English Learner Education: Examining Policy Decisions and Their Impact on Student Outcomes

by

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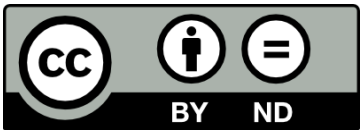

DISSERTATION ABSTRACT

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Doctor of Philosophy in Quantitative Research Methods in Education Research

Title: English Learner Education: Examining Policy Decisions and Their Impact on Student Outcomes

This three-article dissertation examined how policy choices in three key policy areas – initial enrollment, service provision, and reclassification – impact English learner (EL)-classified students. The first article examined the national landscape of state statutes, regulations, and state education agencies' (SEA) guidance that support districts in implementing procedures to award credit to secondary newcomer students for prior learning experiences. The findings reveal a lack of education statutes and regulations, and limited implementation guidance from SEAs to support newcomer credit transfer. The second article zooms into Portland Public Schools in Oregon and examines the causal effect of the district's dual language immersion (DLI) program. The study found significant positive effects of the DLI program, demonstrating a notable increase in credit accrual, high school graduation rates, and attainment of the Seal of Biliteracy among participating students. The third article investigates the causal impact of reclassification from EL services in 5^{th} and 8^{th} grade on high school graduation and the mediating role of course access. The study does not identify significant effects of reclassification and does not find evidence supporting the hypothesis that early access to English Language Arts and Algebra 1 mediates the potential impact of reclassification. Findings from this dissertation contribute novel evidence to EL education policy and highlight how policy decisions at different entry points can potentially shape student outcomes.

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CHAPTER I. INTRODUCTION

Students classified as English learners (EL[1]) are a sizable and essential part of the K-12 population that bring linguistic and cultural assets to classrooms. With the proper support, EL-classified students perform just as well in academic domains like English Language Arts (ELA) and math compared to students who were never identified as needing English language development support (Huang et al., 2016). However, not all EL-classified students receive the linguistic and academic support they need; consequently, many do not access the same learning opportunities nor experience the same academic success as their English-only peers (Umansky & Avelar, 2023). The decisions that state, district, and local education systems make shape the experiences of EL-classified students (Umansky & Porter, 2020; Vazquez Cano et al., 2021).

Education systems make important policy and programmatic decisions that impact the trajectory of EL-classified students. Among these, three policy areas stand out.[2] First, education systems establish policies and practices that govern what information is collected at initial enrollment and how that information is used to make programmatic decisions. For example, education systems collect English proficiency information to determine if students require English language support. Second, once a student is identified as an EL, school systems must decide how to support EL-classified students to access grade-level core content instruction and develop English language proficiency. Access to English language supports and grade-level content is a civil right EL-classified students have, and that school districts meet through various instructional approaches

[1] Throughout this dissertation, I use the term "English learner" and the abbreviation "EL" to specifically refer to students who have been classified as English learners under federal and state policy. My intention is to be specific. However, it's important to acknowledge that "English learner" is a deficit-oriented term (Kanno et al., 2014) and does not celebrate the linguistic assets that these multilingual students possess.

[2] This is a partial list as there are other areas where decisions by education systems influence EL-classified students, such as funding decisions.

and program models (Baker, 2017). Lastly, education systems establish criteria for exiting students from English learner service. The policy choices that district and state systems make in these policy areas can either constrict or open opportunities for EL-classified students.

Each article in this three-article dissertation focused on one policy area critical to English learner education that impacts eventual high school outcomes: initial enrollment and identification, service provision, and reclassification. One study examined the national context while two of the three zoom in to the state of Oregon. Results from the three studies were meant to build knowledge in key aspects of EL policy that can inform state and district policy implementers to improve systems to better meet the needs of EL-classified students.

This dissertation is organized as follows: In Chapter I, I provide background information on the three key policy areas, explain their significance, and summarize the associated studies. Chapters II, III, and IV each present one of the three unique studies. Finally, Chapter V concludes the dissertation with a summary.

Policy Decisions

Initial Enrollment

Under the Every Student Succeeds Act (ESSA), states are federally mandated to outline steps that districts must follow during initial enrollment to identify students who may need English language support. Most states developed a process with at least two steps (Education Commission of the States, 2020). The process typically begins with administering a home language survey (HLS). The HLS usually contains a minimum set of questions asking families what languages are typically spoken at home, what languages the student speaks most often, and which language the student first learned. If a family identifies a non-English language as a response to any of these key

questions, the second step of the EL identification process is activated – the administration of a state-selected English language proficiency (ELP) assessment. The ELP assessment determines if a student qualifies for EL services based on a state-established assessment threshold.

During the initial enrollment of new students, schools also make important decisions not strictly defined by federal law. One of the decisions is the procedure for awarding credit to secondary students for courses completed prior to arrival in the US. Secondary newcomer students arrive at U.S. schools with very diverse prior schooling experiences (Potochnick, 2018). Understanding and providing credit for these courses ensures that newcomers earn credits for content already mastered and are placed in appropriate courses. This is important because the number of credits students start with and what courses they can access will influence their high school graduation and access to higher education (Lee et al., 2022). Different from other aspects of initial EL identification, no established federal guidance exists in this area. Without federal policy, legislatures, state boards of education, and state education agencies (SEAs) play a critical role in defining statute and regulations that compel districts to establish procedures to review prior schooling experiences and in establishing guidance to support districts in developing newcomer credit transfer procedures. Currently, there is limited understanding of state statutes, regulations, and SEA guidance in this domain.

Chapter II Summary

Chapter II examines the national landscape of statutes, regulations, and SEA guidance that exists to support newcomer credit transfer at initial enrollment. The study used a systematic document review process to identify statutes and regulations focused on credit transfer and the level of guidance that individual SEAs have developed to support districts to implement procedures for newcomer credit transfer. Using both dimensions (credit transfer statutes and

regulations and SEA guidance), I created a typology of states that capture the legal and SEA mechanisms in place to support districts to engage in this process.

This study is the first to examine the landscape of state statutes, regulations, and SEA guidance focused on newcomer credit transfer, and the results can provide helpful information to policymakers and SEA leaders. Results from the study identified very few states that have written education statutes and regulations that explicitly compels districts to have procedures in place for newcomer credit transfer, and very few SEAs have robust guidance to support the implementation of newcomer credit transfer systems. However, a few states have well-defined statutes and regulations, and some SEAs have developed robust guidance documents. State boards of education or legislatures embarking on legislation to bolster support for newcomers at initial enrollment can find helpful examples from states with defined legal language. Moreover, SEA and district leaders who want to develop local guidance can turn to SEAs with well-developed guidance to aid in developing their internal guidance.

Service Provision

Once students are identified as EL, schools must fulfill their legal obligation to provide services that help EL-classified students develop English proficiency and learn core content. In the landmark case of *Lau v Nichols* (1974), it was conclusively established that the mere provision of typical resources and facilities to non-English-speaking students is inadequate to ensure that they receive an education equal to that of their English-speaking peers. Instead, schools are obligated to provide additional assistance to English learners that will enable them to fully comprehend the material being taught. *The Castañeda v Pickard* (1981) court case further defined standards for these additional services by establishing that the services should (1) be based on sound educational theory, (2) implemented effectively with sufficient resources and personnel, and (3) evaluated to

determine whether they are effective in helping students overcome language barriers (Del Valle, 2003). To meet students' civil rights, districts have developed multiple program models to accomplish these responsibilities. One set of models leverage and incorporate a students' home languages.

Bilingual models use a student's home language alongside English to deliver core content instruction (Baker & Wright, 2017; Boyle et al., 2015). Bilingual models come in different forms and vary in the percentage of the class time devoted to each language, the number of years that the partner language is used, peer composition, and model goals. For example, transitional bilingual program models group EL-classified students into one classroom and temporarily use a student's home language to teach content until students transition fully to English. By contrast, dual language immersion (DLI) models group students who speak the target language alongside English monolingual students to help both groups develop biliteracy. DLI are additive models where the partner language is used to teach content for a more extended period and explicitly aims to develop biliteracy in the partner language (Howard et al., 201).

Driven by widespread interest and supported by compelling research, DLI programs have become increasingly popular across the U.S. Numerous rigorous studies have shown positive effects of DLI programs on elementary and middle school students (Steele et al., 2017; Bibler, 2021; Morales, 2024). Their apparent effectiveness has contributed to their growing popularity among multilingual and monolingual families who share the program's goals of academic excellence, full biliteracy, and sociocultural competence. While the programs have been proven effective in elementary and middle school assessments, whether the benefits extend to high school is still unknown. Additionally, considering the growing presence and influence of English-speaking families in DLI programs, it is important to determine if the potential benefits of DLI

programs in high school are also present for multilingual students.

Chapter III Summary

Chapter III examines the causal effects of Portland Public Schools' DLI program on multiple high school outcomes. Leveraging the use of a lottery that determines participation in dual language immersion programs — an ideal condition for an experimental design given a random assignment to bilingual program "treatment" — I estimated the causal effect being assigned to and participating in DLI in kindergarten on measures of high school credit accrual, high school graduation, and completion of the seal of biliteracy. The study estimated overall effects for all lottery participants, and effects on multilingual students specifically.

The study results were overwhelmingly positive. Among the entire population, DLI assignment increased credit accrual by one year-long credit, increased the high school graduation rate by about six percentage points, and increased the rate of attainment of the seal of biliteracy by 25 percentage points. The results for multilingual students were similar in direction and magnitude but were mostly non-significant, likely due to small sample size. An important exception to the positive findings was that DLI led to a decrease in the number of dual credit and Career Technical Education credits. This negative impact highlights an important tradeoff DLI students face. Enrolling in target language courses helps students develop biliteracy but potentially reduces access to other courses that prepare students for college and career (Arneson et al., 2020; Hodara & Pierson, 2018).

Results from this study further bolster the extensive literature that identifies the benefits of bilingual programs (Porter et al., 2023) by providing new evidence of the long-term benefits of DLI participation. School leaders can use this new evidence to support the creation or expansion of DLI programs as a primary means to support EL-classified students. Furthermore, high school

leaders with DLI programs can use information to interrogate the level of access DLI students have to courses that prepare students for college and career. School leaders can then develop innovative methods to incorporate language development into these courses. For instance, they could create opportunities for career and technical education courses in languages other than English.

Reclassification

States are federally mandated to develop standardized procedures for how students reclassify from EL services. Reclassification is when students meet specific language proficiency requirements and are deemed proficient enough to understand English instruction without extra language assistance. To be reclassified from EL services, students must meet a state-established threshold on an English language proficiency assessment. Although the English language proficiency assessment plays a pivotal role in reclassification, states also have the autonomy to add other criteria to inform reclassification. For example, the Pennsylvania Department of Education incorporates teacher feedback into reclassification decisions (PDE, 2021). Other states consider standardized assessments, grades, and/or parent feedback in reclassification decisions (Education Commission of the States, 2020).

Reclassification from EL services changes a student's learning environment, especially in secondary grades. Reclassification removes linguistic support services in place to help students develop English proficiency and learn core academic content. However, reclassification also removes dedicated time to English language development, opening up their schedule to additional content courses. Ideally, reclassification does not impact students' academic outcomes. Null effects suggests that state-adopted reclassification policies are calibrated so that multilingual learners experience a smooth transition from school settings with English language development support to ones without (Itoh & Umansky, 2024).

Prior research that examines how reclassification impacts students finds mixed results, suggesting that impacts may differ by context-specific factors (Garrett et al., 2022; Johnson, 2019; Carlson & Knowles, 2016; Itoh & Umansky, 2024; Cimpian et al., 2017). The variability in the effects of reclassification may be tied to contextual factors that influence how students experience EL services. One important factor is the grade level of reclassification, particularly at key transition points such as the transition to middle school and the transition to high school (Johnson, 2019). Students at these transition points are entering new school settings, and schools use their background information, such as their English language proficiency, to make consequential course placement decisions that have downstream effects, including on graduation (Kannon & Kangas, 2014).

Chapter IV Summary

Chapter IV examines the impact of reclassification from EL services in 5th and 8th grade on high school graduation in the state of Oregon and the mediating role of access to ELA in grade 9 and access to Algebra 1 by grade 9. Using a regression discontinuity design, I estimated the effect of reclassification on three cohorts of students who were near the threshold that determines reclassification. I also used mediation analysis (Baron & Kenny, 1986) to examine how reclassification impacts course access and what downstream effects that has on high school graduation.

I did not find evidence that reclassification had a positive or negative impact on high school graduation. Results from the analysis were imprecise and not statistically significant. I did find that reclassification increases access to ELA in grade 9. However, results from the mediation analysis did not find evidence that early course access mediates the impact of reclassification on graduation. This means that reclassification might impact short-term access to ELA, but that impact does not

play a role in influencing later high school graduation, at least for the groups of students included in this study.

Results from this study suggest that, on average, students reclassifying from EL services in the state of Oregon in grades five and eight are experiencing smooth enough transitions that they do not impact graduation in a specific way, on average. However, prior studies have identified wide variation in the impact of reclassification across districts (Cimpian & Thompson, 2016) so the effects of reclassification might be more localized.

In sum, this dissertation examines three critical inflection points in the education of multilingual students learning English: initial intake, EL service provision, and exit from EL classification. Together these studies make important contributions to the literature and offer policy insights for federal, state, and local education leaders.

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CHAPTER II: FINDING THE RIGHT STARTING POINT: A 50-STATE REVIEW OF NEWCOMER CREDIT TRANSFER STATUTES, REGULATIONS, AND SEA GUIDANCE.

The U.S. is a leading immigration destination, with over one million people arriving every year (Pew Research Center, 2020). When immigrants arrive in the US, it is common for many to settle in destinations that have established immigrant communities, such as California, Texas, and New York. However, there are also new immigrant destinations (Terrazas, 2011). The evolving migration patterns mean that immigrants are present, to varying degrees, across all states in the country. Many of the newly arrived individuals are high school-age youth. In 2021, there were approximately168,000 newly arrived high school-age youth (Sugarman, 2023).

Existing research finds that newcomer immigrant students in the U.S. are underserved by schools, leading to lower levels of achievement (Hill et al., 2019) and challenges with school adjustment (Ruiz-de-Velasco & Fix, 2000). In secondary settings, newcomer students access core content courses at lower rates compared to longer-term English learner students (Porter, 2022), and, more concerning, graduation rates for newcomer students are lower relative to long-term English learners in some settings (Umansky et al., 2018; Deussen et al., 2017). While there is evidence that this group, in aggregate, is underserved, there is also tremendous variation in newcomers' academic trajectories (Suarez-Orozco et al., 2010;), English language development (Umansky et al., 2022), and graduation rates (Gwynne et al., 2012).

One factor influencing newcomer students' academic trajectories is their prior schooling experiences and how schools award credits at initial enrollment for courses they have previously completed. Newcomer students are diverse and come with varying levels and types of prior schooling experiences (Potochnick, 2018). Some students may have had limited or interrupted educational backgrounds, with gaps in their time attending school and content knowledge. Others

may have had more rigorous or advanced educational experiences than their U.S. peers. Moreover, some newcomers may arrive literate in their home language and English, while others may only speak their home language. Variation in prior schooling experiences means newcomers arrive with different levels of academic readiness that deserve proper consideration at initial enrollment. Without adequate consideration of previous schooling experiences, secondary newcomer students may not receive credits for the content they have mastered. This is consequential because the number of credits a student starts with and what classes they are placed in influence access to subsequent courses needed for high school graduation (Lee et al., 2022).

On the other hand, students may also be placed in courses well beyond their current content mastery. With insufficient support and scaffolds, the classroom environment may be challenging for students to learn new content. As such, it is essential that schools closely review the prior schooling experiences of newcomer students.

Two factors influencing whether a district has a process to award credits for prior schooling experiences are the existing state legal language (statutes and regulations), and the guidance that state education agencies (SEAs) broadcast to districts. State education statutes are passed by state legislatures and dictate to districts the responsibilities and practices they must engage in. Regulations are written by state board of educations to supplement regulations passed by state legislatures. An explicit statute or regulation can compel districts to integrate the review of prior schooling experiences to determine newcomer credit transfer at initial enrollment.

If a statute or regulation exists, SEAs play a crucial role in guiding districts to further implement the statute or regulation. When no statute or regulation exists, guidance from SEAs can still influence districts to engage in newcomer credit transfer by providing detailed

implementation steps. Without SEA guidance, school staff who participate in the enrollment process of secondary newcomers may implement idiosyncratic practices (Porter, 2022), leading to a patchwork of local practices. While state legal language and SEA guidance are essential in communicating expectations to districts about newcomer credit transfer at initial enrollment, little is known about the types of state credit transfer legal language and the kinds of guidance SEAs provide.

State characteristics may influence the presence of a state credit transfer legal language and SEA guidance. One important state-level characteristic is the concentration of the newcomer immigrant population (Miller, 2016; Hopkins et al., 2015). In 2018, 64% of immigrants lived in 20 metro areas across the United States, and nearly half of all immigrants were concentrated in three states – California, Texas, and Florida (Budiman, 2020). However, migration patterns are evolving, and many states that did not historically have a high immigrant population are receiving a growing number of recent arrivals (Terrazas, 2011). To get a clearer picture of the national landscape of credit transfer legal language and SEA guidance on newcomer credit transfer, it is vital to understand if locations with the most newcomer students are creating defined systems to support newcomer credit transfer.

This study examined state credit transfer statutes, regulations, and SEA guidance that supports the practice of credit transfer for recently arrived secondary newcomer students. Using data collected from a comprehensive document review and publicly available secondary data, the study addressed the following primary research question: **(1)** *What legal state statutes and regulations and State Education Guidance exist to support districts in collecting and using information about secondary newcomer students' prior schooling experiences to award credits?* The study also examines a secondary question: **(1a)** *How does the presence of state legal statutes*

and regulations and State Education Agency guidance differ by the concentration of immigrant population in the state?

Literature Review

In this section, I summarize existing literature about the experiences of secondary newcomers in U.S. schools, the diversity of newcomer students' prior schooling experiences, and the existing guidance on newcomer credit transfer at initial enrollment. I then provide a conceptual framework of the role of statutes, regulations, and SEA guidance in supporting districts with these practices.

Secondary Newcomer Students in High School

Newcomer students who arrive in secondary grades have a significant presence in U.S. schools. In 2021, an estimated 649,000 school-aged youth migrated to the United States within the last three years. Among this population, about 28 percent were aged 14 to 17 (Sugarman, 2023). States such as California, Texas, Florida, and New York housed a large proportion of the newly arrived school-aged population. However, many states had exponential growth in the newcomer population. For example, more than half of the immigrant children in Alaska and Delaware had arrived within the last three years (Sugarman, 2023).

Secondary newcomers face unique challenges in completing high school. They face the complex challenge of adapting to a new country and culture and developing English proficiency while being expected to complete the state credit and course requirements to graduate, often within five years of the high school entry age (Education Commission of the States, 2020). Prior research finds that schools struggle to support secondary newcomer students when they do not have the foundational academic and English proficiency background required for content courses

(Ruiz-de-Velasco & Fix, 2000). Schools face the challenge of deciding whether to place newcomer students in specialized short-term programs with other newcomers, which may not offer credit-bearing courses for high school graduation, or to put them in mainstream classes where they may not have sufficient academic and linguistic support in place (Umansky et al., 2018). As a result, secondary newcomer students enroll in core content courses at lower rates compared to other linguistically diverse students (Porter, 2022). Lower access to core content courses is consequential because the courses a student has access to influence subsequent courses needed for high school graduation (Lee et al., 2022). Barriers to accessing and completing courses have downstream effects on their chances of high school graduation. An analysis of two states found that the graduation rates for newcomer students who arrived in high school ranged from 29 to 58 percent (Umansky et al., 2018).

Although, in the aggregate, this group is underserved, there is also considerable variation in the academic and linguistic trajectory of secondary newcomer students. Newcomer students' English language development growth varies significantly based on factors such as their refugee status (Umansky et al., 2022). The Longitudinal Immigrant Student Adaptation Study (LISA), which followed the experiences of more than 400 newcomer immigrant youth in the U.S., found considerable variation in newcomers' academic trajectories (Suárez-Orozco et al., 2010). The variation in trajectories was partially influenced by school and community factors. For example, a school's concentration of students who qualify for free or reduced-price lunch predicted a lower grade point average, and the strength of secondary newcomer students' prior schooling experience also predicted later trajectories in U.S. schools.

The results from these studies suggest that differential trajectories depend on student characteristics at arrival and the practices and supports at the school where they enroll. One

significant factor is the pre-migration school experiences of secondary newcomer students and how schools use that information to award credit at initial enrollment.

Newcomer Students' Prior Schooling Experiences

Levels of access to education vary across and within countries. Factors such as investment in education, conflict, displacement, and economic hardship influence the extent to which youth access education (World Bank, 2018). As a result, some newcomer students may come from rigorous educational settings that outperform their U.S. peers in international assessments, while others come from lower-performing settings (OECD, 2022). These differences in global education access show up for newcomers upon arrival to the U.S.

Prior research that examines the characteristics of newcomer students finds considerable variation in newcomer students' language and academic profiles upon arrival into US schools. Potochnick (2018) studied a nationally representative sample of 10th-grade, foreign-born students. Among the 358 students in the sample who arrived in secondary grades (7-12), 27 percent had experienced interrupted education. In contrast, 73 percent were continuously enrolled in their home country before their U.S. arrival. Umansky et al. (2022) examined the English language proficiency of newcomer students, finding that their English proficiency upon arrival varied by different student characteristics, including refugee status and unaccompanied minor status. In their research on adolescent immigrants, Suarez Orozco et al. (2010) found significant differences in academic English proficiency based on their countries of origin. These studies highlight that pre-migration experiences influence newcomer students' academic profiles upon arrival in the U.S. and underscore the significance of gathering and utilizing information upon initial enrollment.

Importance of Reviewing Prior Schooling Experiences

Understanding the educational background of secondary newcomer students is crucial for schools to assist them effectively. Limited research has examined how reviewing prior schooling experiences influenced secondary newcomers. The existing research suggests that it is a practice that schools leverage to support newcomers. For example, Castellon et al. (2015) conducted case studies of six New York City high schools that were identified as successfully serving newcomer immigrant students. One identified feature that educators at the schools emphasized was the practice of reviewing a student's international transcript to award credit and support their progress toward graduation. Similarly, Spaulding et al. (2004) reviewed schools that serve secondary newcomer students and distilled the best practices that support their adaptation and success. Some of the featured best practices were reviewing transcripts, interviewing families, and administering content assessments during the initial registration phase to inform course placement decisions for newcomer students. This highlights the importance of reviewing and using prior schooling information. Failing to evaluate and build upon previous educational experiences can result in misalignment in two ways.

First, newcomer students may be placed in courses that cover the material they have already learned. In some cases, school personnel may assume that a newcomer with a basic understanding of the English language may be experiencing academic difficulties across the board. However, this may only sometimes be the case, as the student may excel in certain subjects compared to their peers who have been educated in the United States (Fuligni, 1997). This misalignment and subsequent lack of appropriate support can demoralize students and potentially prevent them from accessing the necessary courses to graduate and prepare for college. Martinez-Wenzl (2014) followed the trajectory of secondary newcomer immigrant

students in California, many of whom reported repeating courses in the US that they had already taken in their home country. Similarly, Verbera (2014) interviewed a group of high school newcomer students during their first year in the United States, many of whom expressed frustration at their school's course placement policy, which automatically placed them in ninth grade, forcing them to repeat content already learned in their home country. Not receiving credit for prior courses is important because the number of credits a student starts with and what classes they are placed in influence access to subsequent courses needed for high school graduation (Lee et al., 2022).

Second, newcomer students may also be placed in courses that are beyond their current level of content mastery. For instance, they may be placed in courses that cover content for which they do not have the prerequisite knowledge. As previously mentioned, some newcomer students may have experienced interrupted schooling or have varying literacy skills in their home language, making accessing grade-level content difficult. These students require additional support to bridge these educational gaps (Hos, 2020). With this diverse starting point and trajectories underscored, schools need a process that allows them to understand newcomer students' educational backgrounds to make informed credit awarding decisions.

Key Elements of Newcomer Credit Transfer

Guidance developed by the U.S. Department of Education describes key components of a newcomer credit transfer process. Much of the guidance focuses on reviewing the prior schooling experiences of secondary newcomers who arrive with an international transcript. For example, the Office of English Language Acquisition's Newcomer Toolkit recommends that school staff closely review newcomer students' home country transcripts during registration to promote their success in the U.S. education system (OELA, 2023). Other federal resources

provide more detail on the key elements that a transcript review policy should feature. Martinez-Wenzl (2017) and Greenberg Motamedi et al. (2021) describe three core areas that education agencies need to define in their approach to evaluate prior learning experiences: (1) obtaining and translating transcripts, (2) interpreting prior schooling experiences, and (3) making decisions about credit transfer and course placement.

The first key element is guidance on obtaining a student's international transcript or information on prior schooling experience. This guidance should specify whether international transcripts are collected at a central district office or individual schools. When a home country transcript is unavailable, other data can help understand prior learning experiences, such as recreating previous schooling experiences through a structured interview during registration. Guidance may also include policies for authenticating transcripts and translating transcripts to English. For example, the district's translation may be done in-house, through a community-based organization, or by contracting an outside agency (Martinez-Wenzl, 2017; Greenberg Motamedi et al., 2021).

