproductive) opportunity structures in ninth grade that made it difficult for them to be mathematically successful.

Unfortunately, across all three cases, these challenges continued until they arrived at Portal. For example, Sofia transferred to King's Academy where the math teacher was fired after the first month, only to be replaced by the CEO and Principal acting as substitute teachers for the remainder of the semester. During this time, Sofia was not offered instruction, nor was she provided with a highly qualified mathematics teacher. Meanwhile, both Felix and Chris encountered brief respites in tenth grade—Felix, at Century, for the first two weeks of school and Chris, at Navarro, for the entire year. In these classrooms, they felt supported learning and/or experienced a caring teacher (Valenzuela, 1999). Yet, these experiences ended and they encountered further challenges, particularly due to the lack of mathematical informational assets they had acquired. Similar to the research on marginalized youth mathematical learning, these students struggled to learn mathematics in classrooms and schools with subpar opportunity structures (i.e., Darling-Hammond, 2004).

Despite their struggles, it did not mean that these students could not be mathematically successful. As each student enrolled at Portal, they began to experience some level of mathematical success, and they had an improved relationship with learning mathematics or felt more empowered. Felix earned three mathematics credits (one of these an elective credit for the completion of the "Red Book" and Algebra Prep) in one calendar year (including summer school). Chris earned four mathematics credits (a half credit was an elective credit for the completion of Algebra Prep) in one calendar year. While Sofia had not yet earned any credit from Portal by the time the study ended, she had completed a couple weeks of Algebra Preparation (her teacher did not feel the work warranted an elective credit) and 90% of the Algebra textbook, both indicating her potential for success. Additionally, her view of learning mathematics changed. She stated, "I used to think I hate math, like it's the worse, but now that I'm actually working on it, I learn how to do it and I'm like oh my god this is awesome" (pre-interview, line 724).

Chris and Felix made substantial progress both learning and earning credit at Portal within one year, but it did take both of these students some time to gain traction being mathematically successful at Portal. Additionally, both of these students were older than Sofia and closer to graduation. Sofia did not offer direct evidence of being successful earning mathematics credit, but through her changed view of learning mathematics, I believe Portal offered her productive opportunity structures. Therefore, she most likely was successful earning credit at Portal the longer she stayed there.

Procedural understanding of mathematics and intertwined learning and earning. Perhaps because of the three case study students' comparable experiences, the

students also talked about understanding mathematics in a similar way, specifically a procedural understanding of mathematics. In chapter 5, I explored in detail how Sofia developed a procedural understanding of mathematics. Here, I offer brief examples of how Felix and Chris did as well and explore why this is an artifact of their experiences as well as an indication of their assets and opportunity structures. Before learning mathematics at Portal, Felix recalled utilizing direct modeling to do his math work. While this is not inherently procedural, the fact that he faced challenges in fourth grade suggests that he had yet to develop a more conceptual understanding of number sense. On the other hand, Chris spoke of appreciating ALEKS and the clear examples it offered, indicating his procedural understanding, as these examples were all process oriented and offered little opportunity to explore mathematics conceptually.

It is not surprising that these three case study students developed procedural understandings and, in fact, preferred direct instruction (even through a computer or book). In fact, this is fitting with Lubienski's (2008) findings that suggest marginalized youth favor direct instruction. The students' preference for direct instruction does not indicate that learning mathematics in this way is problematic (Munter et al., 2015). Rather, it suggests that due to the inequitable opportunity structures funding schools, these students did not experience high quality mathematical experiences that may have led them to build and prefer a conceptual understanding of mathematics (i.e., Boaler, 2013).