The second key element is guidance in interpreting information about a student's prior schooling experiences. A literal translation of documents is not enough for reviewers to make decisions about the learning experiences of newcomer secondary students. Districts must have a clear framework to assess the content and intensity of a completed course. For example, the guidance should specify the type of information that reviewers should document, such as the standards covered in the course, the duration of the course, and the grade that a student received. That way, a reviewer can compare and equate it to a course in their district (Martinez-Wenzl, 2017; Greenberg Motamedi et al., 2021).

The third key element is deciding how the coursework students have completed will count in the receiving district's system. As part of this process, a clear set of decision rules is needed that clarify the circumstances of when credits are awarded and how credits are recorded. For example, it should be clearly defined if completion of a course is sufficient to receive course credits or if a content assessment that demonstrates a certain level of proficiency is required to earn course credit from a prior course. Moreover, guidance on whether a course is recorded as content credit or elective credit in their academic records is also part of this third key element (Martinez-Wenzl, 2017; Greenberg Motamedi et al., 2021).

Reviewing the prior schooling experiences of secondary newcomers is essential, but this practice is inconsistently implemented across districts (Martinez-Wenzl & Vazquez Cano, 2016). Local staff require more guidance and resources to effectively review prior coursework and make decisions about credit awarding (Porter, 2022). Two relevant mechanisms to consider for the consistent implementation of newcomer credit transfer at initial registration are the state education statutes or regulations that compel districts to engage in this practice and the level of guidance communicated from SEAs to support the implementation of newcomer credit transfer.

Conceptual Framework

Multiple actors influence the state governance and implementation structure of education policy in the state including legislatures, state boards of education, and SEAs (Umansky & Porter, 2020; Young et al., 2019). State legislatures determine state statutes, a form of law, which shape critical aspects of public education. Education statutes can help define the operational aspects of education systems; for example, funding formulas that determine the funding allocation for each district are written into education statute (Morgan, 2022). State education

statute can also be used to describe mandatory practices that districts must engage in and use as a tool to advance equity goals. These mandatory practices can range from the types of courses districts offer to the procedures that districts must have in place.

State boards of education play a support role to state statutes. State boards of education are typically elected or appointed officials who write binding state education regulation that further clarifies aspects of state statutes (Young et al., 2019). State boards can add clarity, for example, by defining key concepts in a statute as well as by further specifying mandatory practices districts must engage in to be in compliance with statute. Unlike state statute which requires legislation action, state boards of education can update language in state regulation without going through a legislative process.

Supporting state and federal education statute and regulation implementation is a responsibility of SEAs (Beatson et al., 2023). SEAs can clarify the ambiguity of statute and regulation and help operationalize them. SEAs do this, for example, by administering federal and state funding programs and supporting implementation through specific, non-binding, guidance (Learning Policy Institute, 2015). Through written guidance, SEAs support a minimum standard of operation for districts to follow. For example, in EL education, ESSA mandated states to outline how they will identify, annually assess and reclassify EL-classified students; staff teachers who are sufficiently prepared to work with EL-classified students; and allocate resources to support English language acquisition and academic achievement for these students (U.S. Department of Education, 2016). States are also required to track and report progress toward English language proficiency. SEAs can support district compliance of these federal requirements by providing detailed guidance and resources that supports implementation.

Beyond operationalizing state and federal statute and regulations, SEAs also play an essential role in advancing educational equity for students by providing non-binding guidance when no clear statute or regulations exist. Umansky and Porter (2020) defined a policy framework for state education agencies in EL education. One component of this framework concerns the diversity in individual students' assets and needs. Within this component, newcomers are a specific population that may require states to provide "schools with support and guidance focused on the twin goals of maximizing learning and minimizing exclusion" (Umansky & Porter, 2020, p. 9). With clearly defined guidance – even if it is not mandatory – districts can implement practices that support the success of newcomer students. Without clear direction, districts may engage in varied practices, some of which do not work well for newcomers. Some SEAs currently differentiate guidance for specific groups within the EL-classified population. For example, Washington provides differentiated guidance to identify Native students identified as needing English language support (Umansky et al., 2022).

State legislatures, school boards of education, and SEAs can support newcomer students by encouraging newcomer credit transfer. However, the extent to which state legal language and SEA guidance exist to support newcomer credit transfer is not currently known. Moreover, we do not know the characteristics of states with statutes, regulations, and guidance. In this analysis I will evaluate the presence and content of state statute and regulation on the one hand, and SEA guidance on the other, related to newcomer credit transfer.

Immigrant Community Concentration

The presence of state statutes, regulations, or SEA guidance on newcomer credit transfer is likely to be influenced by the characteristics of the state. Community characteristics, which scholars of immigration refer to as contexts of reception (Portes & Raumbaut, 2001), include a

community's economic, political, legal, and social aspects (Thompson et al., 2020). Community factors influence the experience of newcomer students directly as well as indirectly by shaping how education systems organize their support.

One factor that may influence the presence of state statutes, regulations, or SEA guidance is the size of the immigrant community in the state. States with a higher concentration of immigrants tend to have more resources for immigrant communities compared to areas with lower concentrations (Miller, 2016; Hopkins et al., 2015; Coady, 2020). Therefore, states with higher concentrations of immigrant communities may be more likely to have established protocols for reviewing the prior schooling experiences of newcomer students because of the identified need. In contrast, schools may not have the same level of resources in areas with lower concentrations of immigrant communities. However, state policies and guidance that require schools to review prior schooling experiences may also depend on other factors. For example, the political climate and attitudes toward immigrant populations can shape communities' support for newcomer students (Hopkins et al., 2021). As such, factors beyond the immigrant population may also influence the types of legal frameworks and systems states and SEAs implement to support newcomers.

Summary and Motivation

To summarize, state statute, regulation, and SEA guidance are important mechanisms that can support schools in consistently reviewing the prior schooling experiences of secondary newcomers to award credit. State legal language can compel districts to engage in newcomer credit transfer, and SEAs help operationalize mandatory statutes or regulations by developing guidance that supports compliance. When there is no specific statute or regulation, developing non-binding guidance is also an important support SEAs can provide to districts. However, little

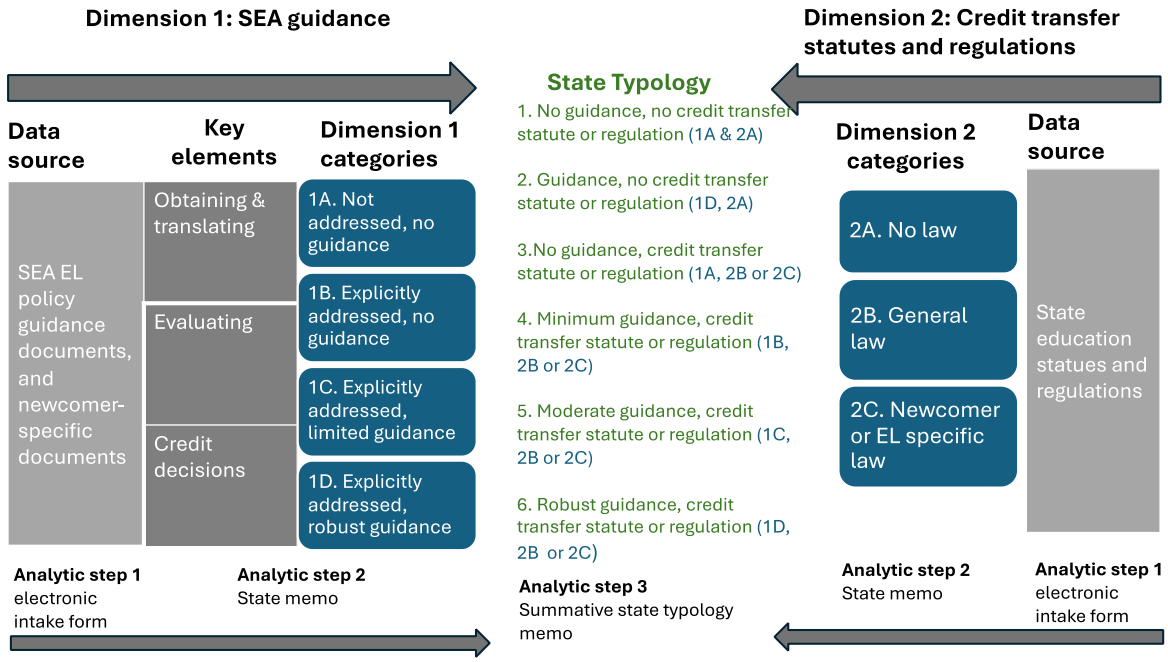
is known about what type of statutes, regulations, and guidance states have developed. To improve policy and guidance in this space, it is crucial to first understand the current national landscape. It is important to know the presence and content of state-level legal language, SEA guidance on newcomer credit transfer, and how the characteristics of states influence the presence of statutes, regulations, and SEA guidance.

Method

This study analyzed publicly available documents to develop six state typologies. Figure 1 visualizes the components of the analysis that culminated in six summative state typologies. The analysis considered two dimensions: (1) SEA newcomer credit review guidance and (2) credit transfer statutes and regulations. For the first dimension, I analyzed the English learner policy guidance documents and newcomer-specific documents written by SEAs (see dimension 1 data sources in Figure 1). I reviewed the data sources to identify key elements of a newcomer credit transfer process for secondary newcomer students (see key elements in Figure 1). Based on the presence of these key elements, I created four categories for the first dimension (see dimension one categories in Figure 1). For dimension two, I reviewed the state's statutes and regulations to identify legal language that address credit transfer for secondary newcomer students. Based on my review, I developed three categories for the second dimension (see dimension two categories in Figure 1). The final six state typologies were based on a combination of dimension one and dimension two categories. In the following text, I describe each of the components of the analysis in greater detail.

Figure 1

Description of the Analysis Components and the Six State Typologies



Dimension One and Two Data Sources

This study used two data sources: (1) publicly available documents from SEAs and state government websites that provide guidance on enrolling and serving EL-classified students, including newcomer students, and, for the second research question, (2) publicly available census data on immigrant and newcomer populations.

From September 15, 2023, to October 31, 2023, I visited the websites of all 50 SEAs to collect documents systematically. To gather data sources for dimension one, I first downloaded SEA EL policy and guidance documents. Some states had one comprehensive document, while others had multiple documents. The EL policy and guidance documents described the steps districts were required to follow to identify potential EL-classified students, the annual assessment(s) that districts had to administer to monitor English proficiency progress, and the procedures districts followed to reclassify EL-classified students from EL services. The guidance

documents also typically contained information on the types of support districts had to implement to support their EL-classified students and fulfill their legal obligations. Some documents contained information on course placement guidance and considerations to adequately serve specific EL populations, such as newcomer students.

Next, I gathered documents focused explicitly on newcomer students housed within a SEA's website. This included documentation such as newcomer toolkits developed by the SEA or documentation describing procedures for enrolling newcomer students from outside the country, including students with limited interrupted formal education. In the third step, I searched the entire SEA website to identify other relevant, newcomer-specific documents that the first two steps may have missed. When available, the following search terms were placed in the SEA's website search bar to identify additional documents: *Newcomer students, immigrant students, and international transcripts.*

To gather documents for dimension 2, I searched through the state's administrative statutes and regulations for language that described credit transfer for newly enrolled secondary newcomer students. Because statutes and regulations related to awarding credit for newly enrolled students from other districts or states could apply to newcomer students, it was also essential to review statutes and regulations that were related to but not specific for newcomer students. In this step, I searched through each state's statues and regulations and compiled excerpts focused on credit transfer, credit earning, and enrolling newcomer students. I also searched for anything in the statues and regulations focused on newcomer immigrant students. To find relevant education statute or regulations related to transferring credits, I used multiple iterations of search prompts, first on the Google search engine and then in the state's statues and regulations websites search prompt, if available. The search prompts included: {*State name}*

administrative/education code credit transfer, {State name} administrative/education code earn credit, {State name} administrative/education code enroll new student credit. Multiple iterations of these search prompts were used until the statutes and regulations related to transferring credit was identified for each state.

All documents were downloaded and saved to a local drive. In total, I collected 257 documents. Among the documents collected, 55% were state guidance documents, 23% were newcomer-specific documents, and 22% were documents that described relevant education statutes or regulation. By state, I collected a median of five documents. Because state documents are periodically updated, these versions are relevant to what was published from September 15 through October 31, 2023.

American Community Survey Data

The second data source was publicly available data from the American Community Survey. The data set included state-level, five-year estimates of foreign-born individuals aged five and older in 2010 and 2021 for each state. I used this information to identify the size of the immigrant population by state and to calculate the percent change in the number of foreign-born individuals from 2010 to 2021.

Dimension One Key Elements

To process the 257 documents I collected, I created a document review protocol using Microsoft Forms (see Appendix B). The document review protocol was divided into four sections. The first section gathered information about the document, including the relevant state, name of the document, link to the document's location on a local drive, and the document type (i.e., state guidance document, newcomer-specific document, or education statute/regulation focused on credit transfer). Once the primary information was recorded, the recording process

differed by document type. If the document was a guidance or newcomer-specific document, the reviewer was asked to indicate if the document included any language that described reviewing students' prior learning experiences. If the document did include such language, then the protocol triggered the completion of three additional sections, each of which focused on specific key elements of a process for newcomer credit transfer as described by Martinez-Wenzl (2019) and Greenberg-Motamedi et al. (2021) and described in the literature review: (1) obtaining & translating documents, (2) evaluating information, and (3) making credit decisions.

Each of these three sections included multiple questions for the reviewer to complete. The first section focused on state guidance around obtaining information on students' prior schooling experiences and asked questions about where student information should be collected, translation of documents, and authentication of documents. For example, one question was, *Does the guidance from the state recommend authenticating a student's international transcript?* The second section focused on state guidance regarding interpreting students' prior schooling information. It included questions about procedures to evaluate prior courses and professional development that staff who review prior schooling experiences should receive. For example, section two included the following question: *Does the guidance from the state recommend establishing procedures to interpret a course a student took in their home country to an equivalent in the current district?* The last section collected information about procedures to make credit awarding decisions.

If the document reviewed was a statute or regulation focused on credit transfer, the process differed from the process previously described. The reviewer documented the language of the education statute or regulation and assessed whether it applied to all students or was

explicitly written for newcomer or EL-classified students. This process was repeated for all 257 documents. All information was organized into a spreadsheet, unique by document ID.

Dimension One and Two Categories

Once all documents were processed, I reviewed the extracted information for each state to assign each a category for dimension one and a category for dimension two (see dimension one and dimension two categories in Figure 1). Following other studies that systematically review policy documents (Umansky, Itoh & Carjuzaa, 2022), I developed a memo template and completed a memo for each state (see Appendix C), returning to the original documents when necessary. The memo summarized each state's approach to newcomer credit transfer and any legal code that described credit transfer statute or regulation.

For the first dimension, I assigned one of four possible categories to the SEA based on assessing the presence of guidance along the key elements described previously (see key elements in Figure 1). The four categories were:

1. **Newcomer credit transfer was not addressed.** This category was designated to states where no reviewed documents explicitly guided the district to review newcomer students' transcripts or prior schooling experiences at initial enrollment to award credit for previously completed coursework.
2. **Newcomer credit transfer was explicitly addressed, but no guidance or resources were provided**. This category was assigned to states where one or more documents explicitly stated that districts review students' transcripts or prior schooling experiences to award credits. Beyond the explicit statement, no key elements were addressed, and no resources were provided to districts to implement the guidance.

3. **Newcomer credit transfer was explicitly addressed, and some limited guidance or resources were provided**. This category was assigned to states where documentation explicitly described using students' transcripts or prior schooling experiences to award credits, and specific guidance or resources were provided to help districts implement the guidance in one, but not more than one of the three key elements.
4. **Newcomer credit transfer was explicitly addressed, and robust guidance and resources were provided.** This category was assigned to states where documentation explicitly described that districts use students' transcripts or prior schooling experiences to award credits, and specific guidance or resources were provided to help districts implement the guidance in at least two of the three key elements.

Figure 1A in Appendix A presents a map of the U.S. with a dimension one category assigned to each state. Along the first dimension, 23 SEAs (46 percent) explicitly stated that districts engage in newcomer credit transfer at initial enrollment.

The categories for dimension two described the presence of education statute or regulation that specified procedures to transfer credit for newly enrolled students. I categorized states into one of three possible categories that described the presence of a statute or regulation and whether it was specific to newcomers or not. The three categories were as follows:

1. **No credit transfer statute or regulation found:** The education statute or regulation reviewed did not include language focused on reviewing prior schooling experiences for students who transferred to a new district from a different district or education context.
2. **General credit transfer statute or regulation:** The education statute or regulation included language focused on reviewing prior schooling experiences for students who transferred to a new district from a different district or education context.

3. **Newcomer or EL-specific credit transfer statute or regulation**: The education statute or regulation included language focused on reviewing prior schooling experiences for newcomer students or students transferring from an international context.

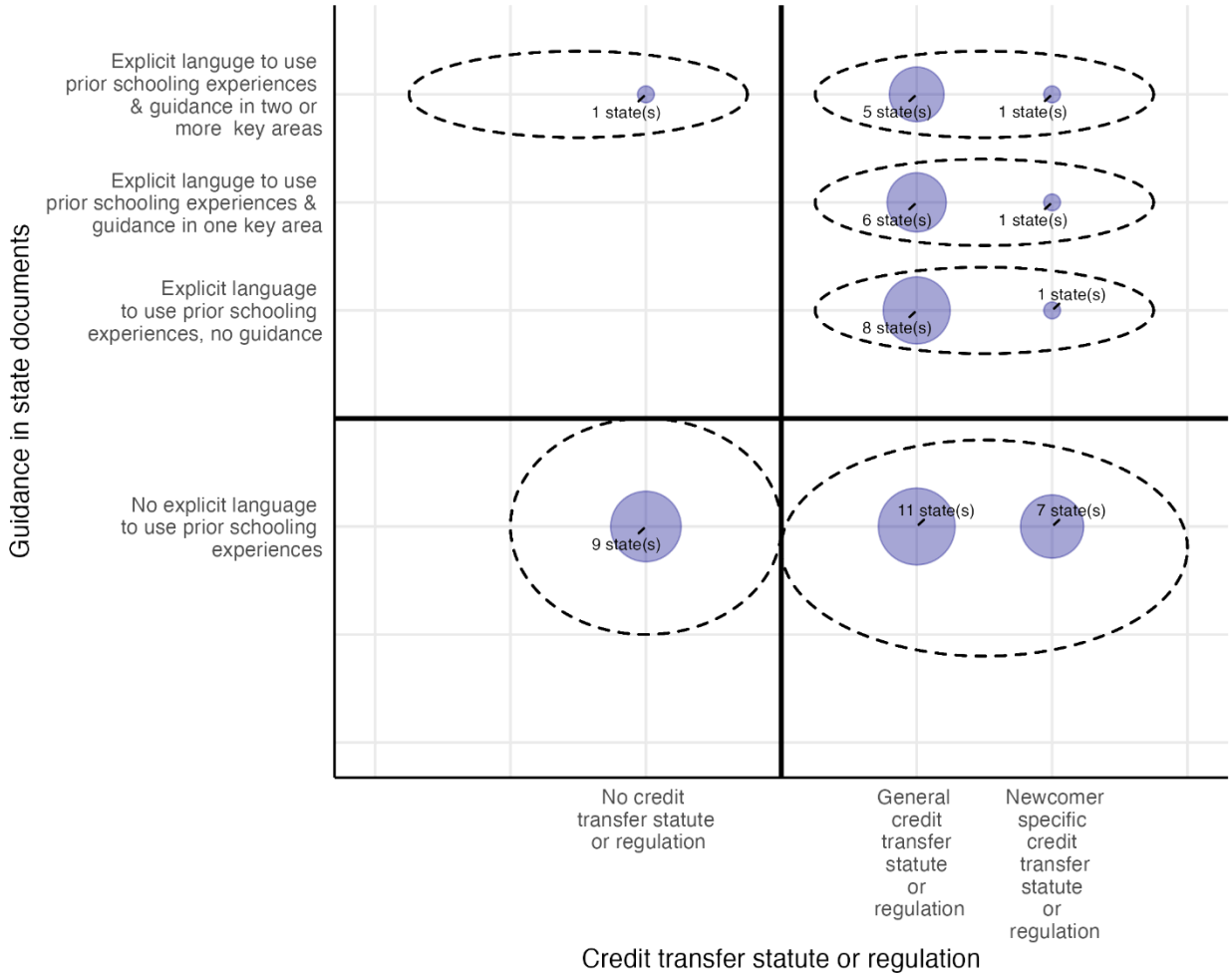
Figure 2A in the appendix presents a map of the US with the dimension two categories assigned to each state. Along dimension two, ten states (20 percent) had a credit transfer statute or regulations that specified a policy to transfer credit for newly enrolled students explicitly applicable to newcomer students.

State Typologies

In the last analytic step, I created summative state typologies based on dimensions one and two categories. To develop the summative state typologies, I used visual analysis to observe how states grouped along dimension one and two categories. Figure 2 plots the states along the two dimensions and visualizes the number of states for each intersection of the two dimensions. In all, there were ten possible combinations of groups. However, four of the possible combinations only included one state. To simplify the analysis and make the state typologies more digestible, I combined two categories for dimension two (general credit transfer statute or regulation and newcomer-specific credit transfer statute or regulation). Combining the two, dimension two categories reduced the number of possible groups from ten to six. The dashed circles and ellipses in Figure 2 represent the six possible groups. These six categories are the final summative state typologies.

Figure 2

Groupings of States by the Type of Credit Transfer Statute, Regulation, and Specificity of Guidance to Use Prior Schooling Experiences to Award Credits



Once the state typologies were identified, I wrote a memo for each summative state typology that summarized the states encompassing each typology and any trends and patterns observed in the SEA newcomer credit transfer guidance and credit transfer statute or regulation within the group (See Appendix D).

Analytic Approach for the Primary Research Question

To answer research question 1, which states, *What state statutes, regulations, and SEA guidance exist to support districts in collecting and using information about secondary newcomer students' prior schooling experiences to award credits?* I focus on descriptively analyzing the prevalence of each of the six summative state typologies. I report percentages and frequencies of how many states were included in each category. I also describe patterns in the language used in state documents and the type of guidance provided. Figure 3 visualizes the counts for each summative category, and Table 1 presents the summative category for each state in the sample.