Yet, one unexplored concern possibly further marginalizing youth is the entanglement of earning and learning empowerment in elementary and middle school, as examined in Chapter 4. Specifically, the opportunity structure in elementary and middle

school that entangled earning and learning empowerment may have limited the three students' mathematical learning, as they were passed along without gaining the requisite mathematical informational assets from each year. This is particularly evident for Felix, who did not learn math from fourth through tenth grade, and Sofia, who had not yet learned her multiplication facts. While it is less evident for Chris, the fact that he did not feel "ready" for math in ninth grade indicates that he also did not learn the requisite mathematical knowledge. This opportunity structure entangling learning and earning in elementary and middle school highlights the importance of ensuring marginalized youth have access to highly qualified teachers, ensuring that the students are learning. Otherwise, as demonstrated by Felix and Sofia, and to a lesser extent Chris, this entanglement of earning and learning may further marginalize these youth.

One final consideration, while dialogic instruction has been found to be most beneficial for all students' mathematical learning (DiME, 2007), it may be more important to ensure marginalized youth have access to highly-qualified, caring teachers. For example, at Portal these three students were mathematically successful when they encountered caring and highly qualified mathematics instruction that was individualized for them. Learning through direct instruction is not in and of itself a promise of poor mathematical outcomes, but when it is in a less than ideal situation, as most situations were for Felix and Sofia, direct instruction can be very problematic. With this, dialogic instruction, in poor situations, might be just as harmful. This may be especially true for marginalized youth like Sofia and Felix if a teacher only called on the top students in the class and limited marginalized youths' classroom interactions.

Munter et al. (2015) highlighted the importance of recognizing that many of these pedagogical debates, over direct and dialogical instruction, are about ideal situations. Students, as demonstrated by these three case studies, do not often experience ideal situations, thus making the negative impacts of direct instruction more prominent. If these and other students experienced more instances of high-quality direct instruction, such as classrooms and schools staffed by caring and highly qualified teachers with a solid understanding of both pedagogical and content knowledge, these marginalized, highly mobile students would receive greater support for their mathematical learning (Munter et al., 2015). The research suggests that dialogical instruction would offer these students greater support in developing their mathematical informational assets (i.e., they would have better recall of mathematical concepts (DiME, 2007)). Yet, due to the opportunity structures currently in place surrounding district and charter schools, we have a long way to go to achieve this ideal vision. Therefore, it is important to recognize the work that high schools, like Portal, have engaged in to support students in both learning the mathematics and earning the necessary credits to complete the required courses. At Portal, Chris was able to be mathematically successful and empowered given the structure of ALEKS and the clear procedural examples. This is not to say that he learned more mathematics using ALEKS. Rather, given the opportunity structure of the requirements for high school graduation and his current mathematical informational assets upon entering Portal, procedural instruction was empowering.

The importance of mathematical informational assets. While conceptual understanding is viewed as most beneficial, these students demonstrate that procedural understanding is preferred over no understanding. In this section, I explore the

importance of marginalized highly mobile students' mathematical informational assets. The opportunity structure of mathematical learning in school is such that students should learn a year's worth of mathematical standards, ideas, concepts, and skills and in turn be able to draw from this accumulated information during the next school year. While there is research that cites the decrease of knowledge over the summer (Cooper, Nye, Charlton, Lindsay, & Greathouse, 1996), little, outside of studies based on standardized test results, documents the accumulated struggles of marginalized youths' building of mathematical informational assets across their schooling years. For reasons related to the inequitable opportunities in mathematics education, Felix, Chris, and Sofia entered Portal lacking the mathematical informational assets they should have acquired in kindergarten through eighth grade, not to mention any additional informational assets they should have acquired during their time in high school. In addition, the students did not see their own knowledge as a resource to rely on in order to excel in mathematics. For example, Felix had not thought about his own mathematical knowledge, or mathematical informational assets, until the assessment at Portal (post-interview, lines 384- 393).

Portal was the only school to address their limited mathematical informational assets upon enrollment. This especially productive opportunity structure allowed the students to gain most of the information they were missing with regards to mathematical learning. Yet, it took all three students some time to recognize the benefits of Algebra Support, or Pre-Algebra. Eventually, though, they learned the content they should have acquired by eighth grade, and they all began seeing math as "more fun," since they were able to rely on their own mathematical informational assets. For example, Felix explained, "After I finished the Pre-Algebra in summer school, that's when it started to

make sense, that's when you could apply what you used, what you learned in Pre-Algebra to Algebra 1" (pre-interview, line 387). Learning mathematics and being mathematically successful became much easier once these students had the mathematical informational assets they could utilize. Additionally, this mathematical success translated to increased psychological assets supporting the students to further increase their mathematical success and empowerment. This finding points to the importance of ensuring all students, especially highly mobile youth, are supported in learning the mathematical information necessary to be successful for their current required math class (i.e., ensuring students have learned the essential ideas regarding fractions before placing them in trigonometry).

In summary, due to their mathematical experiences, these three students had developed a procedural understanding of mathematics and saw it as a collection of random facts and procedures. There were many holes in their understanding or mathematical informational assets, and it was not until Portal provided the students the opportunity to fill in these gaps, through Placement Testing and Algebra Support, that the students experienced success in high school mathematics. The cases of Felix, Chris and, to a lesser extent, Sofia, are important because they tell another narrative of marginalized youth: They are capable of being mathematically successful when provided with supportive mathematical opportunities.

School Transfers and Mathematical Learning

My third research question addresses the relationships between school transfers and mathematical learning experiences of marginalized youth. As I explored in each of the findings chapters, transferring schools had a significant impact on the students' mathematical learning. Research that has examined the impact of transferring schools has

focused on a more macro view of student's experiences and educational achievement. These studies, such as Rumberger and Larson's (1998) quantitative study on student mobility, found that students who transferred scored significantly lower on mathematics assessments. Further, Lauen's (2009) quantitative examination of the negative impact of transferring on students' graduation and mathematical achievement tests, described general trends of transferring and mathematical impacts of these transfers. The present study demonstrates what a qualitative multi-case study can reveal about the specifics of school choice and mathematical learning, namely why school choice puts marginalized youth at *double jeopardy*. Here I define double jeopardy as the increased challenge highly mobile, marginalized youth face learning mathematics because of 1) their ethnicity and/or low-income status and 2) their high mobility. In this section, I draw upon both the findings chapters and the previous sections of this discussion to offer insight into the relationships between school transfer and mathematical learning experiences of these students.

Double jeopardy. As explored earlier in this chapter, it is well documented that marginalized youth do not often experience high quality mathematical learning environments, and that marginalized youth face additional challenges finding a good school fit. These two challenges together create a situation of double jeopardy, putting highly mobile, marginalized youth at an increased risk of failing to learn mathematics. As the three case study students demonstrated, marginalized students may face less than ideal mathematical learning environments in kindergarten through eighth grade. This is particularly true when mathematical learning and mathematical earning become separate components of achieving mathematical success in high school, as demonstrated in Felix's

chapter. Therefore, the first component of double jeopardy highly mobile, marginalized youth face is limited access to high quality mathematics instruction.

The second component of double jeopardy that highly mobile marginalized youth face is the additional challenges they face learning mathematics due to their high mobility. They are unable to leverage their past mathematics experiences to make progress in their new schooling situations. Sofia directly stated this when discussing the challenges she faced trying to learn different procedures for order of operations at different schools and needing to determine which was the correct method (pre-interview, line 654). Additionally, all three students' transcripts were a clear indication of the challenges they faced earning mathematical credit as highly mobile, marginalized youth. Before transferring to Portal, the students had limited success earning mathematics credit. Felix earned zero math credits before Portal. Sofia and Felix both earned a half credit for the first semester of Algebra 1. As a result, all three students were behind in meeting the graduation requirement of four years (or credits) of math, confirming Schiller's (1999) finding that highly mobile students had lower grades in mathematics. In summary, when marginalized youth, with these limited mathematical informational assets, become highly mobile in high school it can create significant additional challenges for successfully learning mathematics.