Figure 3

Number of Summative State Typologies

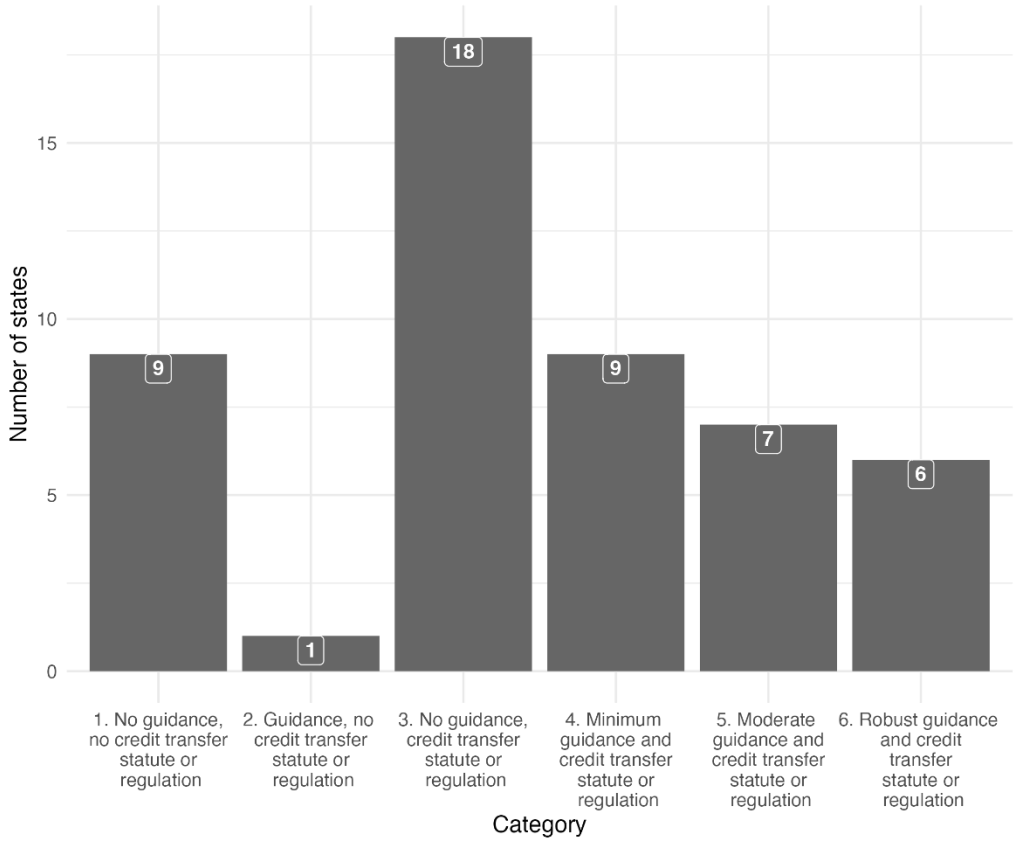


Table 1

Summative State Typologies Assigned to Each State

State	Summative state typology code	Explicit newcomer credit transfer language	Dimension on key elements				EL or newcomer specific credit transfer statute or regulation?
			Obtaining & interpreting	Evaluating prior schooling information	Credit decisions	Credit transfer statute or regulation?	
Alabama	**3**	N	N	N	N	Y	N
Alaska	**3**	N	N	N	N	Y	N
Arizona	**3**	N	N	N	N	Y	N
Arkansas	**3**	N	N	N	N	Y	N
California	**3**	N	N	N	N	Y	N
Colorado	**6**	**Y**	**Y**	**Y**	**Y**	Y	N
Connecticut	**5**	Y	Y	N	N	Y	N
Delaware	**4**	Y	N	N	N	Y	N
Florida	**3**	N	N	N	N	Y	N
Georgia	**3**	N	N	N	N	Y	N
Hawaii	**4**	Y	N	N	N	Y	N
Idaho	**1**	N	N	N	N	N	N
Illinois	**1**	N	N	N	N	N	N
Indiana	**4**	Y	N	N	N	Y	N
Iowa	**1**	N	N	N	N	N	N
Kansas	**1**	N	N	N	N	N	N
Kentucky	**3**	N	N	N	N	Y	N
Louisiana	**4**	Y	N	N	N	Y	Y
Maine	**1**	N	N	N	N	N	N
Maryland	**1**	N	N	N	N	N	N
Massachusetts	**4**	Y	N	N	N	Y	N
Michigan	**3**	N	N	N	N	Y	N
Minnesota	**5**	Y	Y	N	N	Y	N
Mississippi	**5**	Y	Y	N	N	Y	N
Missouri	**6**	**Y**	**Y**	**Y**	**Y**	Y	N
Montana	**3**	N	N	N	N	Y	N
Nebraska	**3**	N	N	N	N	Y	Y
Nevada	**3**	N	N	N	N	Y	N
New Hampshire	**3**	N	N	N	N	Y	N
New Jersey	**6**	**Y**	**Y**	**Y**	**Y**	Y	N

New Mexico	**3**	N	N	N	N	Y	Y
New York	**4**	Y	N	N	N	Y	N
North Carolina	**5**	Y	Y	N	N	Y	N
North Dakota	**1**	N	N	N	N	N	N
Ohio	**4**	Y	N	N	N	Y	N
Oklahoma	**5**	Y	N	N	Y	Y	N
Oregon	**4**	Y	N	N	N	Y	N
Pennsylvania	**2**	**Y**	**Y**	**Y**	**N**	N	N
Rhode Island	**6**	**Y**	**Y**	**Y**	**Y**	Y	Y
South Carolina	**6**	**Y**	**Y**	**Y**	**Y**	Y	N
South Dakota	**3**	N	N	N	N	Y	N
Tennessee	**1**	N	N	N	N	N	N
Texas	**3**	N	N	N	N	Y	Y
Utah	**5**	Y	N	Y	N	Y	Y
Vermont	**5**	Y	Y	N	N	N	N
Virginia	**4**	Y	N	N	N	Y	N
Washington	**6**	**Y**	**Y**	**Y**	**Y**	Y	N
West Virginia	**1**	N	N	N	N	N	N
Wisconsin	**3**	N	N	N	N	Y	Y
Wyoming	**3**	N	N	N	N	Y	Y

Note. The definitions of the summative categories are as follows: 1 = No guidance, no credit transfer statute or regulation; 2 = Guidance, no credit transfer statute or regulation; 3 = No guidance, credit transfer statute or regulation; 4 = Minimum guidance and credit transfer statute or regulation; 5 = Moderate guidance and credit transfer statute or regulation; 6 = Robust guidance and credit transfer statute or regulation

Analytic Approach for the Secondary Research Question

To address the secondary question – *How does the presence of the legal statutes and regulations and State Education Agency guidance differ by the concentration of immigrant population in the state?* – I used descriptive statistics to examine how the concentration of foreign-born populations differed for each of the six summative state typologies. Specifically, I calculated the median size of the foreign-born population estimated from the American Community Survey for 2021 for each summative category. I also calculated the percent change in the foreign-born population from 2010 to 2021 for each summative category. I then compared the medians across the six summative state typologies to examine any trends in the concentration

of immigrant communities. Examining the size of the immigrant population and the change in the immigrant population provides some initial insights into whether the size of the immigrant population or recent demographic changes in the size of the immigrant population are related to a higher likelihood that a credit transfer statute, regulation, and SEA newcomer credit transfer guidance exist.

Limitations

Multiple limitations should be considered when interpreting the findings of this study. First, there are data limitations to consider. The study relied on publicly available documents from all 50 U.S. states. Therefore, some of the guidance provided by SEAs may have been missed, such as internal communications between SEAs and local education agencies. This means that the analysis is only based on the information available in the policy documents during the specified time frame. Additionally, it should be noted that SEAs often update their guidance documents, so the data for each state is only current within the specified timeframe. Any changes made to SEA documents after October 31, 2023, will not be captured. The census data used in this study provide a snapshot of a state's population and identify those with high rates of foreign-born populations. The number of foreign-born residents is not an exact measure of newcomer students. However, we can expect it to be an acceptable proxy because places with high immigrant communities are likely to have higher newcomer rates. The census data is also limited because the available data was collected in 2021, two years before state document collection.

The analysis for the secondary question is also limited. The analysis only examines how two variables relate to one of the six state typologies. However, multiple other contextual factors can influence states to enact credit transfer statutes, regulations, and SEAs to develop newcomer

credit transfer guidance. As such, the analysis only intends to take an initial pass at examining state characteristics that may be related to the guidance that states provide. A comprehensive analysis that examines the relationship between available guidance and state demographic, financial, and other factors is beyond the scope of this research.

Finally, it should be noted that the review did not describe and assess best practices in newcomer credit transfer. No empirical research has been conducted to test the relationship between credit awarding practices and newcomer student outcomes. Therefore, a clear understanding of what works well in state statute, regulation, and SEA guidance cannot be claimed. This review can only describe specific practices.

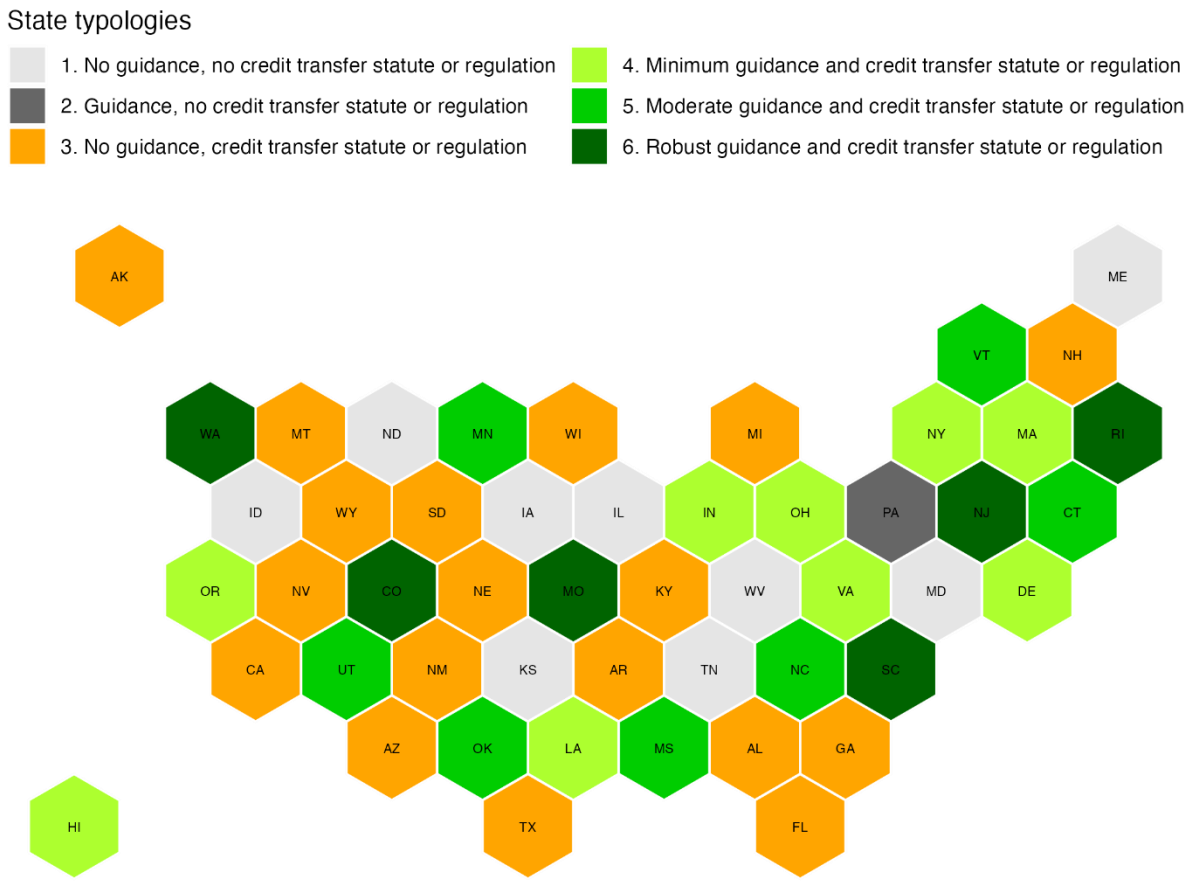
Results

Research Question 1 Results

As described in the methods, data analysis revealed six summative state typologies. Figure 4 presents a map of the U.S. by state typology. In this section, I describe the characteristics of states that fall within each summative state typology. In the description, I provide more detail on dimension 1 (SEA guidance in newcomer credit transfer) compared to dimension 2 (credit transfer statutes and regulations) because there were more documents and examples of SEA guidance compared to credit transfer statutes and regulations.

Figure 4

Summative State Typology Assigned to Each U.S. State



Category 1: No Guidance, No Credit Transfer Statute or Regulation (ID, IL, IW, KA, MA, MR, ND, TN, WV)

Nine states (18 percent) fell into this first category. The nine states represented those with the least clarity to review newcomers' prior schooling experiences as the states did not have any written guidance that informed districts to review the prior schooling experiences of newcomer students, nor did they have a statute or regulation that allowed newly enrolled students to transfer credit for prior schooling. States in this summative category varied in geographic region and

population size. For example, the group included low-population, rural states like North Dakota and high-population states like Illinois (see Table 2A in Appendix A).

Category 2: Guidance, No Credit Transfer Statute or Regulation (PA)

This summative category was the least common grouping and only included one state, Pennsylvania. Pennsylvania had explicit language in their SEA's guidance documents that informed districts to review the prior schooling experiences of newcomer students. However, they did not have a written education statute or regulation that required districts to award credit for previously completed coursework. Pennsylvania provided a standalone guidance document with robust guidance explicitly focused on newcomer credit transfer (PDE, 2017). Pennsylvania's guidance documents described steps districts should engage in obtaining, evaluating, and making credit awarding decisions. To support the implementation of these steps, they provided a profile of more than fifty countries' education systems to assist in newcomer credit transfer.

Category 3: No Guidance, Credit Transfer Statute or Regulation (AL, AK, AZ, AR, CA, FL, GA, KY, MI, MT, NE, NV, NH, NM, SD, TX, WI, WY)

This category represents the highest number of states at 18 (36 percent). This group of states did not have explicit language about newcomer credit transfer in the guidance documents. However, the states had education statutes or regulations that described a pathway for newly enrolled students from a different district, state, or country to earn course credits for previously completed courses.

Within the 18 states, the education statute or regulation was typically written in two ways. The first approach explicitly included English learner-classified or newcomer students in the group of students eligible for credit transfer when first enrolling students. This approach was

present in seven of the 19 states (CA, FL, NE, NM, TX, WI, WY) and differed in specificity. For instance, Florida had clear language about reviewing transcripts and awarding credits for English learner-classified students, which could include newcomer students. Fla. Stat. § 6A-6.0902 (2017) states the following:

> Each school district shall seek to document the prior schooling experience of ELLs by means of school records, transcripts, and other evidence of educational experiences and take such experiences into account in planning and providing appropriate instruction to such students. The school district shall award equal credit for courses taken in another country or a language other than English as they would the same courses taken in the United States or taken in English.

Similarly, California's education code explicitly states that districts can award credit to students in newcomer programs for previously completed coursework. Cal. Education Code § 51225.2 states the following:

> Notwithstanding any other law, a local educational agency shall issue, and the new local educational agency shall accept, full or partial credit for all full or partial coursework satisfactorily completed by a pupil in foster care, a pupil who is a homeless child or youth, a former juvenile court school pupil, a pupil who is a child of a military family, a pupil who is a migratory child, or a pupil participating in a newcomer program, while attending a public school, a juvenile court school, a charter school, a school in a country other than the United States, or a nonpublic, nonsectarian school.

On the other hand, the 11 other states (AL, AK, AZ, AR, GA, KY, MI, MT, NV, NH, SD) did not explicitly include EL-classified or newcomer students in the language of their education statutes or regulations related to credit transfer. Instead, the legal language referred to newly

enrolled students who arrived from an out-of-state district. For example, New Hampshire makes it explicit that they are describing out-of-state students: *"*The principal shall evaluate the transcripts of students who transfer into a secondary school from another educational program, or state, to determine previous educational experiences toward meeting graduation competencies" (N.H. Code Admin. R. Ed. § 306.27). Other states do not specify the population and, instead, keep the population broad and vague. For example, Georgia lists that credit will be transferred if a student earned credits from an "accredited" program without defining what accredited means (O.C.G.A § 160-5-1-.15). This example underscores the importance of having SEA guidance because districts may interpret whether this regulation applies to newcomers differently.

Category 4: Minimum Guidance and a Credit Transfer Statute or Regulation (DE, HI, IN, LA, MA, NY, OH, OR, VA)

In this group of nine states (18 percent), SEA guidance documents explicitly directed schools to review the prior schooling experiences of newcomer students. However, the language was short – usually a sentence or short paragraph – and did not include implementation guidance in any of the three key elements (see key elements Figure 1).

The SEAs' guidance documents often motivated the newcomer credit transfer process by stressing its importance in enabling students to graduate from high school on time. For example, Louisiana acknowledged that it may be challenging to align courses completed in different countries, but *"*school systems should have a process in place to remain consistent and to make sure students receive credit for classes they have successfully completed*"* (Louisiana Department of Education, 2020, pg. 5). Massachusetts highlighted the importance of reviewing a student's prior academic history, especially if their goal is high school graduation (MDESE, 2023, pg. 7).

The SEA guidance documents attempted to instill a sense of responsibility in districts to develop a process to review prior schooling experiences. For example, guidance from Virginia states that "School divisions should collect and maintain records of the previous schooling of students. The VDOE does not collect or maintain these records" (VDOE, n.d., pg. 4). Ohio also says the review process should be "based upon locally adopted school board policies" (Ohio Department of Education, n.d.). In both examples, SEAs discuss the importance of engaging in this process but place the obligation of designing a process entirely on the district.

All of the states in this group also had a statute or regulation that specified credit for prior schooling experiences could be awarded to students. Eight of the nine states (DE, HI, IN, MA, NY, OH, OR, VA) had a credit transfer statute or regulation that was not specific to newcomers. Like others previously described, they focused on students who transferred from other districts or states. Only Louisiana had a credit transfer regulation that included students who attended schools in a foreign country. LA §707. Evaluation of Transfer Students' Records states the following:

> A student transferred from an approved school, in- or out-of-state or foreign school, shall be allowed credit for work completed in the previous school. When a student transfers from one school to another, a properly certified transcript, showing the student's record of attendance, achievement, immunization, and the units of credit earned, shall be required.

Category 4: Moderate Guidance and a Credit Transfer Statute or Regulation (CT, MN, MS, NC, OK, UT, VT)

This group of seven states had explicit language in their guidance documents that directed districts to review the prior schooling experiences of newcomer students and provided specific guidance or resources to support implementation in one (and only one) of the three key

elements of awarding newcomer credit (Martinez-Wenzl, 2016; Greenberg Motamedi, 2021) – (1) obtaining information on prior learning experiences (2) interpreting prior schooling experiences, (3) making decisions about credit transfer.

There was some differentiation among the states concerning which single key area they provided guidance on. Four of the six states (CT, MN, MS, NC) provide specific guidance and resources focused on the first key element– what to do when obtaining and interpreting the transcript. SEA's guidance documents covered topics such as translating a student's international transcript to English, ways to authenticate the transcripts that students bring and protocols on what steps to take when no formal transcript is available. For example, Minnesota recommends that districts interview families when they do not bring an international transcript, and the state provides specific questions to ask families during those interviews (MDE, pg. 76).

The two other states (OK, UT) focused on the second key area: evaluating transcripts. States in this category described how to make sense of courses found in transcripts, such as considerations for the courses' length, countries' grading practices, and standards covered. Oklahoma, for example, provided a list of factors to consider when interpreting courses, such as clock hours, length of classes, and grading scales (Oklahoma Department of Education, n.d.). Utah included a resource with profiles of multiple countries' education systems, such as grade levels and grading systems (Utah Department of Education, 2020).

In all states in this group, a credit transfer statute or regulation offered a pathway to earn credit for previously completed courses. Among states in this group, only Utah had a statute specific for newcomers' credit transfer. As part of the credit transfer statute, Utah tasked the state board with creating a system that centrally stores international transcripts and developing

guidance on best practices to interpret, evaluate, and place newcomer students. UT §53E-3-524 states the following:

> On or before July 1, 2024, the state board shall establish and maintain, as part of the Utah school information management system described in Section 53E-3-518, an online repository for transcripts. (3) The state board shall:
>
> (a) ensure that the repository provides a central location for:
>
> (i) an LEA to upload transcripts; and
>
> (ii) LEAs and qualified service providers to share information regarding transcripts,
>
> including:
>
> (A) best practices for linguistic interpretation;
>
> (B) interpretation of educational experiences; and
>
> (C) placement of newcomer students;
>
> (b) ensure that use of the repository:

Category 6: Robust Guidance and a Credit Transfer Statute or Regulation (CO, MO, NJ, RI, SC, WA)

In this last group of six states (12 percent), SEA documents explicitly guide schools to review the prior schooling experiences of newcomer students. The documents provide specific guidance or resources in at least two key components. As such, these SEAs have the most defined guidance.

Like the SEAs in the moderate guidance category, SEAs in this category include detailed guidance on steps local administrators should take to obtain information on prior schooling experiences (key element 1) and how to evaluate those experiences (key element 2). Often, the

advice was detailed and robust. South Carolina, for example, guided districts only to accept authenticated documents and included detailed guidance on translating the document, stating that all transcripts must be translated by individuals with appropriate certifications and including a list of potential certified providers. Additionally, South Carolina guidance listed specific steps districts should take to reconstruct a transcript, such as administering a family interview (South Carolina Department of Education, 2023, pgs. 5-11). To help evaluate prior schooling experiences, Washington State had a list of detailed steps local administrators should take to assess courses. This included gathering information about the sending country's education system and the courses they took, comparing standards covered in the foreign course to Washington state standards to identify areas of equivalency, and potentially using assessments to determine competency (Washington Office of the Superintendent of Public Instruction, 2023, pgs. 59-76).

SEAs in this category also provided guidance on the third key element, how to award and record credits earned. Some states shared broad guidance and explicitly stated that credit transferring was entirely up to districts. For example, New Jersey provided broad guidance on decisions to award credit:

> The decision to award transfer credit shall be based on whether the transcript and other records indicate that the work is consistent with New Jersey Student Learning Standards and is of comparable scope and quality to the course content done in the district awarding the credit (New Jersey Department of Education, 2018, pg. 10).

Similarly, Washington State explicitly required districts to make the final decision and provided a list of recommendations on which to base their decisions, such as maintaining a list of course

equivalencies and using mastery-based policies (Washington Office of the Superintendent of Public Instruction, 2023).

On the other hand, some SEAs provided much more fine-grained detail about how credit transfer decisions vary by content area. Colorado, for example, differentiated the number of credits that could be transferred for core content credit (math, science, or social studies) compared to elective credits and informed districts that civics courses taken in a foreign country should be counted as social studies (Colorado Department of Education, 2023). Similarly, Missouri had specific guidance about awarding and recording credit by particular course subjects. It detailed which courses might benefit from using assessments to make decisions and particular procedures such as recording English classes as English language development (Missouri Department of Elementary and Secondary Education, n.d.).

All six states also had a credit transfer statute or regulation that defined a pathway for students to transfer their credit. Five of the six states had credit transfer statutes or regulations that included a broader range of transfer students but were not specific to newcomers. Rhode Island was the only state in this summative state typology with a credit transfer regulation that included EL-classified students. Rhode Island's Code of Regulations stated, "At the secondary level, LEAs must review the English Language Learner's previous educational records to ensure that the student receives appropriate credit for prior coursework (200-RICR-20-30-3)."

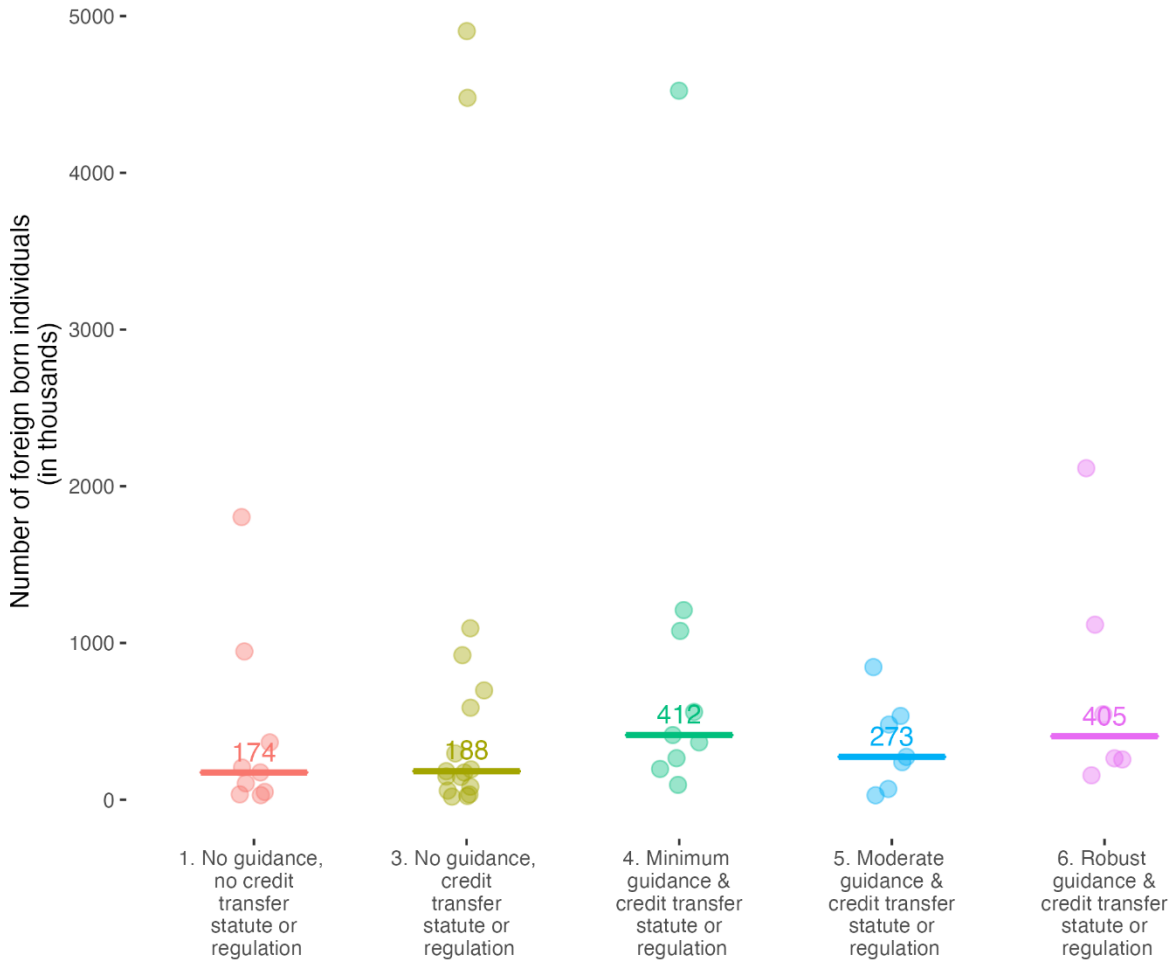
Preliminary Evidence on the Relationship Between Immigrant Population Concentration and the Presence of Credit Transfer Statute, Regulation, and SEA Guidance

The second research question asked: *How does the presence of statute, regulation, and guidance differ by the concentration of immigrant population in the state?* Results from this descriptive analysis revealed that states with more immigrant residents were more likely to have

SEA guidance documents and legal language about transfer credits compared to states with smaller immigrant populations. Figure 5 presents the median number of foreign-born residents by state summative category. One category, "Guidance, no credit transfer statute or regulation," was excluded because only one state was in this group. The states in the two summative categories without SEA guidance – Category 1 (No guidance, no credit transfer statute or regulation) and Category 2 (No guidance, credit transfer statute or regulation) – had a median number of 174,000 and 188,000 foreign-born residents, respectively. However, the states with at least some minimum guidance from SEAs and a credit transfer statute or regulation had a higher median value of foreign-born residents. Specifically, the "Minimum guidance, credit transfer statute or regulation" group had a median of 412,000, the "Moderate guidance, credit transfer statute or regulation" group had a median number of 273,000 individuals, and the "Robust guidance, credit transfer statute or regulation" group had a median value of 405,000 foreign-born individuals. These summative categories had at least twice the median number of foreign-born populations compared to the two categories without SEA guidance.