Argument for stability? Some researchers suggest that marginalized youth would be more mathematically "successful" if they did not transfer schools. For example, Lauen (2009) explored highly mobile youth's and stable (non-transferring) youth's experiences earning mathematics credit in Chicago. Lauen found that the stable youth were much more successful graduating, namely because they were able to earn their

mathematics credits; whereas, the highly mobile students were unsuccessful earning mathematics credits. From Lauen's findings, it can be suggested that Felix, Sofia, and Chris, were put at greater risk for learning mathematics upon transferring schools. These students may have been more mathematically successful if they had stayed in one school district and encountered a single unified curriculum where the key mathematical procedures were regularly revisited with similar language and steps. Yet, this is where parsing out mathematical earning and learning is important. While these three case study students may have been able to earn the required mathematical credits for graduation staying at the same school, they may not have learned more mathematics staying at their district schools. Thus, they would have graduated, but still had limited mathematical assets, setting them up for further challenges when they entered community and/or four-year colleges (Aly, 2016).

In summary, due to the limited opportunity structures marginalized youth face in mathematics classrooms throughout their schooling careers, becoming highly mobile creates further challenges for learning mathematics and earning mathematical credits. This is especially true given the inequitable opportunity structures surrounding schooling options. Therefore, highly mobile youth face double jeopardy in a schooling system that does not provide equitable opportunities for mathematical learning and a school choice landscape that does not provide equitable opportunities for engagement in transferring schools, thus leading to increased mobility for marginalized youth. Many authors have described mathematics as an academic gatekeeper, preventing marginalized youth from successfully completing high school and moving into college (Milem et al., 2013; Schoenfeld, 2004; Stinson, 2004). My study shows how mobility exacerbates this

gatekeeping function for highly mobile youth trying to graduate, because they are often most deficient in mathematics credits.

School choice decisions and the role of mathematics. While it is clear, through this study and research, that transferring creates additional challenges for marginalized youth learning mathematics, the school choice literature has not yet examined the role of mathematics in students' decisions to transfer. From this study, it is clear mathematics plays a minimal role in students' school choice decisions. Transferring with regard to mathematical learning only entered into Chris's reasons for transferring or staying twice. First, when he was unhappy with his mathematics teacher at Horizon, it played a role in his transferring (as did his unhappiness with the social fit of the school), and secondly, when he decided to stay and graduate from Portal instead of returning to his district high school. He decided to stay because he could earn his needed mathematics credits and still graduate on time at Portal. For Sofia and Felix, mathematics was never a factor in their decision to transfer or where to transfer. Helping support students to consider their mathematical learning and earning of credits when transferring may decrease the double jeopardy students face when transferring, and in turn decrease the possibility that highly mobile students will drop out.

In summary, while this study offers important insights for the impact of school transfers on mathematical learning, it also highlights places for further consideration. Specifically, this study found that school transfers do not support mathematical learning. Rather, as the three case study students demonstrated, it hampered their mathematical learning until they transferred into Portal. Yet, all three students happened upon the productive opportunity structures of Portal. Therefore, further research (and/or increased

school choice and mathematical learning equity) is needed to determine how to better support highly mobile, marginalized youth in making school transfer decisions that consider mathematical learning and earning. This may help prevent mathematics as being such a significant gatekeeper from graduation for highly mobile youth.

Implications: The Importance of Framework

This study reveals rich and detailed findings due, in part, to the empowerment framework I utilized. The intersection of school choice and mathematical learning for highly mobile, marginalized youth is a complex matter with many varying levels and components. There were a number of facets to be considered when examining highly mobile marginalized youths' experiences learning mathematics and this framework helped to tease apart the variables, necessitating multiple iterations of the framework to understand all the pieces. For example in Felix's chapter, I offer three diagrams highlighting the varying components of the framework. I used one of these for the respective parts of the chapter.