Figure 5

Median Number of Foreign-Born Residents (in Thousands) by Summative Category



Note Each circle represents a state. The horizontal line and accompanying value represent the median number of foreign-born individuals in thousands. California, which has a foreign-born population of over 10 million, was included in the median calculation but was excluded from Figure 5 for readability.

There was no clear pattern that suggests that states with more growth in their foreign-born populations were more likely to have written SEA guidance or a credit transfer statute or regulation. Figure 4A in the appendix presents the median percent change in the foreign-born population between 2010 and 2021 by summative category. The median percent change in the

foreign-born population ranged from 16 to 21 percent across groups. States categorized as "Robust guidance, credit transfer statute or regulation" had a median percent change in the foreign-born population similar to the "No guidance, credit transfer statute or regulation" group.

This initial exploratory analysis suggests that the absolute size of the immigrant population may be a more likely driver of state response compared to a recent rapid change in the immigrant population.

Discussion

State legislators, state boards of education, and SEAs play an essential role in helping make sure that newcomer students are optimally integrated into U.S. schools. Newcomer students in secondary grades enter U.S. schools with varied prior schooling experiences and typically need to develop English proficiency and complete the necessary credits for graduation in a similar timeframe as a non-immigrant student. The time constraints make it essential that schools understand the prior schooling experiences of their newcomer students and award credit for those classes so that students do not need to repeat courses they have already taken in their home country and are placed in courses that match their preparation. Statutes or regulation can help define procedures that districts must engage in, and guidance from SEAs can help operationalize education statutes or regulations. Without any written education statute or regulation, non-binding SEA guidance can also serve a similar purpose by describing the steps districts should take when enrolling newcomer students.

This study found a range of existing statutes, regulations, and guidance from SEAs focused on newcomer credit transfer. Most states have some written education statute or regulation that allow for credit transfer for newly enrolled students. However, in most cases,

these statutes or regulations were not specific to newcomer or EL students. Out of the 50 U.S. states, only 10, making up 20 percent, had written education statutes or regulations that mandated districts to have a process for newcomer credit transfer. Therefore, legislatures and state boards of education can play a pivotal role in increasing the prevalence of newcomer credit transfer across many states. Legislatures and state boards of education can refer to the ten states that require districts to engage in newcomer credit transfer for examples of approaches to update their state's statutes or regulations. For example, state boards of education may want to update existing credit transfer regulation by expanding the definition to include students from another country. Legislature can also pass new legislation that details more specifically what districts are required to do, like Utah.

In addition, few SEAs provided detailed guidance to districts on procedures they should engage in when obtaining, evaluating, or awarding credit for the prior schooling experiences of newcomer students. The study only identified six states (12 percent) with detailed guidance on at least two key elements of a newcomer credit transfer process (Martinez-Wenzl, 2016; Greenberg Motamedi et al., 2021). In more than half of states (54 percent), no language was found in guidance documents that explicitly addressed newcomer credit transfer. Colorado, Missouri, New Jersey, Rhode Island, South Carolina, and Washington State stand out in the level of specificity they provide in their guidance documents. State education administrators can look to these states to understand what state-level guidance can look like, learn from their experiences, and develop fleshed-out guidance for their state. Furthermore, states that want to pass legislation that places explicit responsibility on districts to engage in this process can look to states identified in this review that already have education codes about this topic.

The study also found that states with more immigrant residents tended to have a more robust legal and guidance structure for newcomer credit transfer. States with credit transfer legal language and SEA guidance for newcomer credit transfer tended to have a higher median number of immigrant residents. However, this was not always the case. Some states with high immigrant populations, such as California, Florida, Illinois, Maryland, and Texas (see Table 2A in Appendix A), did not have explicit newcomer transfer guidance. It is plausible that in these states, districts serving large immigrant populations could be filling the guidance role. For example, Illinois and Maryland did not have written guidance. However, Chicago and Montgomery Public Schools – the largest school districts in Illinois and Maryland, respectively – have newcomer centers specifically focused on the intake of newly arrived newcomer students. The Los Angeles Unified School District, the district with the highest number of students classified as English learners (U.S. Department of Education, n.d.), created a detailed policy that describes how schools should award credit for prior schooling for specific content areas (LAUSD, 2015). While individual districts appear to be playing a pivotal role in developing guidance, it is still critical that states provide a common baseline for districts to engage in. Without proper guidance, districts will operate with varying practices, leading to a patchwork of experiences for newcomer students.

This study can help guide future research and inform individuals who want to study the implementation of these practices in their state. While this study describes what states are doing, it cannot identify best practices. To improve educational outcomes for newcomer students, future research can examine how specific statutes, regulations, or guidance relate to newcomer course access and outcomes. Researchers can evaluate different approaches and practices to identify

which strategies are most effective and under what circumstances. This can ultimately lead to better policies and practices for awarding credit for prior schooling experiences.

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APPENDIX A

Figure 1A

Dimension 1 Categories that Describe Newcomer Credit Transfer Guidance by U.S. State

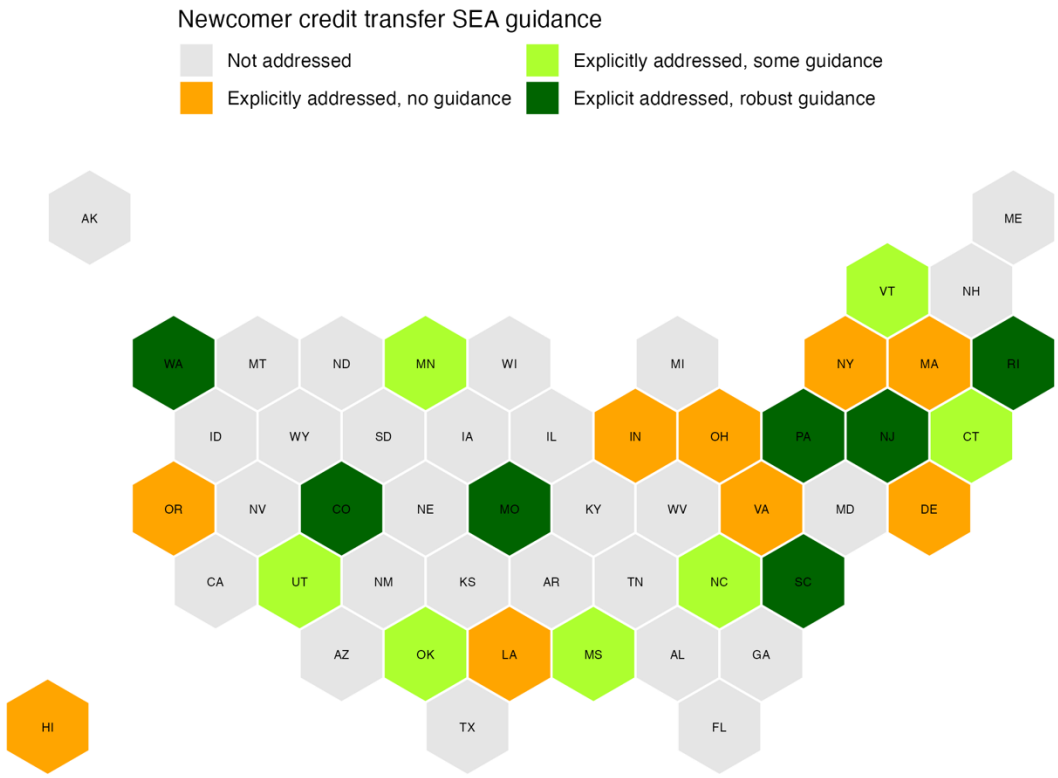


Figure 2A

Dimension 2 Categories that Describe Credit Transfer Statute or Regulation by U.S. State

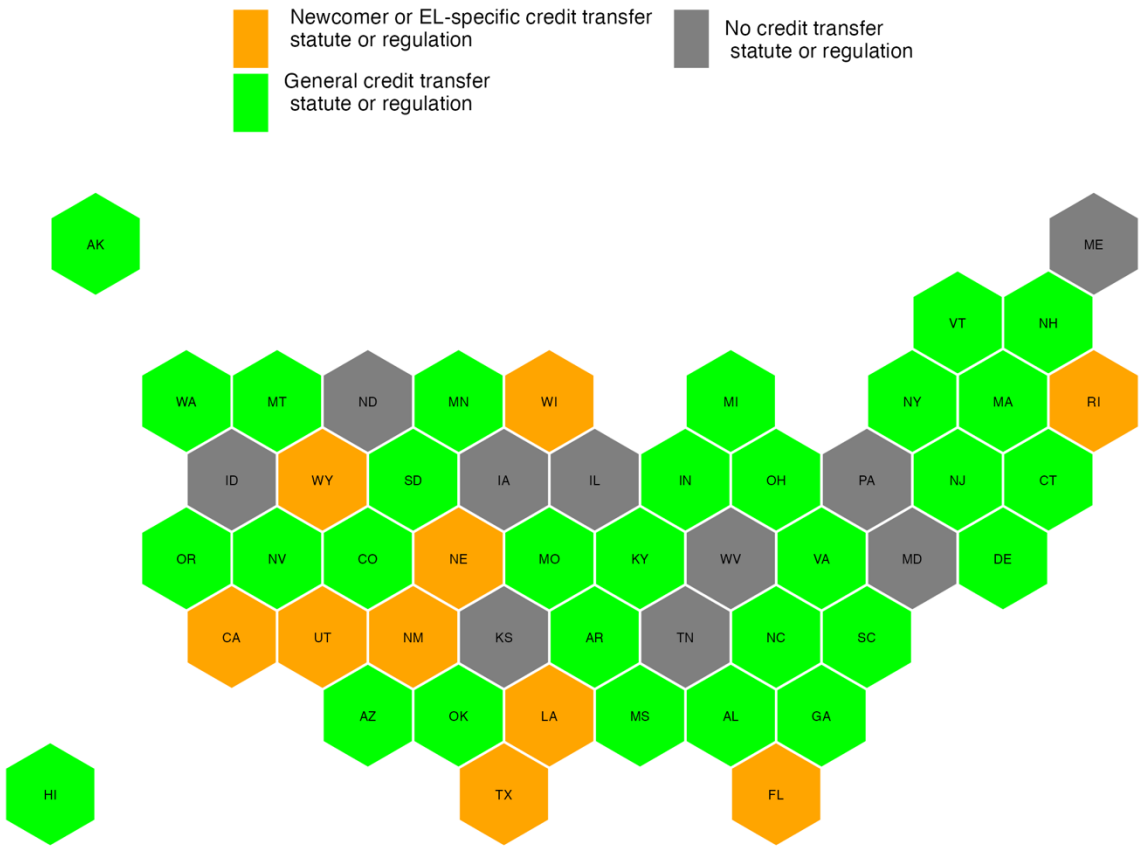


Table 1A

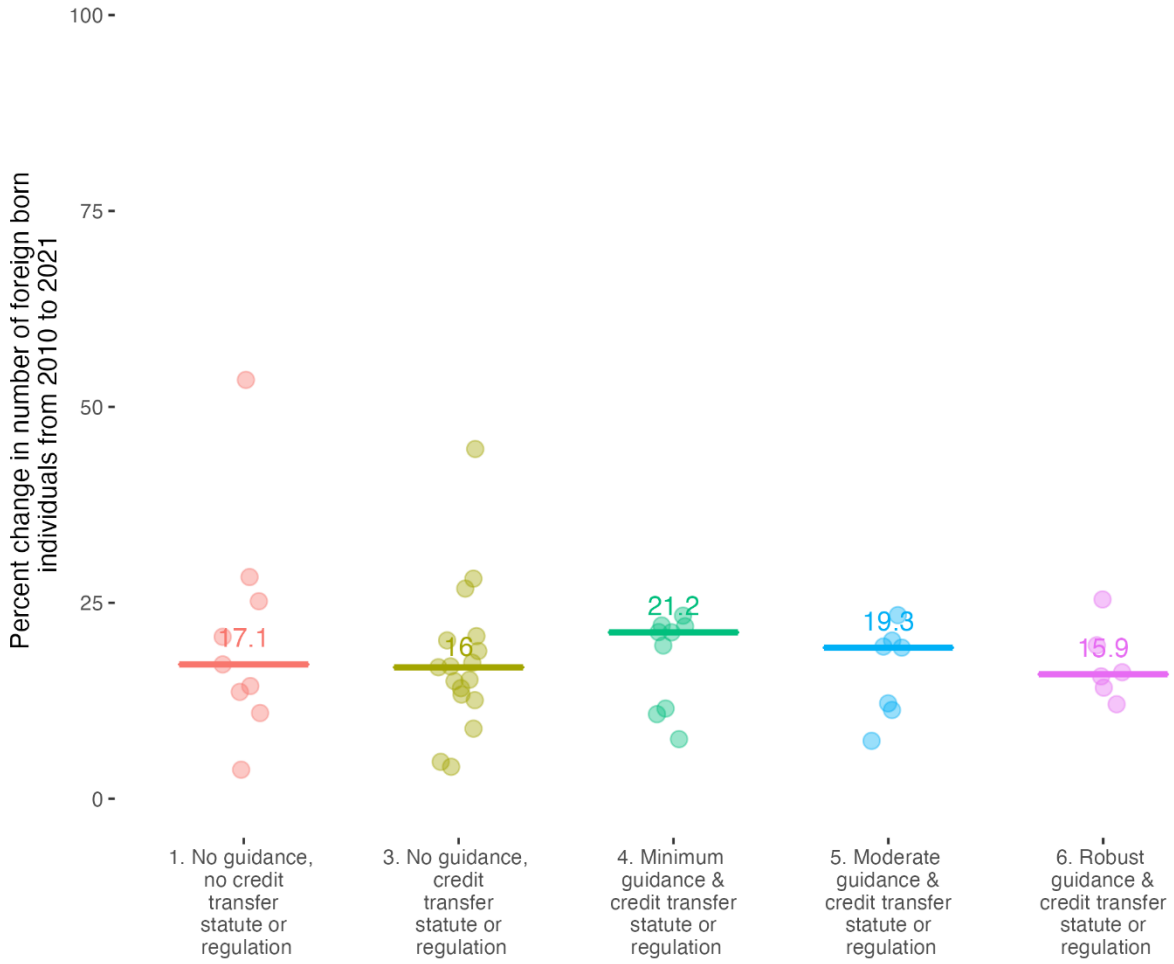
Size of the Foreign-Born Population in 2010 and 2021 by U.S. State

State	Foreign-born population in 2010	Foreign-born population in 2021	Change in the foreign-born population between 2021 and 2010
Alabama	157,935	173,429	8.9%
Alaska	49,762	57,925	14.1%
Arizona	884,625	922,119	4.1%
Arkansas	122,446	148,159	17.4%
California	9,962,472	10,454,949	4.7%
Colorado	479,769	545,464	12.0%
Connecticut	469,180	534,220	12.2%
Delaware	72,531	94,639	23.4%
Florida	3,549,510	4,478,419	20.7%
Georgia	909,022	1,093,655	16.9%
Hawaii	236,177	264,741	10.8%
Idaho	89,359	104,356	14.4%
Illinois	1,736,696	1,803,334	3.7%
Indiana	285,300	365,757	22.0%
Iowa	124,681	173,864	28.3%
Kansas	177,139	205,076	13.6%
Kentucky	130,794	181,844	28.1%
Louisiana	157,697	196,020	19.6%
Maine	43,911	49,303	10.9%
Maryland	750,533	946,035	20.7%
Massachusetts	942,255	1,209,717	22.1%
Michigan	591,534	697,343	15.2%
Minnesota	366,951	479,231	23.4%
Mississippi	63,518	68,580	7.4%
Missouri	216,698	256,802	15.6%
Montana	19,119	23,561	18.9%
Nebraska	106,298	145,215	26.8%
Nevada	508,882	586,851	13.3%
New Hampshire	68,999	82,895	16.8%
New Jersey	1,773,859	2,115,061	16.1%
New Mexico	195,770	193,246	-1.3%
New York	4,180,075	4,523,896	7.6%
North Carolina	682,955	845,983	19.3%
North Dakota	15,807	33,955	53.4%
Ohio	440,761	559,518	21.2%
Oklahoma	192,788	239,202	19.4%

Oregon	364,898	412,382	11.5%
Pennsylvania	704,332	924,624	23.8%
Rhode Island	133,548	155,580	14.2%
South Carolina	212,259	263,917	19.6%
South Dakota	18,663	33,705	44.6%
Tennessee	273,300	365,400	25.2%
Texas	3,913,577	4,904,169	20.2%
Utah	218,283	273,434	20.2%
Vermont	24,837	28,005	11.3%
Virginia	848,087	1,076,919	21.2%
Washington	832,746	1,116,529	25.4%
West Virginia	23,917	28,864	17.1%
Wisconsin	257,987	295,065	12.6%
Wyoming	16,712	19,660	15.0%

Figure 3A

Median Percentage Change from 2010 to 2021 in the Number of Foreign-Born Residents by Summative Category



Note. Each circle represents a state. The horizontal line and accompanying value represent the median percentage change of foreign-born individuals from 2010 to 2021.

APPENDIX B

Finding the right starting point: A 50-state review

Use this document evaluation form to review each document for each state after relevant documents are gathered, downloaded, and stored in the project folder. For each open-ended response, make sure to record the page number of the relevant information you are recording.

Document background information

1. State: _____
2. Name of the document: _____
3. Link to the document on the local TEAMS folder:
4. Description of the document

   English learner program implementation guidance

   Newcomer specific document or resource

   Student credit transfer law

   Newcomer specific transfer law

What is the policy number and name of the law? Enter the exact language

5. Does the document identify international transcripts or a student's prior academic history as an element in the process of enrolling newcomers?

   Yes - explicitly

   Potentially through policy

   No

   Unclear

6. What is the exact language used to guide districts to review international transcripts or a student's prior academic history? Make sure to include page numbers If you selected no to question 1, skip to the end of form and submit
7.

Obtaining and Translating Documents

8. Does the guidance from the state identify a location to collect transcripts or other prior schooling information from newcomers?

   Yes – centralized location (central office or newcomer center)

   Yes – school-based location with multiple locations

   Not addressed

   Unclear
9. Summary of state guidance related to intake location (if applicable)
10. Does the guidance from the state recommend authenticating a student's international transcript? Resources may include: Funding to support authenticating transcripts, list of providers that can support this work, articulated procedures to engage in this process

    Yes & resources are provided

    Yes, but no resources are provided

    No
11. Summary of state guidance related to authenticating transcript (if applicable)

12. Does the guidance from the state recommend recreating a student's prior academic history in the case of a missing transcript? Guidance must explicitly discuss what to do when no international transcript is available. Resources may include: an interview template to record prior schooling information, articulation of procedures to recreate academic history such as a flow chart, assessments that help understand mastery of certain subjects

    Yes & resources are provided

    Yes, but no resources are provided

    No

13. Summary of state guidance related to recreating prior academic history (if applicable)
14. Does the guidance from the state recommend translating a student's international transcript? Resources may include: dedicated financial resources, documentation that helps with the translation of resources, multilingual staff employed at the state agency, information about potential partners to support translation

    Yes & specific guidance is provided

    Yes but no specific guidance is provided

    No

15. Summary of state guidance related to translating a student's transcript (if available)

Interpreting Prior Schooling Experiences

16. Does the guidance from the state recommend establishing procedures to interpret a course a student took in their home country to an equivalent in the current district? Elements of specific guidance may include a description of how to take into account the length of class, grading system, education system of origin, content standards/topics

    Yes & specific guidance is provided

    Yes but no specific guidance is provided

    No

17. Summary of state guidance provided related to establishing procedures to interpret prior courses
18. Does the guidance from the state recommend district and school-based international transcript evaluators engage in ongoing professional development? Resources may include: PD opportunities organized by the district, financial resources to participate in professional development, list of PD providers

    Yes & resources are provided

    Yes, but no resources are provided

No

19. Summary of state guidance related to on going professional development

Credit Transfer and Course Placement Decision

20. Guidance from the state recommends developing procedures to determine if transferred credit will be recorded as elective or core content credit (Math, language arts, Science, Social sciences) Specific guidance can include descriptions of how credits should be recorded for each specific core content course.

Yes & specific guidance is provided

Yes but no specific guidance is provided

No

21. Summary of state guidance related to credit awarding procedures

APPENDIX C

Finding the right starting point: A 50-state review
State Classification Form
State:
Review Date:

1. What were the documents and page numbers used to inform the state's classification?

Document name	Page number

2. SEA Guidance classification (Select one)

    a. **SEA guidance does not explicitly state prior schooling experiences should be used for newcomers.** None of the reviewed documents explicitly tell districts to collect newcomer students' transcripts or prior schooling experiences for credit awarding or course placement purposes. No policy written to

    b. **SEA guidance does not explicitly state prior schooling experiences should be used for newcomers, but there may be a clear pathway through relevant policy language** None of the reviewed documents explicitly tell districts to collect newcomer students' transcripts or prior schooling experiences for credit awarding decisions

    c. **SEA guidance explicitly states prior schooling experiences should be used for newcomers, but no guidance or resources are provided**. The reviewed documentation explicitly recommends districts review students' transcripts or prior schooling experiences to inform credit awarding decisions. However, the documentation does not provide additional guidance or resources to support the implementation of this recommendation.

    d. **SEA guidance explicitly states prior schooling experiences should be used for newcomers, and some limited guidance or resources are provided**. The reviewed documentation explicitly recommends districts review students' transcripts or prior schooling experiences to inform credit awarding decisions. The documentation provides specific guidance and/or resources to help districts implement the recommendation in at least one of the three core areas. *Example resources may include step-by-step procedures in the intake process, protocols for better understanding prior schooling experiences, and profiles of international education systems.*

    e. **SEA guidance explicitly states prior schooling experiences should be used for newcomers, and robust guidance and resources were provided.** The reviewed documentation explicitly recommends districts review students' transcripts or prior schooling experiences to inform credit awarding decisions. The documentation provides specific guidance and/or resources to help districts implement this practice in at least two of the three core areas.

3. Credit Transfer Law Classification (Select one)

a. **No credit transfer law found:** The education law reviewed did not include language focused on reviewing prior schooling experiences for students who transferred to a new district from a different district or education context.
b. **General credit transfer law:** The education code included language focused on reviewing prior schooling experiences for students who transferred to a new district from a different district or education context.
c. **Newcomer or EL-specific credit transfer law**: The education code included language focused on reviewing prior schooling experiences for newcomer students or students transferring from an international context.

4. What language does the SEA use to state that prior schooling experiences should be reviewed? What is the goal/purpose the SEA describes?

5. Overall summary of the guidance and resources the SEA provides that informed the classification:

6. What state law exists that provides precedent for credit to be transferred? Are they specific to newcomer students?

7. Summary of the guidance and resources provided to help districts **obtain and understand prior schooling experiences.**[3]

8. Summary of the guidance and resources provided to help districts **evaluate information about a student's prior schooling experiences.**[4]

9. Summary of the guidance and resources provided to help districts make **credit transfer and course placement decisions.**[5]
None

10. Other thoughts/questions/ideas

3 This includes essential guidance such as the location of the intake of previous schooling experience and the documents collected from students, such as a student's international transcripts. When a home country transcript is unavailable, other data can help understand prior learning experiences, such as recreating previous schooling experiences through a structured interview during registration. Guidance may also include policies for authenticating transcripts and translating transcripts into a language other than English. For example, the translation may be done in-house by the school or district (if staff members are available to provide translation), hire an outside agency to provide the translation for a fee, or partner with a community-based organization that can provide that service.

4 Procedures and guidance to understand what each course means and interpret what it translates to in the U.S. education system and courses in their district.

5 This refers to the procedures to allow credit to count in a student's transcript. For example, if completion of a course is sufficient to receive course credits or if a content assessment that demonstrates a certain level of proficiency is required to earn course credit from a prior course. Guidance on how a course is recorded is also important. Specifically, if courses that students transfer are recorded as content credit or as elective credit in their academic records.

APPENDIX D

State Summative Typology Memo
TEMPLATE

Category:

Select the summative state typology

1. There is no explicit language in state documents to review prior schooling experiences to award credit. No law was found to transfer credit
2. There is explicit language in state documents to review prior schooling experiences to award credit. No law was found to transfer credit
3. There is no explicit language in state guidance to review prior schooling experiences to award credit. A credit transfer law exists
4. Explicit language found in state documents to engage in newcomer credit transfer, but no guidance on how to review prior schooling experiences. A credit transfer law exists
5. Explicit language found in state documents to engage in newcomer credit transfer, and some limited guidance on how to review prior schooling experiences. A credit transfer law exists
6. Explicit language is found in state documents to engage in newcomer credit transfer and robust guidance exists on how to review prior schooling experiences. A credit transfer law exists.

Date:

1. Describe the category. *How many states fall into this category? Describe the guidance and the credit transfer law(if applicable) and the typical forms that the category takes, including relevant patterns or trends. [~2 paragraphs]*

   Overall characteristics of the category (# of the states in the category)
   (Describe any patterns or trends across all or most of the states in the category.)

   Typical form 1: name of the form (# of the states using the form; list of the states)
   (Describe the most common form in the category.)

   Typical form 2: name of the form (# of the states using the form; list of the states)
   (Describe the second most common form in the category.)