These varying frameworks and findings also highlight the complexity marginalized youth face when engaging in school choice and trying to be mathematically successful. I recognized through my analysis, that many parts of the framework were more complex than they appeared and added a number of the components. For example, from the findings in Chris's chapter, I have added Level 2a and Level 2b Degrees of Empowerment for School Choice Empowerment. With this, from the findings in Felix's chapter, I have parsed outcome into mathematical empowerment (which includes both earning mathematical credit empowerment and learning mathematics empowerment), and school choice empowerment. These additions to the framework have helped me focus on

agentive actions of the students and their family. What I mean by this is, that despite school choice literature characterizing Chris's method of trying on schools as the result of limited informational assets, this framework helped me identify the purposeful way Chris was engaging in school choice, or had agency. This helped me identify the two parts of Level 2 empowerment Chris was engaged in through this method. Through this and other refinements to the framework, I began to further recognize the ways in which not only the school choice landscape is inequitable, but also how school choice researchers often frame marginalized youth and their families as having limited agency in their engagement of school choice.

The importance of privilege in school choice. Perhaps because of the current quantitative focus of school choice research, the vast majority of research on school choice normalizes White privilege. While the opportunity structures of school funding and charter schools are, unfortunately, based on White privilege, it does not mean that all youth are looking for the same thing from schools. As shown in the case of Felix, marginalized students do not currently have the luxury to make a school choice decision on all of their schooling concerns at once; they have to prioritize these concerns. Additionally, as shown in the case of Sofia, there are important non-academic concerns that motivate strategic transfers. Often, as the three case study students demonstrated, marginalized youth make their schooling decisions on social and safety concerns. For these students, socially good "fits" and safe schools are the "better" school, not schools that offer them rigorous academics, as this is often how "better" schools are defined in school choice research (i.e., Powers et al., 2012). This does not mean to say that marginalized youth do not want the opportunity to engage in rigorous academics or

improve their schooling situation. Rather it means school choice research should expand its definition of a "good" or "better" school to include the aspects these youth purposefully consider, such as a good social fit and caring teachers (i.e., Valenzuela, 1999). This inclusiveness of such definitions would help to include marginalized youth as agentic actors in their educational experience rather than individuals who do not know what is best for them.

Furthermore, we should consider how we describe and value assets in school choice research. Often I found myself writing about "traditional" or "traditionally-defined" assets and frequently recognized the challenges with these terms. These were assets my case study students often did not have (i.e., money), but were expected to have in order to make agentic school choice decisions. For example, Chris found a good school fit his sophomore year, but because his family moved homes, he could no longer attend this good school. School choice researchers would classify this as a reactive move, thus limiting the agency Chris and his family engaged in when deciding on his next school. Rather, the fact that the school did not offer transportation, or that Chris's family could not afford a second car, are the real reasons Chris could no longer attend this school. Therefore, the opportunity structures of school choice that rely on "traditionally-defined" assets create situations that research classifies as students and families having limited agency. Redefining and re-evaluating these assets may help marginalized youth be framed as having increased agency.

Finally, the use of reactive and strategic transfers adds to this lack of agency marginalized youth and their families are described to have when engaging in school choice. While it is one thing to recognize the opportunity structures surrounding school

choice as inequitable, it is another thing to use these opportunity structures to explain a group of students' engagement in school choice. For example, separating the fact that Sofia was expelled due to the structures at her school, but that she had familial assets to support her in making a new chance transfer is important, as it reframes her as having agency. Whereas, just seeing this transfer as reactive dramatically reduces her agency. Therefore, utilizing this empowerment framework offers the opportunity to recognize opportunity structures and assets as two separate entities that contribute to a student's experience and would help school choice research move away from further marginalizing these students. Therefore, I suggest future research use this framework as it minimizes assumptions that can be made about marginalized youths' experiences (i.e., Hanushek et al., 2004).

Due to this separation of assets and opportunity structures, this framework may prove to be a useful tool in helping to support prospective teachers in learning to teach diverse students (both in terms of ethnicity and mobility). It may also support prospective teachers taking into account their students' outside of school experiences (including Community Funds of Knowledge) through the differentiation of assets and opportunity structures. Furthermore, it may offer a foundation to researchers and teacher educators as they consider how to support prospective and in-service teachers' growth in the learning to teach endeavor, again as they consider their assets and opportunity structures.

Limitations

While this multiple case study offers many important insights into individual students' experiences learning mathematics and transferring schools, due to the small sample size there are limitations in the students' experiences accounting for the greater

population of marginalized youth. For example, not one of these three students engaged in a transfer to an online school which, given my prior pilot studies, may not be representative of the larger population of highly mobile students and the charter schools they often attend.

In addition, while the study site of Portal allowed me many advantages (i.e., the ability to create a study group with the students and build relationships), it may have limited my data. Due to confines of having only the one study site, this dissertation recounts the experiences of three students who have transferred to a credit recovery school, Portal, and describes how this school is more or a less a good fit for all three students. As such, this study may not reveal the full complexities of highly mobile, marginalized youth who are still engaging in a string of transfers and facing a declining spiral in their education (Gomez, 2012). Finally, while many of the benefits of this study revolve around the students recounting their experiences (i.e., gaining a students' perspective of transferring), there are some substantial downsides to this approach. For example, I do not know how accurate their memories are, nor do I know the details of their experiences (i.e., exactly what type of curriculum they encountered in their various classrooms).

Further Research

This multi-case study offers insight into marginalized students' mathematical learning and high mobility. Yet, it also raises many additional questions, most of which may address the limitations of this study. For example, to minimize the types of inaccuracies or holes in the data coming from this study based on student experiences, I would suggest a longitudinal study following marginalized youth as they engage in

transferring schools and learning mathematics. Additionally, a similar mixed-method study occurring at multiple schools would alleviate several of the other limitations of this study.

There are other questions the findings of this study prompted for me—how do school choices for one child influence overall school choice within a family (parallel school choice moves appeared in both Sofia and Chris's families)? How does the first transfer get set into motion, or what triggers the first time students and families exercise school choice perhaps beginning, as seen in the case study students, the start of their high mobility? Is this different than what triggers a second, third, etc. school transfers into motion? What are students' experiences in the moment of transferring out of and into a new school?

One final question I have involves the relationship between schooling policies. For example, both Felix and Sofia were impacted by educational policies outside of school choice. Felix was bussed to an elementary school as part of a desegregation policy and Sofia, because of a policy change, was placed into an English Language Development (ELD) classroom in fifth grade without any prior experience in ELD classrooms. How might these policies have impacted the way these students and their families viewed school choice? Alternatively, how do families frame school policies that might seem to limit their agency? Perhaps these families accepted the current set up of schooling for a longer time, because previous policies had left them voiceless. Yet, with school choice, these same parents are expected to become the voice for their children, ensuring that they have the best-fitting schooling experience possible. Thus examining

the interrelationship of schooling policies (i.e., desegregation and school choice) would be beneficial in understanding how families engage in school choice.

Conclusion

Dewey (1938) stated:

[T]he fundamental issue is not of new versus old education nor of progressive against traditional education but a question of what anything whatever must be to be worthy of the name *education*. . .when we devote ourselves to finding out just what education is and what conditions have to be satisfied in order that education may be a reality and not a name or slogan. *It is for this reason alone that I have emphasized the need for a sound philosophy of experience* (p. 90 - 91, italics added).

Without understanding marginalized students' experiences engaging in school choice, educators have no way to determine if school choice is a "slogan" or a reality. In this dissertation, I bring attention to highly mobile, marginalized students' experiences learning mathematics, engaging in school choice, and the resulting outcomes of these choices. In summary, I believe school choice is currently a slogan disrupting marginalized youths' education. Unfortunately, in this era of rapidly changing standards, non-mobile students may experience equally disruptive changes as schools and districts adopt new curriculum and adapt to new standards. Yet, student experiences can be improved by focusing on teacher and student learning. By utilizing the empowerment framework educational researchers, mathematics educators, and K-12 teachers will pay closer attention to student experiences engaging in school choice and learning mathematics. In turn, school choice will be seen for its complexity and not for the ease of finding a good cup of coffee.

APPENDIX A: STUDENT PRE-INTERVIEW
Students' Perspectives on School Transfers and Mathematics
(Audio Recorded)

A few preliminary questions:

- Age
- Ethnic and Linguistic Background
- Current school / work?