2. Describe exceptions. *Are there exceptions to the trends or typical forms in this category? If so, what are they?*

3. Examples. *Describe some examples of states that fall into this category. Include states that are emblematic of specific trends or patterns in this category. Include exceptions as well or outliers in this category. Write roughly a minimum of one paragraph per state example.*

CHAPTER III: THE IMPACT OF DUAL LANGUAGE IMMERSION ON HIGH SCHOOL OUTCOMES

In the U.S., bilingual education is an instructional approach that uses a partner language alongside English to teach core content instruction (Baker, 2001). Attitudes toward bilingual education often follow pendulum swings, and after bans of bilingual instruction in many states in the 1990s and 2000s, there has been an explosion of new programs across the country in the past 10 years (Roberts, 2021). Multiple states, such as Washington, have pushed for statewide funding and expansion of dual language programs, and there are programs in at least 27 different partner languages across the United States (OSPI, 2023; Roberts, 2021). Notably, the U.S. Department of Education's Raise the Bar initiative aims to increase multilingualism in the United States (USDE, 2023). The new federal focus on multilingualism underscores a shift to wider acceptance of bilingual programs in U.S. schools.

Bilingual instructional approaches were initially developed to support students with a home language other than English. Bilingual programs allow multilingual students to learn core content in their home language while developing biliteracy in English and their home language. Dual language immersion (DLI) programs, a specific bilingual program model type, have multiplied recently (Boyle et al., 2015). DLI programs leverage a partner language to teach core content for a significant portion of the day and have the goals of academic excellence, biliteracy, and sociocultural competence (Howard et al., 2018). The first modern DLI school, Coral Way Elementary in Florida, was created by Cuban immigrant families in 1963. During this same time, there were other examples of DLI programs that supported Mexican-American students in multiple other states (Baker, 2001).

While bilingual programs were initially designed for immigrant-origin, multilingual students, DLI programs' recent growth has been partially driven by interest from monolingual English-speaking families. Many of the monolingual, English-speaking families hold comparatively more influence and position of power based on racial, economic, and linguistic advantages compared to that of immigrant and multilingual communities (Parkes, 2008). The increased interest has provided opportunities to create mutually beneficial, integrated classrooms where students from both language backgrounds can support each other's language development. However, in some cases, monolingual families have used their influence and position of power to prioritize their own children's education, shifting the focus of multilingual programs from learners of English to monolingual English speakers pursuing biliteracy (Valdes et al., 2016). With these recent shifts, there is an urgent need to better understand how DLI programs, in particular, impact multilingual students, and how this may differ from impacts on English-dominant students.

The rapid expansion and growing interest in DLI programs have been bolstered by compelling research that consistently demonstrates the positive effects of bilingual education on academic and linguistic outcomes. These studies consistently show that programs that incorporate a student's home language alongside English significantly enhance math and English language arts assessment outcomes (Genesee et al., 2006; Rolstad et al., 2008; Slavin & Cheung, 2005). Moreover, experimental studies that investigate the causal effects of DLI programs at various sites, including Portland Public Schools (PPS), the focus of this study, consistently reveal positive effects on language arts and math assessment scores (Steele et al., 2017; Bibler, 2022; Morales, 2024), further underscoring the effectiveness and impact of these programs.

However, a significant limitation of the literature focused on the effects of DLI programs is that it focuses on assessment outcomes in early grades. Few studies examine how bilingual education is related to later-term outcomes using a causal lens. As such, it is important to know if the documented benefits of DLI programs persist through high school.

This study examined the causal effect of PPS' DLI programs on high school outcomes. Leveraging the use of a lottery system at Portland Public Schools (PPS) that determines participation in DLI programs — an ideal condition for an experimental design given a random assignment to bilingual program "treatment" — I estimated the causal impact of being assigned to and participating in DLI in kindergarten on a series of long-term measures. Further, I examine these impacts for all participants and multilingual learners specifically. The research question that guided this study is as follows: *For all students and for multilingual learners specifically, what is the effect of being selected to and enrolling in PPS' DLI program in kindergarten on high school outcomes including: ninth-grade credit accrual, grade 12 cumulative credits, CTE and dual enrollment credit accumulation, high school graduation, and attainment of the state seal of biliteracy?*

Literature Review

DLI Programs

The implementation of bilingual programs at schools to support students classified as English learners originated from a history of legislation and court cases in the United States. In 1967, the Bilingual Education Act codified bilingual programs as part of federal education policy. At the time, it authorized the use of federal funds to support the instruction of students developing English proficiency. Over time, federal support for bilingual programs waned and

was challenged by opponents of bilingual programs until the remnants of the Bilingual Education Act were eliminated during the reauthorization of the Elementary and Secondary Education Act in 2002 (Baker & Wright, 2017). The *Lau v Nichols* (1974) Supreme Court ruling tasked schools with creating a learning environment that provides EL-classified students with the necessary supports to access core content instruction and develop English proficiency. The *Castañeda v Pickard* (1981) fifth circuit ruling further clarified the responsibilities of districts and established that student supports should be based on "sound educational theory," well-implemented, and must be "evaluated as effective" in overcoming language barriers. To meet students' civil rights outlined by *Lau v Nichols* and *Castaneda V Pickard,* schools have developed multiple program models that use a student's home language alongside English to teach core content and support English language development. One such program model is dual language immersion (DLI) programs.

DLI is an instructional model that allocates a significant portion of the day to teaching in a non-English partner language and has the explicit goals of academic excellence, full biliteracy, and socio-cultural competence (Howard et al., 2018). Unlike some other EL program models that view bilingual education as temporary support for transitioning students to English proficiency, DLI programs use the partner language for extended periods and aim to develop full biliteracy in English and a partner language (Baker, 2001; Sugarman, 2018). On the ground, DLI models typically vary by the degree to which they allocate language. Two common approaches are 90/10 and 50/50 models. In a 90/10 model, the kindergarten year starts with 90 percent of instruction in the partner language and 10 percent in English. Language allocations typically shift in subsequent years until they reach a 50/50 split in later elementary grades. Models with a 50/50

allocation begin kindergarten with 50 percent of instruction in the partner language and the other 50 percent in English (Blackburn, 2018).

A critical component of DLI programs that differentiates it from most other bilingual models is that DLI programs include monolingual English speakers. A main rationale for DLI programs is that the integrated population of both multilingual students and monolingual English speakers provides an opportunity to benefit both groups. Speakers of the partner language can learn core content in an environment that elevates their linguistic capabilities. Both groups of students can increase their exposure and development of language by speaking with one another. Additionally, both groups learn how to interact with individuals from different cultures, which can help them develop socio-cultural understanding (Lindhom-Leary, 2011).

In recent years, DLI models have expanded rapidly across the U.S. While there is no statewide data collection of DLI programs, recent estimates count more than 3,600 programs in 44 U.S. states. Among DLI programs nationally, there are at least 27 unique languages, with Spanish accounting for the partner language in 88 percent of programs (Roberts, 2021). The swift expansion of DLI programs can be partially attributed to a convergence of interests (Kelly, 2018). Multilingual families view DLI's goals of academic excellence and biliteracy as essential to support their child's educational success while maintaining linguistic connections to their community (Ramos, 2007). At the same time, monolingual, English-speaking families want to provide their children with the opportunity to acquire valuable skills in biliteracy and cultural awareness that can support future job prospects (Parkes, 2008).

Power dynamics in DLI

Within the monolingual, English-speaking DLI participants is the increased presence of families from advantaged positions of power along racial, socio-economic, and linguistic

positions (Cervantes-Soon et al., 2017). White, middle-class families have taken a high interest in enrolling in DLI programs (Watson, 2022). Families from these more advantaged positions have more access to information and fewer linguistic barriers to engaging with their schools (Shyman & Rodriguez, 2024). These differential positions of power place White, middle-class families in a better position to advocate for their interests, shifting center and focus from immigrant communities (Cervantes-Soon et. al., 2017).

The growing voice of White monolingual families in DLI programs has shifted who DLI programs prioritize. The expansion of DLI programs has led to a "gentrification" of DLI programs by reducing access for multilingual children in favor of White monolingual families (Valdez et al., 2016) and shifting how DLI programs are advertised to center the potential economic benefits (Valdez et al., 2016). Shifts in who gets centered in these programs have also resulted impacted program structures. For example, DLI programs with a 90/10 language allocation model support EL-classified students by providing access to core content in their home language for an extended portion of the day. However, there has been a trend to shift language allocation models to 50/50 to facilitate instruction for monolingual students (Freire & Delvan, 2021).

DLI programs bring together families with unequal access to power and influence. This precarious relationship can create situations where programs implemented to support equity for multilingual learners do not have that effect and instead exacerbate inequalities (Morita Mullaney et al., 2020). As such, it is important to examine if DLI programs deployed to support multilingual students are having the intended effect.

Research on the Effects of DLI

Extensive research has investigated the relationship between bilingual education and academic outcomes. The consensus from these studies is that bilingual education positively impacts student achievement. While some studies find weak or no benefits (Chin et al., 2013; Esposito & Bauer, 2019), the evidence suggests a positive relationship when viewed as a whole. Multiple meta-analyses, which synthesize results across numerous studies, have found that bilingual education increases students' standardized ELA outcomes, on average, by 0.14 to 0.21 standard deviations (SD) and math outcomes by 0.12 to 0.17 SD (Cheung & Slaving, 2012; Greene, 1998; Rolstad et al., 2008).

Consistent with these meta-analyses, several recent rigorous experimental and quasi-experimental studies have investigated the impact of DLI programs, finding that they enhance academic achievement and language development outcomes. Notably, three studies used lottery selection to examine the causal effects of DLI on academic and linguistic outcomes (Steele et al., 2017; Bibler, 2022; Morales, 2024). Bibler (2022) conducted a study in the Charlotte-Mecklenburg School District and found that participating in a DLI program had a significant positive effect on math achievement in elementary and middle school. Similarly, in their research on DLI programs in Georgia, Morales (2024) identified positive effects of 0.12 and 0.14 standard deviation units in grades one through four reading and math, respectively. Steele and colleagues (2017) conducted a rigorous causal study that examined the impact of participating in the PPS' DLI program, the setting for this study, on later assessment outcomes and the likelihood of reclassification from EL services. The study found a positive effect on ELA grade four and eight test scores for DLI participants and a higher likelihood of reclassification from EL services by middle school. The impact on ELA assessment outcomes was more prominent in magnitude for

multilingual students who were in a classroom where the partner language matched their home language compared to DLI students who did not match the program language. Burkhauster et al. (2016) also examined the partner language development of DLI students at PPS. They found that students in DLI developed higher partner language proficiency than students who enrolled in a similar world language course (Burkhauser et al., 2016).

In addition to the studies that examine the causal effects of DLI, a range of quasi-experimental and correlational studies have also found similar results. Valentino and Reardon (2015) followed the trajectories of EL-classified students by different program models while accounting for multiple baseline characteristics. They found that students in DLI programs began with lower ELA scores than students in English-only programs. However, DLI students grew faster in ELA and overtook students in English-only programs by middle school. Moreover, additional studies in other contexts also find that DLI benefits academic outcomes and language development (Umansky & Reardon, 2014; Watzinger-Tharp et al., 2018).

To summarize, numerous studies indicate that bilingual education, and DLI programs specifically, have a beneficial impact on assessment outcomes in elementary and middle schools. However, the literature on the effects of DLI programs has a significant limitation: It primarily focuses on assessment outcomes in early grades. Therefore, more needs to be understood about how the positive effects of DLI programs in earlier grades may affect high school outcomes that can prepare students for college and careers. Additionally, examining how these effects specifically show up for multilingual students is essential.

Access to Courses and High School Graduation

Students' access to and success in high school coursework is vital because it directly impacts their ability to graduate from high school prepared for college and career. Access to

courses is particularly salient for EL-classified students. Prior longitudinal and descriptive research finds that EL-classified students are often placed in lower-level classes, reducing the likelihood that EL-classified students complete college preparatory coursework (Callahan & Shifrer, 2016) or participate in advanced courses (Callahan, 2005; Hanson et al., 2016). Other literature finds that EL-classified students are less likely to be enrolled in a full content course load (i.e., math, science, English language arts, social studies) than students with similar English language proficiency (Umansky, 2016). Instead, students are disproportionately assigned to courses that deliver a narrowed curriculum (Abril-Gonzalez & Shannon, 2021; Dabach, 2014). Exclusion from grade level and advanced coursework limits students' ability to graduate from high school or graduate with the necessary preparation to succeed in postsecondary institutions.

High schools also offer opportunities to prepare students for college and career, such as dual credit opportunities, college and career technical education (CTE), and credentials to certify students' biliteracy. Dual credit courses are high school classes that provide both high school and community college credit. CTE coursework is a set of secondary and postsecondary courses that can lead to an industry-recognized certificate (Arneson et al., 2020). Research from the state of Oregon, the state where this setting takes place, finds that dual credit courses raise the likelihood that a student graduates from high school, enrolls in college, and persists in college (Hodara & Pierson, 2018) and students who take multiple courses in CTE courses are more likely to graduate from high school and also earn more money when they enter the workforce (Arneson et al., 2020). Additionally, all fifty states offer a Seal of Biliteracy to graduates who showcase proficiency in two or more languages (OELA, 2024). While there is limited evidence of how the Seal of Biliteracy impacts future outcomes, past studies have found that biliteracy has an economic value (Agridarg, 2014).

Conceptual Framework

DLI programs have shown great promise in supporting students' academic and linguistic growth in early grades. Still, the extent to which they support students' access to and success in high school courses and eventual graduation from high school is unclear. The literature that links participation in DLI to later course taking and high school graduation outcomes is thin but suggests different ways DLI programs can influence downstream outcomes for all students who participate and for multilingual learners specifically.

First, for all students in DLI and multilingual learners, the earlier academic benefits of DLI programs are sustained and translate to more opportunities and higher achievement in high school. Vega (2014) found that students who participated in a dual immersion program in one school district in Colorado maintained higher achievement in high school compared to matched peers who did not participate in dual immersion. EL-classified students who participated in bilingual education programs focused on developing full biliteracy also had higher scores on college entrance exams than EL-classified students in other programs (Vega, 2014). In another study, students who participated in bilingual programs had higher rates of high school graduation and college enrollment compared to national rates (Trejo, 2023). Other longitudinal studies not explicitly focused on bilingual programs, but on immigrant-origin students who maintain high levels of bilingualism, found that students who maintained bilingualism had a lower likelihood of dropping out of high school, a higher likelihood of enrolling in any college and four-year universities, and earned higher wages in adulthood compared to other multilingual students who did not maintain high levels of bilingualism (Rumbaut, 2014; Santibañez & Zarate, 2014). These correlational and quasi-experimental studies suggest that the positive effects of DLI may also continue into high school for all DLI participants and multilingual students specifically.

For multilingual students, particularly those classified as English learners, dual language participation may also influence greater course access and high school graduation through a higher likelihood of earlier reclassification and culturally responsive learning environments. EL-classified students are typically enrolled in standalone English Language Development classes, which do not usually contribute credit toward graduation requirements. These classes take up valuable time in a student's schedule that might otherwise be used to take required or elective academic coursework that builds toward graduation and post-secondary success (Abril-Gonzalez & Shannon, 2021). Prior research has found that students who participate in bilingual programming are more likely to reclassify before high school (Steele et al., 2017; Umansky & Reardon, 2014). In other words, earlier reclassification opens time in their schedule to take greater ownership of their academic trajectory and outcomes.

On the other hand, DLI programs may add barriers for multilingual students in accessing courses that prepare students for college by crowding out opportunities (Morita-Mullaney et al., 2020). Morita-Mullaney and colleagues (2020) examined differences in achievement and course-taking patterns of middle school students who participated in DLI compared to those who did not. The authors found that DLI students had fewer opportunities to enroll in advanced elective courses. Advanced elective courses matter because they can open future opportunities to take more advanced courses in high school. Limited access to elective classes was attributed to the fact that students in DLI had to take Spanish language arts, which limited students' schedule flexibility.

The collection of results from these related studies suggests that DLI benefits are sustained for all DLI participants and multilingual students specifically, but there may be ways in which DLI programs add barriers to courses that prepare students for college and career. This

study contributes to the limited research that examines the relationship between DLI and downstream high school outcomes. It builds on Steele and colleagues' (2017) study at Portland Public Schools that examined the causal effects of the districts' DLI program on elementary and middle school assessment outcomes. This study provides novel evidence of the causal impact of DLI participation on credit accumulation, high school graduation, and completion of the Seal of Biliteracy for all participants, and specifically for multilingual students.

Method

Study Context

DLI programs at PPS originated in 1986 with the introduction of a Spanish DLI program at Rigler Elementary School. Since then, the program has expanded to more schools and languages. Currently, 32 schools host DLI programs (14 elementary schools, 1 K-8 school, 10 middle schools, and seven high schools) representing five languages – Spanish, Vietnamese, Russian, Japanese, and Chinese-Mandarin. Spanish is the most represented language, comprising 9 of the 14 elementary DLI programs.

The Russian and Spanish DLI programs at PPS are two-way immersion programs that begin with a 90/10 model. The program starts in kindergarten, with 90 percent of instruction in the partner language and 10 percent in English. The other three languages are primarily 50/50 models where 50 percent of instruction is in the partner language, and the other 50 percent is English throughout elementary. In both models, the class composition comprises a mix of target language speakers who can be either monolingual or bilingual, as well as English-speaking students who are primarily monolingual.

To gain admission to a DLI program, students participate in a lottery process administered by PPS. Before enrolling in kindergarten, all families who wish to enroll their child in a DLI program apply through the district's lottery application administered the Spring before the beginning of the school year. Families who apply through the lottery can select up to three programs, ranked by their preferences. Families who do not apply to the lottery automatically enroll in their neighborhood school.

Each year, schools determine a specific number of slots for different selection groups based on factors including geographic regions, target language classification, and preference categories (PPS, 2024). For the geographic factor, each student is identified as living in the school neighborhood, in the school region, or transferring from another neighborhood/region in the district. For the target language factor, each student is classified as either in the English-speaking group or the target language match group. Preference categories include students who are co-enrolled (have one or more siblings already enrolled in the school) and students who are identified as economically disadvantaged and who will attend certain schools PPS identifies as having a high proportion of economically disadvantaged students. For example, PPS will set aside a certain number of slots for English-speaking students who live in the school neighborhood. Accounting for these decision rules, PPS carries out a lottery, essentially running mini lotteries for each of the combined factor groupings. If all slots are not filled in a program in the first round, PPS will engage in a second selection round with families who listed the program as a second-ranked choice. However, virtually all DLI selection happens in the first round (Steele et al., 2017).

In practice, many potential combinations of groupings influence the likelihood that a student gets selected to participate in DLI. Only some groups will be randomized because

available slots may exceed or accommodate all applicants in that group. For example, applicants who are co-enrolled and economically disadvantaged have a higher likelihood of being selected. Spanish programs typically have more slots for students in the neighborhood or regional zones. Hence, these students are less likely to be part of over-subscribed applicant groups. Moreover, students who speak the target language of the program are more likely to participate because the number of applicants may not exceed the allotted slots. This means that, for example, an applicant to a Spanish immersion program who is a native Spanish speaker, lives in the neighborhood, is economically disadvantaged, and is co-enrolled is much less likely to participate in a randomized group compared to a student applying to the program who is an English speaker, is not economically disadvantaged, and lives outside of the school's boundary. According to Steele et al. (2017), 56% of PPS DLI lottery applicants are randomized. I provide more details in identifying randomized groups in the sample section.

Data

I used PPS student-level administrative data for this study, supplemented by administrative data from the Oregon Department of Education (ODE). PPS shared data on individuals who applied to the DLI lottery from the 2007-08 school year to 2014-15. The lottery data included information describing applicants' ranked program preferences, their geographic region, home language, and whether they belonged to any preference categories (co-enrolled, economically disadvantaged). The lottery data also identified students selected to participate in DLI and an indicator that identified students whose parents accepted the offer and enrolled their child in the DLI program in kindergarten. Additionally, PPS provided student-level, longitudinal data that spanned school years 2007-08 through 2021-22 school years. This data included enrollment, demographic information, participation in particular programs, course information,

and whether a student earned the seal of biliteracy. PPS also provided high school completion data for students who entered kindergarten from 2007-08 to 2009-10 school years.

Not all students who started remained in the district throughout their kindergarten to grade 12 trajectories. To partially address the issue of attrition, statewide ODE student-level data was used to track high school graduation outcomes for students who exited PPS but remained in Oregon. However, I could not use ODE data to minimize attrition for the other outcomes because ODE does not collect credit completion information, and I did not have access to statewide Seal of Biliteracy completion. In the next section, I describe rates of attrition in greater detail.

Sample

The study sample includes seven cohorts of students who entered kindergarten at PPS from 2007-08 through the 2014-15 school year, followed longitudinally through the end of high school. Because of the timing of when outcomes are observed, the number of cohorts included in the sample varies by outcome. Table 2 describes the kindergarten entry year and whether observations in that cohort are included in one of three outcomes-based analytic samples.

Table 2

Kindergarten Entry-year Cohorts Included in the Study by Outcome-Based Analytic Sample

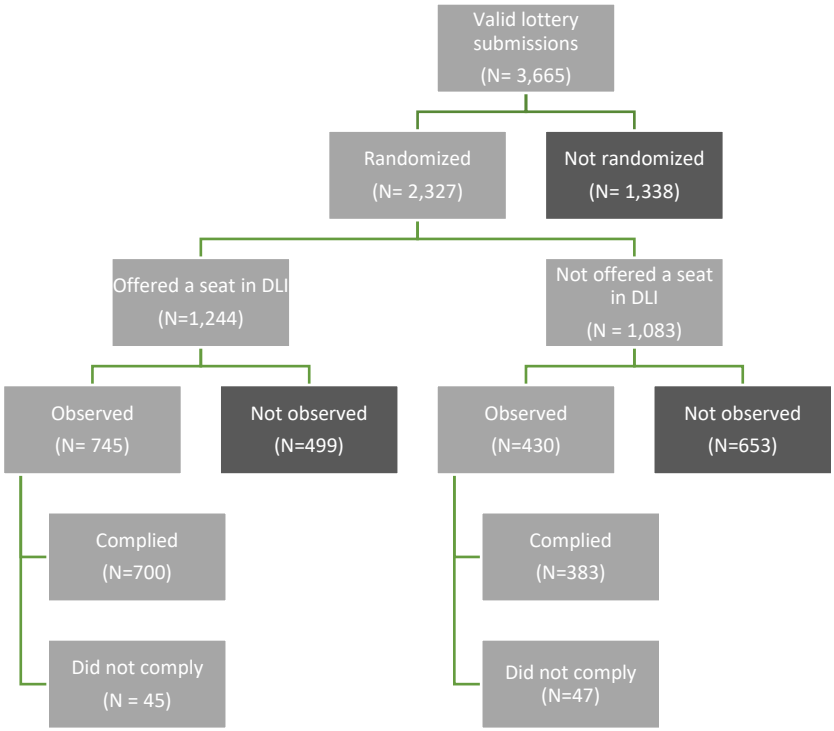
Kindergarten entry year	Analytic samples		
	Grade 9 credit accumulation (N=1175)	Grade 12 credit accumulation (overall, dual enrolment, and CTE) and Seal of Biliteracy (N=578)	High school graduation (N=588)
2007-08	Y	Y	Y
2008-09	Y	Y	Y
2009-10	Y	Y	Y
2010-11	Y	Y	
2011-12	Y		
2012-13	Y		
2013-14	Y		

Note. CTE = Career and technical education

In all, I work with three separate analytic samples that contain between 3 and 7 of the cohorts in the study. I engaged in a multi-step process to get to the final analytic samples. I first identified students who participated in the randomized lottery. Afterward, I reviewed how many students were connected to the PPS longitudinal data and how many had the outcome examined. I restricted the final analytic sample to the randomized group with outcome data. Figure 6 describes sample inclusion for the largest analytic sample, grade 9 credit accumulation.

Figure 6

Description of Sample Inclusion and Attrition



Sample Identification and Attrition

The study's sample focuses on students who applied to the lottery and were randomly selected to either participate or not participate. PPS lottery data did not have an explicit indicator identifying students chosen through a random lottery. To identify randomized students, I first

placed applicants to each school in each year into one of twenty-four groups. These groups represent different combinations of geographic regions, target language classification, and preference categories. For example, I made one group that consisted of all applicants to Rigler elementary in 2008-09 who lived in the school neighborhood, were English-only speakers, had no participating siblings, and were eligible for free/reduced-priced lunch. Next, I calculated the total number of applicants within each group and the total number of applicants offered a DLI placement in that group. If the number of applicants exceeded the number of students offered a DLI seat, and there were both students selected and not selected to participate, I categorized that group as participating in the random selection lottery. In other words, there had to be winners and losers within each group for it to be considered randomized. I also only focused on the first round of lottery selection because virtually all DLI seats are filled during the first round. The decision rules to categorize blocks as randomized and the decision to focus on the first round mirrors Steele et al.'s (2017) approach.

Table 3 presents the different blocks and the number of students identified as randomized. Overall, 63.3 percent of students who applied to the DLI lottery were considered randomized. As expected, very few students who were part of preference categories were selected through a random lottery. For example, no students that fit within the co-enrolled and low-income preference category were selected through a random lottery, and over 90 percent of students with co-enrolled students were not chosen through a lottery. Students from the district transfer geography group who were monolingual English speakers had the highest participation in the random lottery selection. Throughout this process, I collaborated with the PPS research and enrollment staff through monthly meetings from October 2023 to March 2024. During these meetings, we clarified the interpretation of data elements in the lottery data, described

approaches to identifying students selected through random selection, and interpreted the results of identified randomized groups and students. With this collaborative process in place, I am confident in the accuracy of the identified analytic samples.

Table 3

Percent of Lottery Applicants From 2007-08 to 2014-15 School Years That Were Categorized as Randomized by Group

Randomized Block	Number of students	Randomized (%)	Not Randomized (%)
	12		
Language Match, Neighborhood – Coenroll & Income Priority	22		100.00
Language Match, Region - Coenroll & Income Priority	20		100.00
Language Match, Transfer - Coenroll & Income Priority	47		100.00
Language Match, Neighborhood - Coenroll Priority	41	4.26	95.74
Language Match, Region - Coenroll Priority	76	2.44	97.56
Language Match, Transfer - Coenroll Priority	17	9.21	90.79
Language Match, Neighborhood - Income Priority	16		100.00
Language Match, Region - Income Priority	31	25.00	75.00
Language Match, Transfer - Income Priority	114	16.13	83.87
Language Match, Neighborhood - No priority	59	5.26	94.74
Language Match, Region - No priority	257	16.95	83.05
Language Match, Transfer - No priority	12	27.24	72.76
English, Neighborhood - Coenroll & Income Priority	8		100.00
English, Region - Coenroll & Income Priority	27		100.00
English, Transfer - Coenroll & Income Priority	180		100.00
English, Neighborhood - Coenroll Priority	58		100.00
English, Region - Coenroll Priority	351		100.00
English, Transfer - Coenroll Priority	32	3.42	96.58
English, Neighborhood - Income Priority	24	40.63	59.38
English, Region - Income Priority	70	83.33	16.67
English, Transfer - Income Priority	642	51.43	48.57
English, Neighborhood - No priority	293	34.89	65.11
English, Region - No priority	1,211	70.65	29.35
English, Transfer - No priority	12	51.86	48.14

Results from the randomization process led to a balanced group of student samples. Table 1A in the appendix presents descriptive information for all students who applied to the lottery and the randomized sample assigned to DLI and non-DLI-assigned groups. The table presents means, p-values in differences in means, and the magnitude of difference in means using pooled

standard deviation units as recommended by the What Works Clearinghouse (2023). Without restricting the sample to students identified in a randomized block, there were noticeable differences between DLI-assigned and non-DLI-assigned groups. Students assigned to DLI had a proportion of economically disadvantaged students and multilingual learners that were 8 and 18 percentage points higher than the non-DLI assigned groups, respectively. DLI-assigned students in the non-random sample also had rates of Latine and EL-classified students that were noticeably higher. This aligns with the DLI lottery implementation, which favors economically disadvantaged students and target language speakers. However, these differences are minimized when we focus on students identified as being selected through a random lottery. For example, the proportion of students who were economically disadvantaged and multilingual learners was nearly identical in the DLI-assigned and non-DLI-assigned groups.

After identifying students in the lottery, I examined the data for attrition. Because I follow students from kindergarten through high school, not all students who participated in the lottery will stay at PPS for their entire K-12 trajectory. Moreover, some students also had missing outcome data. Table 4 presents the attrition rates of the final analytic samples. For the grade 9 credit and grade 12 credit samples, I only observed outcomes for about half of the original randomized samples. For the high school graduation sample, attrition was lower at 33% because I could use ODE data to track outcomes for students who left PPS but stayed in Oregon. The non-DLI assigned group had higher rates of attrition. Across all analytic samples, the non-DLI group had rates of attrition that were 18-20 percentage points higher than the DLI group. For multilingual students specifically, rates of attrition were slightly lower and ranged from 11-19 percentage points. This substantially high rate of differential attrition is potentially problematic because it could introduce bias to the estimates if the students exiting the sample are

systematically different than those staying. The differential attrition rates are also higher than the bounds accepted by the Institute of Education Sciences' What Works Clearinghouse to meet their highest rating for study quality (WWC, 2022).

Table 4

Sample Sizes and Attrition Rates for the Analytic Sample

			Attrition type			
Analytic group	Random sample	Analytic sample	Overall	DLI	Non-DLI	Differential
All students						
Grade 9 credit accumulation	2,327	1,175	50%	40%	60%	20%
Grade 12 credit accumulation & seal of biliteracy	1,180	578	51%	43%	61%	18%
High school graduation	874	588	33%	25%	44%	19%
Multilingual sample						
Grade 9 credit accumulation	284	163	43%	39%	50%	11%
Grade 12 credit accumulation & seal of biliteracy	147	65	56%	50%	69%	19%
High school graduation	97	72	26%	23%	33%	10%

Table 5 presents descriptive statistics for the grade 9 credit accumulation sample, and tables 2A and 3A in the appendix present descriptive information for the grade 12 credit accumulation sample and the high school graduation sample. Overall, White students made up the largest proportion of the sample at 60 percent, while Latine students. Additionally, less than one-fifth of students in the overall sample were identified as economically disadvantaged (Table

5). Among the multilingual sample, the demographics of the students were different. More than half of the students were identified as economically disadvantaged, and about half of the sample identified as Latine (see Table 3A in the Appendix).

The DLI and non-DLI assigned groups were similar in observable characteristics at kindergarten entry. Both groups had rates of economically disadvantaged, Latine, Current EL, and multilingual students within three percentage points, and those differences were not statistically significant. The only statistically significant difference was along gender identity. The DLI-assigned groups had higher rates of male students and lower rates of female students. Furthermore, a joint hypothesis F-test failed to reject the null hypothesis that significant differences existed between the baseline covariates. Although attrition from the sample poses a threat, descriptively, DLI-assigned and non-DLI groups that remained in the sample were similar in observable characteristics.

Table 5

Descriptive Information for the Grade 9 Credit Sample

	DLI-assigned (N=740)		Not DLI assigned (N=430)				
Variable	Mean	SD	Mean	SD	Difference in mean p-value	Pooled SD	Effect size
Economically disadvantaged	0.16	0.40	0.17	0.38	0.474	0.39	-0.07
Male	0.52	0.50	0.45	0.50	0.047*	0.50	0.15
Female	0.48	0.50	0.55	0.50	0.047*	0.50	-0.15
Special education	0.02	0.15	0.03	0.16	0.200	0.16	-0.37
Current EL	0.06	0.29	0.05	0.23	0.492	0.27	0.10
Asian	0.09	0.29	0.07	0.26	0.334	0.28	0.14
Black	0.01	0.10	0.01	0.10	0.645	0.10	0.16
Latine	0.13	0.35	0.17	0.37	0.083	0.36	-0.16
Multiracial - Historically Underserved	0.03	0.17	0.04	0.19	0.712	0.18	-0.08
Multiracial - Not Historically underserved	0.11	0.32	0.11	0.32	0.940	0.32	-0.01
White	0.62	0.49	0.60	0.49	0.391	0.49	0.07
Multilingual	0.11	0.37	0.10	0.31	0.445	0.35	0.05
Credits earned by grade 9 in:							
ELA	1.09	0.36	1.06	0.33		0.35	0.10

Math	1.05	0.34	1.11	0.38		0.36	-0.19
Science	1.02	0.30	1.01	0.23		0.28	0.04
Social studies	0.66	0.51	0.68	0.50		0.51	-0.03
World Language	1.00	0.50	0.96	0.63		0.55	0.08
Misc. credits	0.90	0.63	0.92	0.54		0.60	-0.04
Total credits	11.33	2.30	9.87	2.08		2.22	0.66

Note. Effect size is a standardized measure of mean difference using the Cox index for binary measures and Cohens G for continuous measures (WWC, 2022). The difference in mean p-value is derived from a model that regresses the covariate as the dependent variable and the treatment variable as an independent variable while include lottery fixed effects. SD = Standard Deviation, M = Mean * $p < .05$, ** $p < .01$, *** $p < .001$

The grade 12 and high school graduation samples also had broadly balanced groups with some differences. Noticeably, among the grade 12 credit sample, the DLI-assigned group had fewer Latine students (8 percentage points) and a higher rate of Asian students (7 percentage points). These differences were statistically significant. Additionally, the DLI-assigned group in the high school graduation sample had rates of Asian students that were eight percentage points higher than the non-DLI-assigned group. For both analytic samples, a joint hypothesis F-test rejected the null hypothesis that the differences between baseline covariates were zero. These imbalances in baseline covariates between groups pose a challenge because they could indicate systematic differences in students who left the sample. For this reason, I include baseline covariates in the final model specification.

Outcome Measures and Treatment Variable

This study explored seven outcomes measured at different points in high school: cumulative credits earned in grade 9, cumulative credits earned by grade 12, cumulative dual enrollment credits earned by grade 12, cumulative CTE credits earned by grade 12, high school graduation with a regular or modified diploma, high school graduation with a regular diploma, and

completion of the Seal of Biliteracy. Cumulative credits earned in grade 9 and grade 12 are count variables that represent all the credits a student earned by the end of grade 9 and grade 12, respectively. This was calculated using student course-taking data and calculating the cumulative number of credits students earned by each grade, where one credit is equivalent to one year-long course. For this measure, I also conducted a sub-analysis to examine the type of content area credits earned, such as English language arts or math. I used the National Center for Education Statistics course codes to categorize courses in particular content areas (National Forum on Education Statistics, 2023).

Dual credit and CTE credits are count variables that represent the total number of dual credit and CTE credits earned by the end of grade 12. Dual credit courses provide both high school and college credit to students. CTE courses focus on acquiring industry-specific skills and may lead to a CTE certification or concentration. Courses were identified as dual credit or CTE based on flags provided in the data by PPS.

Lastly, I examined three outcomes at the culmination of high school. Seal of Biliteracy completion is a binary variable equal to one if a student ever earned the Seal of Biliteracy. The Seal of Biliteracy is awarded to students who successfully pass a language assessment in reading, writing, speaking, and listening. High school graduation is a binary variable that equals one if students ever earned a regular or modified high school diploma. In Oregon, a regular diploma is awarded to students who earn 24 total year-long credits and who earn a certain number of credits in specific content areas. For example, a student must complete four years of ELA, three years of math, three years of science, and three years of social studies. A modified diploma is awarded to students who also earn 24 total year-long credits, but there is more flexibility in the subject-specific credit requirements. For example, modified diplomas require three years of ELA, and

two years of math – one fewer year compared to the regular diploma. The modified diploma is typically, but not exclusively, awarded to students in special education. Most importantly, this diploma disqualifies students from enrolling in four-year universities in Oregon. Lastly, I examined regular high school diploma attainment, defined as a binary variable equal to one if a student ever graduated with a regular high school diploma.

The treatment variables were specified in two ways. The first specification, assigned to DLI, was a binary value that took a value of one if a student was selected to participate in DLI via the random lottery selection. The second specification, participated in DLI, was a binary variable that took a value of one if a student was selected to participate in DLI and actually enrolled in kindergarten.

This study examined the effects of DLI for multilingual students specifically. Multilingual learners were defined as students who were ever classified as English learners, were tested in kindergarten but deemed to be initially fluent English proficient or had any records in the data of having a home language other than English at home.

Analytic Strategy

The study's research question asks, *for all students and for multilingual learners specifically, what is the effect of being selected to and enrolling in PPS' DLI program in kindergarten on high school outcomes including: ninth-grade credit accrual, grade 12 cumulative credits, CTE and dual enrollment credit accumulation, high school graduation, and attainment of the state seal of biliteracy??* To address the research question, I approached the analysis in two ways. First, I used the randomized sample to estimate the causal effect of being assigned to DLI on the study's outcomes. Second, used an instrumental variable approach to estimate the impact of enrolling in a DLI program on the study outcomes. The study was focused

on understanding the overall effects of DLI on participants, as well as multilingual learners specifically. As such, the analysis was applied to the entire sample and the multilingual sample.

As previously described, because the selection to participate in DLI was randomly assigned, the difference between groups is an unbiased estimate of the offer of DLI participation. To formally estimate the impact of being selected to participate in DLI, I used linear regression for continuous variables and linear probability for binary variables. I used linear probability for binary variables instead of logistic regression to facilitate interpretation (Angrist & Pischke, 2008, pp. 103-107). Binary estimates from linear probability models can be interpreted as the percentage point difference between DLI-assigned and non-DLI-assigned students. The following model represents the analytic approach:

$$(1) Y_{\mathrm{ijsl}} = \beta_0 + \beta_1 DLI\_S_i + \mathrm{X}_i + \Pi_j + \Upsilon_s + \Delta_l + \varepsilon_{\mathrm{i}}$$

Where $\mathrm{Y_{ijsl}}$ represents the outcome for student *i* in cohort *j*, randomized in school program *s*, and lottery block *l*. DLI_S_i is a binary indicator coded as one if a student was selected to participate in a school's DLI program through the lottery, X_i represents a vector of baseline student-level covariates, Π_j is a kindergarten cohort fixed effect, Υ_s represents the DLI school program fixed effect, and Δ_l is a lottery-block fixed effect. I include these fixed effects because randomization occurs for each cohort, at each program, and within each defined lottery block. Since there were some differences in baseline characteristics in the analytic samples, I included covariates X_i to mitigate the potential issue of attrition and to account for residual variation and improve the estimate's precision (Murnane & Willett, 2011). The covariates I included were whether a student was economically disadvantaged in kindergarten, in special education in kindergarten, identified as an English learner in kindergarten, the student's race/ethnicity, gender, and whether the student spoke a language other than English at home. The coefficient of

interest was β_1, which represents the average within-cohort, DLI school program, and lottery block effect of being assigned to DLI on the outcome of interest (i.e. the intent to treat impact). Analysis for each outcome was conducted separately.

Multiple assumptions must be met for a randomized experiment to have causal claims. First, DLI assignment must be exogenously determined, ensuring that students selected for the DLI program are comparable to those not selected, eliminating selection bias. (Angrist & Pischke, 2009). PPS administers an annual lottery for DLI programs, and my collaboration with the PPS research department ensured that the lottery mechanisms are reconstructed in the development of the analytic samples. Additionally, the baseline characteristics of students assigned to DLI compared to those not assigned were very similar. Independence is another critical assumption, where the outcomes for any individual student are unaffected by the outcomes for other students. Closely related is the assumption that there are no spillover effects between students, and so students' outcomes are independent of others' treatment status (Murnane & Willett, 2011). Spillover effects are likely not an issue because the main treatment for DLI-assigned students, bilingual instruction, occurs in separate classrooms. I also assume that the only systematic difference between the treatment and control groups is the participation in the DLI program, with no other confounding interventions assigned to DLI or non-DLI students (Shadish, Cook, & Campbell, 2002). Finally, attrition of the original randomized sample is also important. To increase the internal validity of the randomized study, there would be no differential attrition, meaning that dropout rates are similar across DLI and non-DLI groups (Murnane & Willett, 2011). As previously described, there was significant differential attrition, and I was not able to examine the baseline characteristics of the entire sample that left the study

because some students who were in the DLI lottery and were not selected never enrolled in PPS. However, the remaining analytic sample was still very similar in observable characteristics.

Instrumental Variable Analysis

Most students complied with their initial assignment, but not all students assigned DLI participated in a DLI classroom in kindergarten. Restricting the sample to actual DLI participants and using an OLS model to estimate the impact of DLI participation will produce biased results because families had to select to participate in the program. Following Steele et al. (2017), I used an instrumental variable approach to calculate an unbiased impact estimate using a two-stage least squares model. The binary variable selected to participate in DLI (*S_DLI*) was the instrument that predicts actual enrollment in the DLI program (*E_DLI*).

I implement my instrumental variable analysis in a two-stage set-up. In the first stage of the analysis, I predict the likelihood that a student will enroll in a DLI program, conditional on being offered a seat. The following model represents the first-stage regression.

$$(2)\ 1st\ Stage{:}\ E\_DLI_{\mathrm{ijsl}} = \alpha_0 + \alpha_1 S\_DLI_i + \mathrm{X}_i + \Pi_j + \Upsilon_s + \Delta_l + \delta_{\mathrm{i}}$$

In model 2, $\mathrm{E\_DLI}_{\mathrm{ijsl}}$ represents whether the student *i* in cohort *j*, randomized in school program *s*, and lottery block *l* enrolls in a DLI program in kindergarten. *S_DLI* is the instrument and represents a binary indicator that equals one if a student was selected as a recipient in the lottery and X_i represents a vector of student-level covariates. I also included (Π) cohort, DLI school program (Υ_s) and lottery block (Δ_l) fixed effects. In the second stage of the regression, I incorporated the predicted values of *E_DLI* as a predictor and executed the following analysis:

$$(3) Second\ Stage{:}\ Y_{\mathrm{ijs}} = \beta_0 + \beta_1 \widehat{E\_DLI_i} + \mathrm{X}_i + \Pi_j + \Upsilon_s + \Delta_l + \varepsilon_{\mathrm{i}}$$

Where Y_{ijsl} represents the outcome of interest for student *i* in cohort *j*, randomized in school program *s*, and lottery block *l*. $\widehat{E\_DLI_i}$ represents the predicted scores derived from the first stage

model. I also include the vector of student-level covariates and cohort fixed effects in the first model. The coefficient of interest is $\beta_1$which represents the impact of actual enrollment in a DLI program (i.e. the impact of treatment on the treated).

Three critical assumptions must be met for the instrumental variable approach to be valid (Murnane & Willet, 2011). First, the instrument must be related to the treatment and enrollment in the DLI program (*E_DLI*). I checked this assumption by checking the strength of the relationship between the instrument (*S_DLI*) and the treatment predictor (*E_DLI*), finding that being selected to participate in DLI increases the likelihood of enrollment in DLI by 88 percentage points (see tables 8A-10A in the appendix). The second assumption is that the instrument is not correlated with other variables impacting the outcomes, i.e. that the instrument *S_DLI* only relates to the outcome through the endogenous predictor *E_DLI*. This assumption is difficult to check empirically, but considering that the instrument was assigned at random, I assume that the instrument is not related to our outcome measures through any other path except through enrollment in the program. Lastly, I also assume monotonicity.

Limitations

This study provides a unique opportunity to estimate the causal effects of DLI programs on high school outcomes. However, multiple limitations should be considered when interpreting the results of this study. First, the sample had high attrition. Depending on the analytic sample, the study lost 33 -51 percent of the original sample. Attrition was 18-20 percentage points higher among students not assigned to DLI. While baseline characteristics between groups are still similar, and I include baseline covariates in the analysis, there is still the possibility that the students who left the samples were systematically different in each group. This could have

introduced bias into the results. There are also important considerations for external validity. The results of this study apply to urban districts and DLI programs that use DLI models similar to those found at PPS. PPS also has extensive experience administering DLI programs, so the results of this study may be more relevant to programs with high maturation and good implementation (Li et al., 2016; Greenberg Motamedi et al., 2023).

This study purposefully focuses on how DLI programs serve multilingual students. However, our randomized sample included a limited number of multilingual students. The number of multilingual students in my samples ranged from 68 to 163. This is primarily because multilingual students were less likely than monolingual English speakers to experience lottery-based assignment into DLI. In practice, this is a positive because it means that nearly all multilingual students who applied to DLI programs got into them, a fact that is based on proactive efforts of the school district to make DLI accessible to these students (PPS, 2023). However, the small multilingual sample limits the study's power and ability to identify causal effects of DLI for multilingual students alone. As such, the multilingual analysis focuses on comparing the direction and magnitude of the estimates to those of the overall sample.

While this study aims to understand if DLI programs lead to long-term academic and partner language development benefits through high school, it is worth noting that there are other potential long-term benefits linked to bilingual education that are beyond the scope of this study. Importantly, DLI programs may have social and economic benefits, such as earnings, employment, cultural identity, and intergenerational communication (Porter et al., 2023).

Results

The results of this study are divided into two sub-sections. In the first section, I present the intent-to-treat estimates or the effects of being assigned to DLI on all outcomes. I discuss the impact on the entire sample and the multilingual sample. In the second sub-section, I present the treatment on the treated effects or the effects of enrolling in DLI in kindergarten, again for both the overall sample and then for the multilingual sample.

Effects of DLI Assignment

Grade 9 Credit Accrual

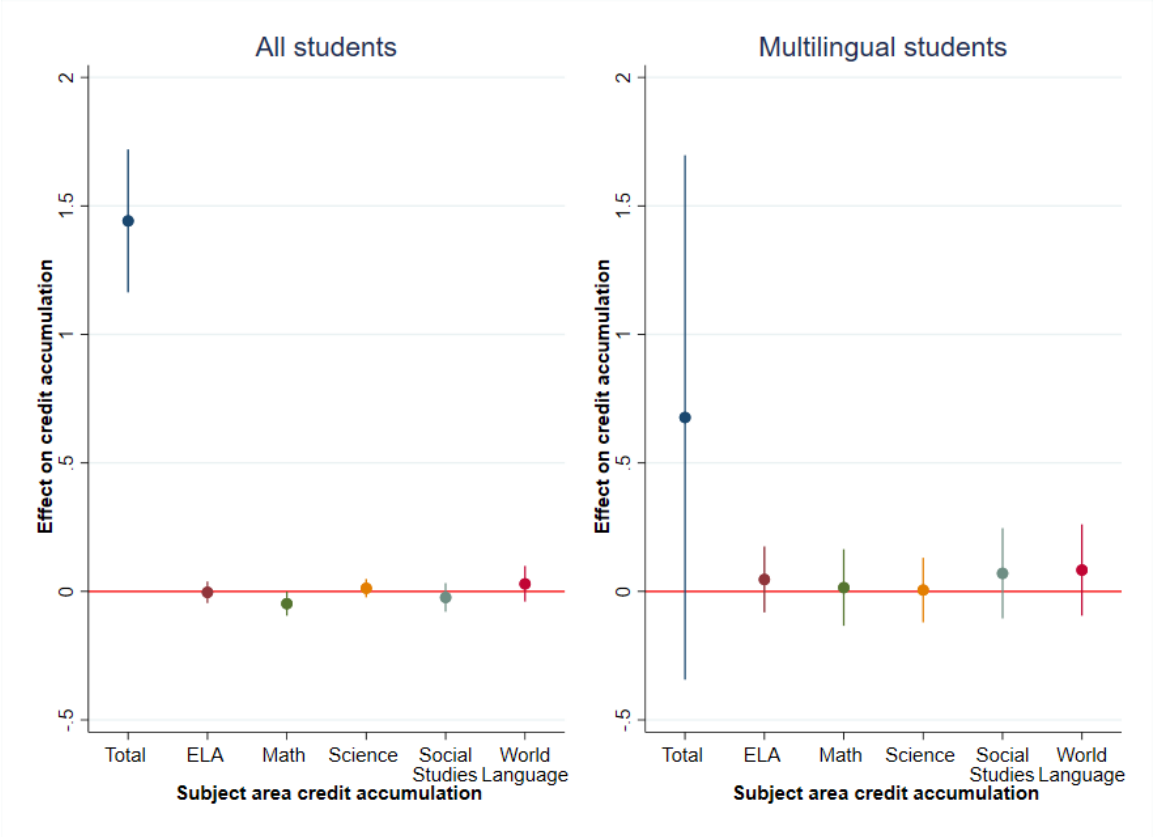
DLI-assigned students earned more credits by the end of grade 9 than those not assigned to DLI. Figure 7 presents the estimated effect of DLI assignment on the total number of credits earned by the end of ninth grade for the entire sample and the multilingual sample. Tables 5A and 6A in the appendix presents the model results for the entire and multilingual samples, respectively. On average, students selected to participate in DLI earned 1.44 more credits by the end of grade 9. This estimate was statistically significant. Additionally, the estimate was fairly precise – the 95 percent confidence ranged between 1.16 and 1.72, suggesting that DLI-assigned students are likely earning a full additional credit. This is equivalent to taking one more year-long course.

For multilingual learners, the results were similar in direction to the overall sample but smaller in magnitude and not statistically significant. The non-significant point estimates suggest that DLI students selected to participate in DLI earned .6 more credits than multilingual learners not assigned to DLI. This estimate was very imprecise and could range as low as 1.34 fewer credits and as high as 1.69 more credits.

The positive and statistically significant effect on total 9th grade credit accumulation for the entire sample was not driven by DLI-assigned students earning more credits in core content courses. Also presented in Figure 7 are the estimated effects of DLI assignment on total credit accumulation for specific content areas by the end of grade 9. DLI-assigned students earned similar credits in math, ELA, science, social studies, and world language subjects. I address this, perhaps counterintuitive, finding in the discussion.

Figure 7

Estimated Effect of DLI Assignment on Different Measures of Credit Accumulation in Grade



Note. Each dot represents the estimated effect of DLI assignment on the indicated outcome, and the whiskers around the dot represent the 95 percent confidence intervals.

Grade 12 Credit Accrual and Seal of Biliteracy

Students assigned to DLI earned more credits by the end of grade 12 and were more likely to complete the seal of biliteracy. However, DLI-assigned students earned fewer credits in CTE and dual enrollment courses. Figure 8 presents the estimated effect of being selected to participate in DLI on total credit accumulation, CTE credit accumulation, and dual enrollment credit accumulation by the end of grade 12 for the entire sample and multilingual sample, respectively. Table 7A in the appendix presents the model results for the entire and multilingual samples. Students selected to participate in DLI earned an average of 1.3 more credits than students not selected, a statistically significant difference. These differences were similar to the grade 9 estimates, suggesting that early high school differences were sustained through the end of high school. However, the estimate was not as precise as the grade 9 estimate. The 95 percent confidence interval suggests that the effect of DLI assignment could range from .6 to 2.03 more credits.