1. Story of Schools (follow-up → What was your parents' role in this story?)

a) Schools attended and a description of this school, why did you choose these schools (how did you find out about these schools and what other schools did you consider), what was your experience at these schools and how successful did you think you would be at each school (what changes did you notice between these schools), and anything else you want to share.

b) Have you moved homes while you were attending school (or during the summer)? If so, how did you and your family think about what school you would attend when you moved?

c) **Specific Questions about Math education.** What was it like learning math at each school? Can you tell me a story about your math class at each school? (Additional prompting if needed: Do you remember any times which you really felt like you were learning a lot? A time you felt really challenged? What do you remember about how things generally were for you in that class? What do you remember doing in that class? How is it going now?)

d) What kind of support for your learning have you received in school? Out of school? What kind of support, if any, is the most valuable to you? What support would you like to have? What approaches to learning math seem to work best for you? What kinds of approaches/activities are less helpful?

e) When did you enjoy learning math the most? Why? Can you tell me a story? Tell me a story about a time you enjoyed learning math. What was the situation? What do you remember?

f) When was learning math the most challenging? Why? Can you tell me a story?

g) What would you change (if anything) about the way math is taught in schools?

h) Do you think transferring impacted your school math career? If so, how?

i) If you were in charge of a school, how would you make sure a new student felt welcomed and had what they needed to be successful?

j) Could you tell me a little about your experience with the math program here at this school? Have you used ALEKS? What have your experiences been like using ALEKS? Have you ever had the experience with the program putting you back? What were feelings when that happened?

k) Did you come to this school with core credits? If so, how many? When you transferred into this school, were you placed in the Algebra Prep elective credit course? If so, what was your experience in that course?

2. Future school plans.

a) What schools do you plan to attend? Do you intend to stay at the same school until you graduate? (Or if the student is graduating this year: what school(s) do you plan to attend beyond high school?)

b) How do you see your involvement with math in these schools/classes? How might your previous experience with math impact your transition into a university?

3. Views of mathematics

a) How do your friends view math? Do you do anything outside of school that involves math?

b) How does your family view math? Do you do anything at home that involves mathematics?

c) Have you had a job, and if so was there any math involved in that job

4. Any other thoughts/questions/comments?

APPENDIX B: STUDENT POST-INTERVIEW General Outline

Students' Perspectives on School Transfers and Mathematics

A few preliminary questions:

- Age
- Ethnic and Linguistic Background
- Current work?
- How would you like to be described in my dissertation? Pseudonym?

1. General questions about math education

NOTE: I will tailor these questions based on specific conversations I have had with the individual student in the study group sessions. I will specifically ask students about particular schools and opportunities at these schools for learning mathematics.

Questions may look like the following:

- a) What kind of support for your learning have you received in school? And out of school? What kind of support, if any, is the most valuable to you? What support would you like to have? What approaches to learning math seem to work best for you? What kinds of approaches/activities are less helpful?
- b.) When did you enjoy learning math the most? Why? Can you tell me a story?
- c.) When was learning math the most challenging? Why? Can you tell me a story?
- d.) What would you change (if anything) about the way math is taught in schools?

2. Specific questions about particular mathematics content

NOTE: I will tailor these questions based on specific conversations we have had in the study groups. I will specifically ask students about particular content that they have excelled at or struggled with in pulling specifically from experiences in the study group session. Questions may look like the following and may be asked multiple times when specifically asking about different content.

Questions may look like the following:

- a) Why do you think you have had such difficulty learning *fractions* (or other content)? Tell me a story about when you felt confident learning *fractions*. Tell me a story when you did not feel confident learning *fractions*. How has your struggle with *fractions* affected your overall mathematical learning?
- b) What structures have helped you succeed in learning *fractions*? What structures have hindered your success in learning *fractions*?