While DLI students earned more overall credits by the end of grade 12, they earned fewer credits in courses that prepare them for college and careers. On average, DLI-selected students earned about half (.49) fewer CTE credits and about a quarter (.22) fewer dual enrollment credits. These differences were statistically significant for CTE and marginally significant for dual enrollment ($p = .067$). Students who remain in DLI through high school take a partner language course throughout their high school trajectory, which may crowd out opportunities to take other elective courses, including CTE and dual enrollment courses.

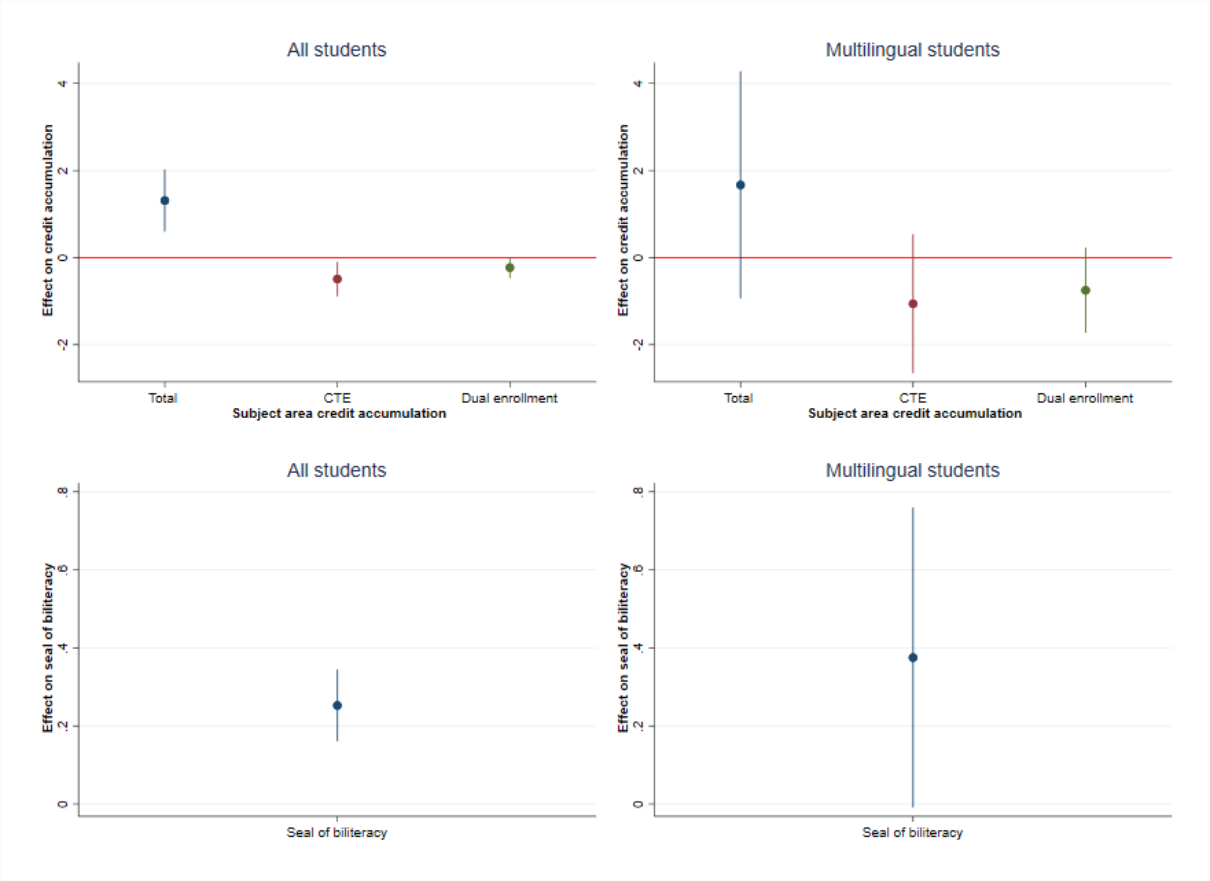
Model estimates for multilingual learners specifically were similar in direction but more prominent in magnitude and not statistically significant. The non-significant point estimate for cumulative credit accrual for multilingual learners suggests that multilingual learners selected to

participate in DLI earned an average of 1.67 more credits than multilingual learners not assigned to DLI. Like the entire sample, point estimates suggest that DLI-assigned multilingual learners earn fewer CTE and dual enrollment credits than their counterparts. Multilingual learners selected to participate in DLI earned a full CTE credit (1.06) and .75 dual enrollment credits fewer than multilingual students not assigned to DLI.

Lastly, DLI assignment had a positive, statistically significant, and meaningful effect on the likelihood of earning the Seal of Biliteracy. DLI assignment increased the Seal of Biliteracy completion rate by 25 percentage points. Moreover, the 95 percent confidence interval of the estimated effect ranged from 16 to 34 percentage points, indicating high confidence that the estimated effect was meaningful in magnitude. For multilingual learners, the estimated effect was also positive in direction and more prominent in magnitude, and marginally significant (p=.055) DLI assignment increased the Seal of Biliteracy completion rates by 37.5 percentage points.

Figure 8

The Estimated Effect of DLI Assignment on Measures of Credit Accumulation in Grade 12 and Seal of Biliteracy Completion



Note. Each dot represents the estimated effect of DLI assignment on the indicated outcome, and the whiskers around the dot represent the 95 percent confidence intervals.

High School Graduation

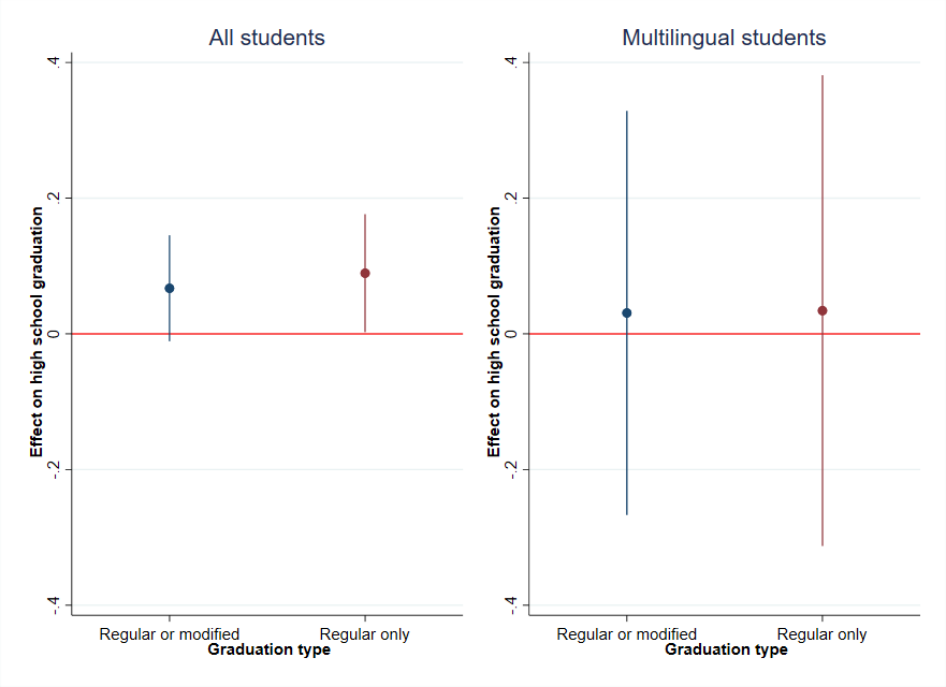
DLI-assigned students had higher rates of high school graduation than those not assigned to DLI. Figure 9 visualizes the estimated effect of DLI assignment and Table 8A in the appendix presents the model results for the entire and multilingual samples. Students assigned to DLI graduated from high school with a regular or modified diploma at rates that were six percentage

points higher compared to the non-DLI sample. This estimate was not statistically significant at the .05 critical value but approached statistical significance (p=.092). High school graduation rates with a regular diploma – a diploma that allows Oregon students to enroll in four-year universities – were also higher for DLI-selected students. DLI assignment led to a statistically significant increase of 9 percentage points in graduation rates with a regular diploma.

Similar to the entire sample, impact estimates for the multilingual sample were also positive, though smaller in magnitude and not statistically significant. DLI-assigned multilingual learners had overall graduation rates that were three percentage points higher than multilingual students not selected to participate in DLI. Similarly, the estimated effect on graduation with a regular diploma was three percentage points higher.

Figure 9

The Estimated Effect of DLI Assignment on High School Graduation



Note: Each dot represents the estimated effect of DLI assignment on the indicated outcome, and the whiskers around the dot represent the estimates' 95 percent confidence intervals.

Effects of Participating in DLI

In the previous section, I discussed the effects of being assigned to DLI. In this section, I concentrate on the impact of participating in DLI beginning in kindergarten. To analyze the effect of enrolling in DLI, I used instrumental variable estimates to focus on individuals who complied with their assignment. Overall, almost all the randomized students complied with their assignment (90%), so the results are expected to be reasonably consistent with the analysis that examines the effects of DLI assignment because the assignment variable will be nearly identical to the participation variable. As such, I primarily focus on estimates that diverge from the intent to treat estimates.

Overall, the treatment on the treated estimates were like the intent-to-treat estimates. Tables 9A to 11A in the appendix present the instrumental variable results for all models. Selected students who participated in DLI earned more credits by the end of grades 9 and 12, earned the seal of biliteracy at high rates, and graduated at higher rates. Similarly, selected students who enrolled in DLI earned fewer CTE and dual enrollment credits.

The estimated impact of participating in DLI differed from the impact of being assigned to DLI on various outcomes for multilingual learners, such as cumulative credit accumulation, CTE credit accumulation, dual enrollment credit accumulation, and completion of the Seal of Biliteracy. Whereas the estimated positive effect of DLI assignment on measures of credit accumulation in grade 12 was not statistically significant for multilingual learners, they approached statistical significance ($p<.10$) in the treatment on the treated analysis. This supports the finding that DLI led to an increase in overall credit earning but a negative effect on CTE and dual enrollment credit accumulation for all students, including multilingual learners. Most notably, the treatment on the treated estimated effect of DLI participation on the Seal of

Biliteracy was larger in magnitude and statistically significant. DLI participation increased the Seal of Biliteracy completion rates for multilingual learners by 58 percentage points.

Discussion

This study contributes to the literature that examines the causal effects of DLI programs by providing novel evidence of the effects of being offered a seat in DLI programs in kindergarten on high school outcomes. Prior studies focusing on assessment outcomes in elementary and middle school have found that DLI boosts academic outcomes (Steele et al., 2017; Bibler, 2022; Morales, 2024). The study found that the elementary and middle school grade benefits of DLI programs continue through high school. DLI assignment led to an increase in the total number of credits earned in ninth grade, and that effect persisted until grade 12.

Students earned more credits by the end of grade 9 and 12, but it was unclear the content areas where the additional credits were concentrated. Results from the study did not find that the additional credits were concentrated in core content areas including math, ELA, social studies, or science. Instead, it is plausible that the additional credits were earned in other elective credits. This is important to know because it can reveal the types of opportunities DLI students are accessing compared to non-DLI students. However, this study did not examine participation in elective credits. Future research that examines how DLI program impacts credit accumulation can take a deeper dive in the types of courses that DLI students access, and how that compares to non-DLI students.

Importantly, DLI students increased high school graduation. Results from the study found that DLI assignment led to marginally significant increase in the proportion of students who graduate with a regular or modified diploma, and a significant increase in the rate of students that

graduation with a regular diploma. The positive credit accrual and high school graduation results suggest that the DLI program at PPS is successfully achieving its goal of academic excellence (Howard et al., 2018).

DLI programs also have an explicit goal of biliteracy (Howard et al., 2016). This goal is meant to celebrate the linguistic assets of students. Across the U.S., the Seal of Biliteracy has become a common way to recognize biliteracy (OELA, 2023). The Seal of Biliteracy is a marker that celebrates a student's ability to read, write, speak, and listen in a language other than English (Black et al., 2020). Having the Seal of Biliteracy potentially signals the possession of an asset that is valuable in the workforce (Agridag, 2014). Results from the study found that DLI assignment increased the completion rates of the Seal of Biliteracy, suggesting that DLI is meeting this explicit goal.

Bilingual programs like DLI were developed to serve multilingual students, especially students classified as English learners (Baker et al., 2017). In addition to understanding the overall effects of DLI, it was imperative to examine how the effects of DLI on multilingual students may differ from the entire sample. This study was limited in detecting the causal impact of DLI assignment on students with a home language other than English because few linguistically diverse students were selected to participate in DLI through a random lottery. Instead, most were admitted without randomization. Results from the treatment on the treated estimates identified positive effects of DLI on Seal of Biliteracy completion and marginally significant effects on grade 12 credit accumulation. Moreover, the study found non-significant but similar point estimates in direction and magnitude on grade 9 credit accumulation and high school graduation.

The effects of DLI on the multilingual sample were largely similar to the full sample. The main exception was the Seal of Biliteracy. The effect of DLI on completing the Seal of Biliteracy was larger for multilingual learners by 12 percentage points. This suggests that multilingual students especially benefit from DLI in regard to the Seal of Biliteracy completion. This is important because multilingual students, despite having linguistic assets, often don't have the same level of access to complete the Seal of Biliteracy (Chang-Bacon & Colomer, 2022). DLI programs may be helping remove those barriers or inducing students to complete the necessary requirements to get the seal.

The study found statistically significant negative effects on credit accumulation in dual credit and CTE courses. This negative effect primarily appears to be a tradeoff between accessing target language arts or accessing other courses. Students who remain enrolled in DLI in high school continue to take a language arts class in the target language. The target language arts classes continue to help students develop biliteracy. However, it may be having a crowd-out effect that limits their ability to enroll in courses such as CTE and dual credit (Morita-Mullaney, 2020). Participating in CTE and dual credit matter because they are related to a higher likelihood of college enrollment (Hodara & Pierson, 2019) and future earnings (Arneson et al., 2023). However, multiliteracy is also related to higher future earnings (Agridag, 2014). Future research that examines the effect of DLI participation on college enrollment and future earning can help clarify the consequence of this trade-off

Implications

Results from this study, along with numerous past studies, support the expansion of high quality DLI programs as a lever to improve outcomes for multilingual students (Porter et al.

2023). Although the study was not able to capture implementation information, PPS DLI programs have certain characteristics that contribute to its success. PPS DLI programs implement classroom instruction practices with good fidelity (Li et al., 2016; Greenberg Motamedi et al., 2022), and PPS also has unique programs to maintain and increase a pipeline of dual language educators. Expansion of high quality DLI programs, like at PPS, require the right resources and supports.

To support the expansion of high quality DLI programs, policymakers from different levels can contribute in different ways. One major barrier to expansion of DLI programs is the supply of multilingual staff trained to teach in DLI settings (Boyle et al., 2015). To chip at this barrier, federal agencies can support by setting multilingual priorities within federal grants that support teacher development (e.g. National Professional Development Program). Similarly, states can invest resources into teacher professional development programs that target multilingual staff through efforts such as Grow Your Own programs. At the local level, district staff can champion the expansion of new programs by prioritizing bilingual programs as the preferred model to serve English learner classified students. Moreover, local staff can communicate this information to parents in an accessible manner so that families are aware of the benefits of DLI.

One cautionary finding from this study was the negative effects of DLI on access to CTE and dual credit courses. This finding aligns with other work that finds that DLI may limit opportunities for electives and advanced courses (Morita-Mullaney, 2020). However, students are accessing targeted language arts courses that support their biliteracy. School leaders navigating this trade off should consider opportunities to infuse CTE and dual credit courses with DLI. For example, new CTE programs can be implemented that leverage biliteracy, such as

translation and interpretation programs, or schools can offer CTE programs in the partner language. This allows students to continue to access these opportunities while developing their multiliteracy.

In Oregon specifically, school leaders may want to consider what opportunities House Bill 2056 can provide to improve course access for students in DLI programs. HB2056, known as Access to Linguistic Inclusion, changes the high school graduation requirement from four English language arts classes to four language arts classes, removing the requirement that they must be in English as long as they meet the same standards. This opens opportunities for students in some years to take only a language arts class in a partner language, potentially opening space for students to enroll in other courses such as CTE and dual credit courses.

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APPENDIX

Table 1A

Differences in Mean Characteristics Between DLI-Assigned and Non-DLI-Assigned Groups, Before and After Accounting for Randomized Blocks

	Panel A: Observed lottery applicants						Panel B: Randomized applicants					
	DLI-assigned (N=2171)		Not in DLI (N=826)				DLI-assigned (N=1099)		Not in DLI (N=697)			
	M	SD	M	SD	Difference in mean p-value	Effect size	M	SD	M	SD	Difference in mean p-value	Effect size
Economically disadvantaged	0.34	0.47	0.27	0.44	0.000**	0.22	0.20	0.42	0.23	0.42	0.575	-0.09
Male	0.49	0.50	0.45	0.50	0.077	0.09	0.50	0.50	0.44	0.50	0.136	0.15
Female	0.51	0.50	0.55	0.50	0.077	-0.09	0.50	0.50	0.56	0.50	0.136	-0.15
Special education	0.04	0.20	0.03	0.17	0.153	0.19	0.00	0.01	0.00	0.01	0.270	-0.33
Current EL	0.19	0.39	0.08	0.26	0.000**	0.65	0.02	0.13	0.03	0.17	0.922	0.04
Asian	0.10	0.30	0.08	0.26	0.054	0.17	0.09	0.29	0.08	0.27	0.368	0.03
Black	0.02	0.15	0.04	0.20	0.007*	-0.36	0.02	0.13	0.03	0.17	0.165	-0.17
Latine	0.26	0.44	0.17	0.37	0.000**	0.35	0.25	0.43	0.25	0.43	0.754	-0.11
Multiracial - Historically Underserved	0.04	0.19	0.07	0.25	0.001*	-0.36	0.04	0.19	0.05	0.22	0.029	-0.19
Multiracial - Not Historically underserved	0.08	0.27	0.08	0.28	0.879	-0.02	0.00	0.00	0.00	0.00	0.413	0.02
Native Hawaiian	0.00	0.04	0.01	0.09	0.003*	-1.10	0.00	0.00	0.00	0.00	0.030*	
Pacific Islander	0.00	0.03	0.00	0.05	0.316	-0.59	0.00	0.03	0.00	0.05	0.476	-0.38
White	0.49	0.50	0.60	0.50	0.001*	-0.16	0.62	0.49	0.58	0.49	0.477	0.09
Home language, not English	0.30	0.46	0.12	0.32	0.000**	0.69	0.13	0.34	0.12	0.33	0.111	0.05

Note. Observed lottery applicants include all students who were in the lottery data. Random applicants include all randomized observations, even if they did not have observed outcome data. Effect size is a standardized measure of mean difference using the Cox index (WWC, 2022). The difference in mean p-value is derived from a model that regresses the covariate as the dependent variable and the treatment variable as an independent variable. The model for the randomized sample includes dummies for lottery blocks. SD = Standard Deviation, M = Mean * p < .01, ** p < .001

Table 2A

Differences in Mean Characteristics Between DLI-Assigned and Non-DLI-Assigned Groups for the Analytic Sample That Examines Grade 12 Credit Accumulation and Completion of the Seal of Biliteracy

	Selected to participate in DLI (N=375)		Not selected to participate in DLI (N= 203)				
Variable	M	SD	M	SD	Difference in mean p-value	Pooled SD	Effect size
Economically disadvantaged	0.150	0.381	0.153	0.361	0.936	0.374	-0.011
Male	0.497	0.501	0.448	0.499	0.273	0.500	0.117
Female	0.503	0.501	0.552	0.499	0.273	0.500	-0.117
Special education	0.006	0.103	0.025	0.155	0.079	0.124	-0.898
Current EL	0.046	0.267	0.034	0.183	0.461	0.241	0.180
Asian	0.115	0.312	0.049	0.217	0.009**	0.283	0.556
Black	0.006	0.073	0.010	0.099	0.591	0.083	-0.314
Latine	0.109	0.362	0.192	0.395	0.003*	0.374	-0.404
Multiracial - Historically Underserved	0.031	0.176	0.039	0.195	0.616	0.183	-0.145
Multiracial - Not Historically underserved	0.104	0.299	0.084	0.278	0.430	0.291	0.145
White	0.635	0.491	0.616	0.488	0.057	0.490	0.050
Home language, not English	0.091	0.346	0.064	0.245	0.637	0.314	0.229
Earned the seal of biliteracy	0.447	0.498	0.236	0.426		0.474	0.581
Total credits: grade 12	33.401	3.509	31.800	3.792		3.611	0.443
CTE credits grade 12	2.059	2.030	2.483	2.136		2.068	-0.205
Dual enrollment credits grade 12	0.981	1.315	1.142	1.494		1.381	-0.116

Note. Effect size is a standardized measure of mean difference using the Cox index (WWC, 202). The difference in mean p-value is derived from a model that regresses the covariate as the dependent variable and the treatment variable as an independent variable. SD = Standard Deviation, M = Mean * $p < .05$, ** $p < .01$, *** $p < .001$

Table 3A

Differences in Mean Characteristics Between DLI-Assigned and Non-DLI-Assigned Groups for the Analytic Sample that Examines High School Graduation

	Selected to participate in DLI (N=382)		Not selected to participate in DLI (N=206)				
Variable	M	SD	M	SD	Difference in mean p-value	Pooled SD	Effect size
Economically disadvantaged	0.177	0.400	0.184	0.389	0.802	0.396	-0.031
Male	0.486	0.500	0.451	0.499	0.423	0.500	0.085
Female	0.514	0.500	0.549	0.499	0.423	0.500	-0.085
Special education in kindergarten	0.008	0.102	0.024	0.154	0.137	0.123	-0.656
Current EL	0.059	0.269	0.063	0.244	0.818	0.261	-0.043
Asian	0.143	0.343	0.068	0.252	0.006**	0.315	0.503
Black	0.008	0.088	0.029	0.169	0.054	0.123	-0.768
Latine	0.122	0.357	0.165	0.372	0.096	0.362	-0.213
Multiracial - Historically Underserved	0.035	0.194	0.053	0.225	0.305	0.206	-0.268
Multiracial - Not Historically underserved	0.095	0.289	0.078	0.268	0.483	0.282	0.133
Pacific Islander	0.003	0.051	0.005	0.070	0.725	0.058	-0.281
White	0.591	0.496	0.597	0.492	0.876	0.494	-0.016
Home language, not English	0.117	0.349	0.087	0.283	0.122	0.327	0.197
First language partner	0.053	0.273	0.053	0.225		0.258	0.000
Graduate with a regular or modified diploma	0.842	0.374	0.772	0.421		0.391	0.276
Graduate with a regular diploma	0.782	0.420	0.714	0.453		0.432	0.219

Note. Effect size is a standardized measure of mean difference using the Cox index for binary measures and Cohens D for continuous measures (WWC, 2022). The difference in mean p-value is derived from a model that regresses the covariate as the dependent variable and the treatment variable as an independent variable with lottery block fixed effects. SD = Standard Deviation, M = Mean * $p < .05$, ** $p < .01$, *** $p < .001$

Table 4A

Differences in Mean Characteristics Between DLI-Assigned and Non-DLI-Assigned Groups for the Multilingual Analytic Sample That Examines Credit Accumulation in Grade 9

	Selected to participate in DLI (N=119)		Not selected to participate in DLI (N=45)				
Variable	Mean	SD	Mean	SD	Difference in mean p-value	Pooled SD	Effect Size
Economically disadvantaged	0.57	0.49	0.60	0.50	0.713	0.49	-0.08
Male	0.49	0.50	0.49	0.51	0.974	0.50	0.01
Female	0.51	0.50	0.51	0.51	0.974	0.50	-0.01
Special education	0.04	0.24	0.07	0.25	0.479	0.24	-0.37
Current EL	0.53	0.50	0.51	0.51	0.824	0.50	0.05
Asian	0.23	0.40	0.24	0.43	0.781	0.41	-0.06
Latine	0.48	0.50	0.44	0.50	0.649	0.50	0.09
Multiracial - Not Historically underserved	0.05	0.18	0.16	0.37	0.020	0.25	-0.70
White	0.22	0.40	0.13	0.34	0.222	0.39	0.37
Credits earned by grade 9							
ELA	1.02	0.37	1.00	0.28		0.35	0.07
Math	1.04	0.42	1.09	0.36		0.40	-0.11
Science	0.98	0.33	1.02	0.35		0.34	-0.12
Social studies	0.48	0.50	0.40	0.51		0.50	0.16
World language	1.14	0.51	1.11	1.26		0.79	0.03
Total credits earned by grade 9	10.92	2.78	10.63	2.57		2.73	0.10

Note. Effect size is a standardized measure of mean difference using the Cox index for binary measures and Cohens D for continuous measures (WWC, 2022). The difference in mean p-value is derived from a model that regresses the covariate as the dependent variable and the treatment variable as an independent variable with lottery block fixed effects. SD = Standard Deviation, M = Mean * $p < .05$, ** $p < .01$, *** $p < .001$

Table 5A

Estimated Effects of DLI Assignment on Grade 9 Credit Outcomes for the *Entire Sample*

	Total credits	ELA credits	Math credits	Science credits	Social studies credits	World language
DLI-assigned	1.442***	-0.00353	-0.0477*	0.0123	-0.0235	0.0294
	(0.142)	(0.0213)	(0.0237)	(0.0181)	(0.0282)	(0.0353)
Observations	1175	1175	1175	1175	1175	1175
R^2	0.218	0.216	0.079	0.099	0.356	0.134

Note. Standard errors in parentheses. All models include baseline covariates, cohort, school program, and lottery block fixed effects $^{+}$ $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

Table 6A

Estimated Effects of DLI Assignment on Grade 9 Credit Outcomes for the *Multilingual Sample*

	Total credits	ELA credits	Math credits	Science credits	Social studies credits	World language
DLI-assigned	0.677	0.0465	0.0149	0.00532	0.0704	0.0832
	(0.516)	(0.0649)	(0.0753)	(0.0635)	(0.0888)	(0.0898)
Observations	164	164	164	164	164	164
R^2	0.311	0.331	0.324	0.316	0.393	0.750

Note. Standard errors in parentheses. All models include baseline covariates, cohort, school program, and lottery block fixed effects $^{+}$ $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

Table 7A

Estimated Effects of DLI Assignment on Grade 12 Credit Accumulation Measures and Earning the Seal of Biliteracy for the Entire and Multilingual Samples

	Full sample				Multilingual sample			
	Total credits	CTE credits	Dual enroll credits	Seal of biliteracy	Total credits	CTE credits	Dual enroll credits	Seal of biliteracy
DLI-assigned	1.313***	-0.490*	-0.227+	0.253***	1.671	-1.058	-0.748	0.375+
	(0.363)	(0.202)	(0.124)	(0.0469)	(1.289)	(0.787)	(0.481)	(0.190)
Observations	578	578	578	578	65	65	65	65
R^2	0.171	0.190	0.312	0.198	0.508	0.483	0.599	0.455

Note. Standard errors in parentheses. All models include baseline covariates, cohort, school program, and lottery block fixed effects $^{+}$ $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

Table 8A

Estimated effects of DLI assignment on high school graduation for the entire sample and the multilingual sample

	Full sample		Multilingual sample	
	High school graduation – regular or modified diploma	High school graduation – regular diploma	High school graduation – regular or modified diploma	High school graduation – regular diploma
Won the lottery for DLI	0.0672^{+}	0.0894*	0.0308	0.0342
	(0.0398)	(0.0443)	(0.148)	(0.172)
Observations	588	588	72	72
R^2	0.120	0.105	0.213	0.349

Note. Standard errors in parentheses. All models include baseline covariates, cohort, school program, and lottery block fixed effects $+ p < .10$, $^{*} p < .05$, $^{**} p < .01$, $^{***} p < .001$

Table 9A

Estimated Effects of DLI Participation on Grade 9 Credit Outcomes for the Full and Multilingual Sample

	Full sample – Grade 9 total credits	Multilingual sample – Grade 9 total credits
First stage (DLI-assigned)	.883***	.698***
	(.0144)	(.053)
Participated in DLI	1.633***	0.970
	(0.156)	(0.648)
Observations	1175	164
R^2	0.238	0.316

Note. Standard errors in parentheses. All models include baseline covariates, cohort, school program, and lottery block fixed effects $^{+}$ $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

Table 10A

The Estimated Effect of DLI Participation on Grade 12 Credit Accumulation Measures and Earning the Seal of Biliteracy for the Full and Multilingual Samples.