- c) Has transferring schools played any role in your learning *fractions*? If so, can you explain?
- d) What mathematics class did you feel most successful in, during high school? Why do you think this was the case? Can you tell me a story about learning some specific content in this class?
- e) What mathematics class did you find most challenging in high school? Why do you think this was the case? Can you tell me a story about learning some specific content in that class?
- f) What structures have helped you succeed in learning mathematics? What structures have hindered your success in learning mathematics?
- g.) What would you change (if anything) about how students transfer schools and the support given to transferring students especially as they transfer into a math class?

3. Any other thoughts/questions/comments?

APPENDIX C: STAFF INTERVIEW

School Personnel Interview Questions Students' Perspectives on School Transfers and Mathematics

Purpose: To gain the perspective of school personnel and teachers on agency, opportunity structure, and empowerment. I hope to learn more about transfer students and the school/classroom environment.

1. How long have you worked here? How long have you worked in education?
2. What does your school do when a student transfers in? What do teachers (and/or you) do when a student transfers in to a class?
3. What do you do when a student leaves (is there an exit process)? Have you (and/or the school) learned anything about why a student leaves?
4. Have you worked anywhere else? If so, how did the students/schools differ regarding mobility of students and how did the schools differ in helping students' transition into the school? Same? Different? If different, how?
5. What does the school (or you) count as success in mathematics? How do classroom and/or school structures help students achieve this success?
6. How do you think transferring to [[school name]] impacts students' mathematical success/learning? Why? Can you tell me a story of a specific student (no names please)? What about the students in my study group? How has transferring impacted their mathematical success/learning (any specific example)? What have you noticed about their mathematical work/success?
7. What do you think students bring in that helps them be particularly successful at math? What resources can they draw on? (Any specific examples?)
8. How do you think being highly mobile impacts students' mathematical success/learning? Why?
9. Some students transfer out of your school and return again later. Why do you think this is? How does this impact their learning?
10. What challenges does your school face in teaching a highly mobile population? What benefits do highly mobile students bring to your school? Are there any specific supports your school offers or student strengths your school leverages as a result? How does using ALEKS (and self-paced textbooks) encourage student success?
9. Any other thoughts? Any questions for me?

APPENDIX D: CODEBOOK

Coding Book

	AGENCY	OPPORTUNITY STRUCTURE
Definition	Ability to make purposeful choices	"relative space for achievement" of capabilities "Both the formal and informal rules of the game that guide choices, frame relationships and procedures, and influence the allocation of tasks and responsibilities." (p. 84)
Key ideas	Assets are indicators of agency One asset can change a person's ability to make changes (p. 86), but can also impact other assets thereby improving ability to make choices.	"OS is developed and transformed through the mix of rules, incentives, obligations, and sanctions that govern human interactions" (p. 84) "an OS that allows people to translate their asset base into effective agency through raised consciousness, better information, more equitable rules, and expanded entitlements." (p. 87) "local opportunity structure was heavily determined by ethnic and caste division" (p. 206) <i>Opportunity structure for the individual student (not possible opportunities)</i> <i>Minority and low-income students have fewer opportunities due to structures</i> <i>Ideally: "equality of opportunity"</i>
Analytic focus	Psychological assets: capacity to vision change and to aspire. . .to believe that school can be better.	Written Rules: Existence of laws that fund public schools differently (property tax) Classes needed for graduation
	Informational assets: access to different information. . . .knowledgeable about schooling options.	Unwritten Rules: Structure of School: How math classes are staffed, how you enroll in a class, curriculum (not sure if this is school or class level)
	Organizational:	Unwritten Rules Continued:

	membership in an organization	Structure of Classroom: How students get help, how teacher teachers (curriculum). (i.e., Portal Teacher)
	Financial: Annual income and <i>materials</i> that come from that income: ownership of productive assets. . .home as related to neighborhood schools	Unwritten Rules Continued: Where charter schools are: distance to charter schools
	Human assets: literacy level. . .family graduation and mathematical literacy	

Mathematics Achievement/Learning:

Code any talk that relates to student successes or failures in mathematics courses, on mathematics tests (i.e., AIMS), and/or learning and applying mathematics.

Degree of Empowerment:

Code any talk that highlights perceived success of student in class and towards graduation

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