	Full sample				Multilingual sample			
	Cumulative credits	CTE credits	Dual enroll credits	Seal of Biliteracy	Cumulative credits	CTE credits	Dual enroll credits	Seal of Biliteracy
First Stage (DLI-assigned)	.879*** (0.020)	.879*** (0.020)	.879*** (0.020)	.879*** (0.020)	.6436*** (088)	.6436*** (088)	.6436*** (088)	.6436*** (088)
Participated in DLI	1.492*** (0.398)	-0.558* (0.225)	-0.259+ (0.137)	0.287*** (0.0519)	2.596+ (1.567)	-1.644+ (0.943)	-1.163* (0.568)	0.583** (0.225)
Observations	578	578	578	578	65	65	65	65
R^2	0.182	0.178	0.308	0.197	0.484	0.473	0.605	0.455

Note. Standard errors in parentheses. All models include baseline covariates, cohort, school program, and lottery block fixed effects $^{+}$ $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

Table 11A

Estimated Effects of DLI Assignment on High School Graduation for the Total Sample and the Multilingual Sample

	Full sample		Multilingual sample	
	High school graduation – regular or modified diploma	High school graduation – regular diploma	High school graduation – regular or modified diploma	High school graduation – regular diploma
First Stage (DLI-assigned)	.878*** (.021)	.878*** (.021)	.818*** (.081)	.818*** (.081)
Participated in DLI	0.0766^{+} (0.0440)	0.102* (0.0489)	0.0376 (0.155)	0.0417 (0.170)
Observations	588	588	72	72
R^2	0.123	0.112	0.209	0.347

Note. Standard errors in parentheses. All models include baseline covariates, cohort, school program, and lottery block fixed effects + $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

CHAPTER IV: PATHWAYS TO SUCCESS: THE IMPACT OF RECLASSIFICATION ON GRADUATION AND THE MEDIATING ROLE OF COURSE ACCESS

In English Learner (EL) education, reclassification is when students exit from EL services. It indicates when a student reaches a state-established level of English proficiency and no longer requires additional linguistic support to access core content. Although rules vary by state, reclassification is typically determined by the results of an English language proficiency assessment that measures students in four domains: reading, writing, speaking, and listening (Education Commission of the States, 2020a). Students must score above one or more pre-determined thresholds to exit from EL services.

Exiting EL services changes students' experiences in schools. Reclassification removes linguistic support services in place to help students develop English proficiency and learn core academic content. However, reclassification also removes barriers for students, especially in secondary grades. In middle and high school, additional linguistic supports are typically delivered through standalone English language development courses that can take multiple class periods (Lillie et al., 2012). Exiting from EL services means that students do not have to dedicate time in their schedule for English language development. This opens space in a student's schedule to enroll in other courses that can support high school graduation.

Prior research that examines how reclassification impacts students finds mixed results, suggesting that it depends on context-specific factors (Itoh & Umansky, 2024; Cimpian et al., 2017). Studies that examine the causal effect of EL reclassification using a regression discontinuity design find null effects (Garrett et al., 2022; Johnson, 2019), negative effects (Robinson-Cimpian & Thompson, 2016), and positive effects (Carlson & Knowles, 2016). The variability in the effects of reclassification may be tied to contextual factors that influence how

students experience EL services or the schooling environment after reclassification. When reclassification happens, one crucial factor is the grade level, particularly in transition points between elementary to middle and middle to high school (Johnson, 2019). Students at these transition points are entering new school settings, and schools use their background information, such as their English language proficiency, to make consequential course placement decisions (Kannon & Kangas, 2014).

Prior research finds that students who remain EL-classified in secondary grades do not have equitable access to rigorous courses (Callahan & Shifrer, 2016). Secondary EL-classified students are overrepresented in low-track courses and excluded from specific subject courses (Callahan & Shifrer, 2016; Estrada, 2014; Umansky, 2016). Often, EL-classified students are placed in courses with narrowed curricula and separated from mainstream courses (Kannon & Kangas, 2014; Abril-Gonzalez & Shannon, 2021). Limited course access directly impacts EL secondary students' ability to accumulate the necessary credit expected for high school graduation (Johnson, 2019b). The limitations in EL-classified students' course access are represented in national graduation rates. Nationally, the graduation rate for EL-classified students is 17 percentage points lower than for non-EL-classified students (OELA, 2023).

Two necessary courses required for high school graduation are English Language Arts (ELA) and Algebra 1. In many states, including Oregon, the setting of this study, students need to complete four years of English language arts (ELA). As such, consistent enrollment in ELA sets students up to have the credits for high school graduation. Algebra 1 completion early in high school allows students to access higher-level math courses and eventually graduate. Prior research has found that earlier access to Algebra 1 is associated with a higher likelihood of high school graduation and college enrollment. (Yamaguchi et al., 2020; LaFave, 2019).

Reclassification, especially in particular transition points, can have real consequences on EL-classified students' course access, and course access can have downstream effects on high school graduation. As such, it is essential to understand how reclassification from EL services impacts EL-classified students' likelihood of graduation and the extent to which course access plays a role in this link. This article examines these relationships. Using the annual English language proficiency assessment that determines if a student is eligible to be reclassified from EL services, I used a regression discontinuity design (RD) to estimate the impact of reclassifying from EL services in grades 5 and 8 on the likelihood of high school graduation. In addition, I use mediation analysis to examine how post-reclassification course access mediates the impact of reclassification on graduation. The following two research questions guide the study: *(1) What is the impact of being reclassified from EL services in fifth and eighth grade on the likelihood of completing high school with any diploma and completing with a regular diploma? (2) How does access to Algebra 1 by ninth grade and enrollment in ELA in 9th grade mediate the impact of reclassification in grade 8 on high school completion?*

Literature Review

Impact of Reclassification

Multiple studies have examined the impact of reclassification from EL services on various outcomes across the K-12 continuum with mixed results (Itoh & Umansky, 2024). Cimpian et al. (2017) examined the effect and variation in the impact of reclassification on assessment outcomes and high school graduation for students at the cusp of reclassification. When pooling all students together, the authors found no significant impact of reclassification on high school graduation. However, the authors also found substantial variation in the estimated

effects of reclassification on high school graduation across districts in the sample. Similarly, Garrett et al. (2022) found no statewide impact of reclassification on assessment outcomes but found considerable variation in impact across districts. Chin (2021) found a positive impact of reclassification in third grade on middle school ELA and math assessment scores. Pope (2016) found a positive impact on high school ELA assessment outcomes for students who reclassified in grades 2 to 4.

These mixed results highlight an essential consideration – different contextual factors can influence how reclassification impacts students. Districts make decisions about the types of support and services that students experience. Students may transition smoothly without additional English language development supports, indicating that the supports match the needs of the recently reclassified students. However, this may not be the case at all grade levels. One important factor that may shape how students experience reclassification is the timing of when students reclassify and their subsequent impacts on secondary outcomes (Johnson, 2019b).

Impact of Reclassification at Transition Points on Secondary Outcomes

Results from the reclassification literature suggest that the timing of reclassification at transition points from elementary to middle school and middle school to high school can moderate how reclassification impacts students' later secondary outcomes. Johnson (2019a) examined the impact of reclassification at these two transition points and found that students who were reclassified in fifth grade were more likely to graduate from high school. The author also found that eighth-grade reclassification increased four-year university enrollment rates. Umansky (2016) focused on the impact of reclassification in fifth grade – just before middle school transition – and found that students who remained classified as EL had lower access to core content courses in subsequent years.

These two studies also highlight that some secondary outcomes might be more sensitive to reclassification's impact, such as course access and high school graduation. Other studies that examine reclassification have also found this. For example, Carlson and Knowles (2016) examined the impact of reclassifying from EL services using a statewide sample in Wisconsin. They found that being reclassified increased the likelihood of enrolling in postsecondary education and suggestive evidence that it also increased the likelihood of graduating from high school. Cimpian et al. (2017) studied the impact of graduation on a statewide sample and found no impact across the state but found variation in effects across districts.

In contrast, multiple studies that have examined how reclassification impacts secondary assessment outcomes have primarily been null (Johnson, 2020; Reyes & Hwang, 2021; Cimpian et. al., 2017). For example, Reyes and Hwang (2021) examined how reclassification impacted secondary math and ELA assessment scores and did not find significant impacts. This is not to say that reclassification may not impact state assessment outcomes. Other studies have found significant effects from reclassification (Robinson, 2011). However, the combination of results suggests that assessment scores may not be a consistent channel through which reclassification impacts students, especially in secondary grades.

Measures of course access and subsequent high school graduation may be more sensitive to reclassification because of the direct relationship between course placement and the EL label. EL-classified students in secondary settings typically receive additional English language support through one or more class periods that take up a portion of a student's schedule, crowding out opportunities to take other courses (Lillie et al., 2012). For example, in their study, Umansky (2016) examined how reclassification impacted access to core content courses in middle school. The study found that students who remained EL-classified were less likely to

enroll in ELA courses and earned fewer ELA credits. This is likely because EL-classified students registered in one or more ELD class periods, displacing ELA courses. In addition to crowding out in schedules, EL-classified students may also be perceived not to be prepared for grade-level content and placed in lower-track courses that teach a watered-down curriculum (Kannon & Kangas, 2014; Abril-Gonzlez & Shannon, 2021). Tracking to lower-level courses or outright excluding students from courses decreases EL-classified students' access to more advanced courses (Callahan & Shifrer, 2016; Estrada, 2014) and ability to accumulate the courses necessary for high school graduation (Johnson, 2019b). Two important courses in a student's high school trajectory are Algebra 1 and ELA.

Importance of Early Access to Algebra 1 and ELA

Consistent enrollment in ELA and completing Algebra 1 early is an important factor in obtaining a high school diploma, as it sets the foundation for future courses and subsequent opportunities for graduation. In many states, including Oregon, the setting of this study, students must complete four years of ELA, so consistent enrollment in ELA sets students up to have the credits for high school graduation. Moreover, EL-classified students are often placed in Algebra 1 in later grades, which can limit their options for graduation. For example, Yamaguchi et al. (2020) examined the graduation outcomes of students in Virginia by the timing of Algebra 1 completion. The authors found that overall, EL-classified students completed Algebra 1 later in their K-12 trajectory, even when they had similar math proficiency as their non-EL peers. Additionally, the likelihood that a student graduates with a college preparatory diploma decreased as the grade when they enrolled in Algebra 1 increased. Other research also finds that completing Algebra I after grade 9 lowers students' likelihood of enrolling in postsecondary education (LaFave, 2019).

Inconsistent access to ELA and delayed entry in Algebra 1 can also veer students to other high school credentials. In Oregon, students must complete three years of math courses to earn a regular diploma, including Algebra 1 and two additional courses above the Algebra 1 level. Inconsistent access to ELA and delayed enrollment in Algebra 1 narrows the time to complete this high school graduation requirement. This could lead to a lower likelihood of graduation and potentially induce students to other diploma types that require fewer core content credits. For example, Oregon has an option for a modified diploma that decreases the number of core content subject-specific credits required for graduation.

Study Motivation

This study is part of a collection of studies under the National Research and Development Center to Improve Education for Secondary English Learners (WestEd, n.d.). This study aims to do two things. First, it attempts to bolster the research that examines the impact of reclassification on high school graduation. Second, it examines how course access mediates the impact of high school graduation, a research area that has yet to be studied.

The causal research that examines the impact of reclassification from EL services suggests that reclassification has a more direct impact on secondary school outcomes such as course access and graduation. Causal studies that examine the impact of reclassification at key transition points (fifth and eighth grade) find that reclassification may constrain access to grade level and advanced courses and subsequent high school graduation (Umansky, 2016; Johnson, 2019a; Carlson & Knowles, 2017). This is corroborated by other literature that examines the experiences of EL-classified students in secondary grades, which finds that students are disproportionately placed in lower track (Callahan & Shifrer, 2016; Estrada, 2014). These findings highlight a need to expand inquiry in this area and to know how reclassification impacts

graduation in other contexts not currently studied. This research study aims to expand our understanding of the impact of reclassification by examining the impact of being reclassified at crucial transition points on high school graduation in a new context (the state of Oregon). Similar to prior causal studies that examine the impact of reclassification, I will use an RD design to study this link.

The current research examines how reclassification impacts course access and high school graduation. However, it still needs to be determined how course access and high school graduation are linked for students who reclassify at critical transitional points. In other words, we need to find out the extent to which the impact of reclassification on high school graduation can be attributed to lower course access. This study provides a first examination of this link by studying how early access to critical courses (Algebra 1 and ELA) mediates the impact of reclassification on high school graduation. Understanding this is important because it can inform district administrators if course access is a barrier for EL-classified students or if other factors limit high school graduation.

Method

Study Context

English Language Proficiency Assessment

Like many states, Oregon's reclassification rules have evolved. Until the 2015-16 school year, Oregon administered the ELPA annual assessment to measure EL-classified students' English proficiency. The ELPA assessment evaluated students in the four language domains, reading, writing, speaking, and listening, and produced performance levels and scale scores for students in each domain and an overall performance level. Scale scores, standardized continuous

scores that represent performance on the assessment, are mapped to performance levels. The ELPA assessment had five performance levels with accompanying descriptors. To be eligible to reclassify from EL services, students were expected to score advanced-proficient (level 5 out of 5) on the composite ELPA score. For students to reach this proficiency level, their composite scale score had to be above a specific threshold that varies by grade. For example, the combined score for an eighth grader to reach advanced proficiency was a scale score of 527. Although guidance from the state recommended reclassification at this level, districts had some discretion to reclassify students or keep students in EL services. For example, districts could use educator reviews, local assessments, and student artifacts to determine reclassification. How many students were reclassified strictly by assessment or alternate measures is unknown (ODE, 2014).

In 2015, significant national and local actions changed how students were reclassified. At the end of 2015, the Every Student Succeeds Act (ESSA) was signed into law, and key procedures for reclassification were redefined. ESSA mandated state education agencies to develop standard rules to reclassify EL-classified students at the state level. This eliminated the use of alternative measures to reclassify students. Beginning the 2018-19 school year, districts could no longer use alternative measures to reclassify students from EL services (ODE, 2019). They relied solely on the results of the annual English proficiency assessment.

In the 2015-16 school year, Oregon transitioned from the ELPA to the ELPA21 annual assessment. The ELPA21 English proficiency assessment is an annual assessment currently adopted by seven states. Like the prior ELPA assessment, ELPA21 evaluates students in the four language domains, reading, writing, speaking, and listening, and produces five performance levels in each domain. In contrast to the ELPA, ELPA21 does not provide an overall performance level for each student. At the time of this study, a student must score early advanced

or advanced (performance levels 4 or 5) on each of the four language assessment domains to be eligible to be reclassified. Like the old ELPA composite proficiency levels, the ELPA21 domain-specific proficiency levels are tied to specific language domain scale scores. In eighth grade, a student needs to score at or above 640 in reading, 619 in writing, 565 in listening, and 590 in speaking (ODE, 2015).

Graduation Diplomas

Oregon currently awards two types of diplomas that lead to high school graduation (ODE, 2023). The primary diploma type is the Oregon regular diploma. A regular diploma requires 24 total credits, including four credits in ELA, three in social sciences, three in math, three in science, one credit each for physical education and health, three credits in an area of choice (career & technical education, arts, or world language), and six electives. Each credit is equivalent to a year-long course. In 2022-23, 95.8% of all graduates and 97.8% of students who reclassified from English learner services before high school graduated with a regular diploma (ODE, 2024). However, regular-diploma graduation rates were lower for students who were ever classified as English learners in high school (88.6%).

A modified diploma requires 24 credits but offers flexibility in the subject areas for earning credits. Modified diplomas require one fewer credit in key content areas (e.g., three in English, two in math, two in sciences, and two in social sciences). Instead, modified diplomas increase the number of required elective credits to 12. The modified diplomat is intended as an option for “Students who have a documented history of an inability to maintain grade level achievement due to significant learning and instructional barriers or a medical condition are eligible to work towards a modified diploma” (OR§581-022-2010). In practice, modified diplomas are almost exclusively awarded to students with disabilities. In 2023-23, 31 percent of

students with disabilities graduated with a modified diploma, whereas less than 1 percent of students without disabilities graduated with a modified diploma. One significant limitation of a modified diploma is that graduates with a modified diploma are not eligible to attend a four-year university.

Data and Sample

This study used student-level data from the Oregon Department of Education (ODE) from 2013-14 to the 2020-21 school years. ODE data includes student demographic information, linguistic background, annual assessment results, and course rosters. The study includes two primary analytic samples.

The primary analytic sample includes three cohorts of students who were EL-classified in 8th grade and took the annual language proficiency assessment between school years 2013-14 and 2016-17. These students were followed longitudinally for at least four years when they should have been completing grade 12, and two cohorts were followed one year after grade 12. Table 6 summarizes the expected progression of the grade eight cohorts included in the study. It is important to note that we omitted one cohort from the 8th grade analytic sample due to the low compliance of the English language proficiency in that year. The 2015-16 school year was a transition year to the ELPA21 assessment, and it was a year where the assessment was not a reliable predictor of reclassification. This is explained in greater detail in a subsequent section.

The secondary analytic sample includes a single cohort of fifth graders who were EL-classified in fifth grade and took the annual language proficiency assessment during the 2013-14 school year. Due to data limitations, these students were only followed for four years after entering high school.

Table 6

Progression for Students in the Analytic Sample

Cohort	Assessment used for reclassification	Year reclassified	High school graduation (four and five years)
	Grade 5 reclassification sample		
1	ELPA	2013-14	2020-21
	Grade 8 reclassification sample		
1	ELPA	2013-14	2017-18, 2018-19
2	ELPA	2014-15	2018-19, 2019-20
3	ELPA21	2016-17	2020-21

Note. This table depicts the progression of three cohorts of students beginning in grades 5 and 8. Students who reclassified in the 2015-16 school year are not included in the study because of compliance issues due to the transition to a new assessment.

Table 7 describes the total sample of grade 8 students and whether they were eligible for reclassification. There are noticeable differences between students who scored above and below the eligibility cutoff. Students above the eligibility cutoff had higher assessment scores compared to students below the eligibility cutoff. Additionally, 87% of students above the eligibility cutoff were economically disadvantaged, and 24.5% were in special education. These rates were lower compared to students who were below the eligibility cutoff. Descriptive statistics for the grade 5 entire sample are presented in Table 1A in the appendix.

Table 7

Descriptive Statistics of the Grade 8 Full Sample

Variable	Full sample	Not eligible for reclassification	Eligible for reclassification
Number of students	3794	3165	629
Assessment results			
Standardized grade 8 ELA score	-1.40	-1.50	-0.88
Standardized grade 8 math score	-1.13	-1.23	-0.67
Demographic information			
Female	39.88%	39.40%	42.29%
Male	60.12%	60.60%	57.71%
American Indian/Alaska Native	<5%	<5%	<5%
Asian/Pacific Islander	11.65%	11.34%	13.20%
Black	3.85%	4.17%	2.23%
Latinx	75.01%	75.45%	72.81%
Multi-racial	<5%	<5%	<5%
White	7.06%	6.54%	9.70%
Home language			
Spanish	75.20%	75.83%	72.02%
Russian	2.32%	2.05%	3.66%
Vietnamese	2.71%	2.56%	3.50%
English	2.13%	2.12%	2.23%
Chinese Mandarin	1.98%	1.74%	3.18%
Arabic	2.21%	2.27%	1.91%
Other languages	13.44%	13.43%	13.51%
Participation in programs in grade 8			
Special education	39.11%	42.02%	24.48%
Economically disadvantaged	90.77%	91.41%	87.60%
Newcomer	11.07%	11.44%	9.22%
Long-term English learner	68.82%	68.78%	69.00%
Cohort			
Cohort 1	29.99%	27.11%	44.52%
Cohort 2	29.12%	26.32%	43.24%
Cohort 3	40.88%	46.57%	12.24%
Course access and graduation			
Enrolled in Algebra 1 by grade 8	5.76%	5.07%	9.28%
Enrolled in ELA in grade 9	94.04%	93.30%	97.77%
Enrolled in Algebra 1 by grade 9	77.57%	75.70%	86.96%
Graduated in 4 years (modified or regular)	74.04%	73.02%	79.17%
Graduated in 4 years with regular diploma	78.49%	77.66%	82.67%

Note. Newcomer indicates if a student has been enrolled for three or fewer years. Long-term English learners are students classified as EL for six or more years.

Key Outcome and Mediator Variables

Outcomes

This study examines four distinct outcomes. The first outcome, high school graduation in 4 years, is a binary variable that takes on the value of one if a student graduated from high school with either a regular diploma or modified diploma four years after entering high school. The second outcome, high school graduation with a regular diploma in 4 years, is a binary variable that takes on the value of one if a student graduated from high school with a regular diploma.

The third and fourth outcomes mirror the first two but extend the time frame. High school graduation in five years is a binary variable that takes on a value of one if a student earned a regular or modified diploma within five years. High school graduation with a regular diploma is a binary variable that takes on a value of one if a student earned a regular diploma within five years. Due to data limitations, these last two outcomes were only examined for the sample of reclassified students in grade 8.

Key Mediators

The second research question focuses on how course access in grade 9 mediates the impact of reclassification on later high school graduation. The first mediator, enrolled in Algebra 1 by grade 9, is a binary variable that takes on a value of 1 if a student enrolled in Algebra 1 by the end of grade 9. Students who enrolled in Algebra 1 in middle school were also considered to have taken Algebra 1 by grade 9. The second key mediator is participation in ELA. Like the previous mediator, this variable takes on a value of one if a student was enrolled in ELA in grade 9. Courses were categorized as ELA and Algebra 1 using course codes from the National Center for Education Statistics (National Forum on Education Statistics, 2023). ELD courses were not counted as ELA courses because in Oregon, ELD courses do not count for ELA credits, so

students enrolled in ELD. It is important to note that ODE data does not include grading or credit accrual information, so I could not determine if the student passed the course and earned credits.

Analytic Approach

Impact of Reclassification on High School Graduation

RD was used to estimate the causal impact of reclassification from EL services. RD designs are applicable when one (or more) predetermined thresholds determine access to a "treatment." If key assumptions are met, an RD study can provide strong causal evidence of the impact of an intervention on an outcome (Murnane & Willett, 2011). The extent to which this study met these key assumptions is discussed in greater detail in the next section.

Most RD designs rely on one variable determining if a student receives a treatment. This study, however, encompasses periods when separate criteria determined reclassification. Before the 2015-16 school year, reclassification was based on the composite ELPA scale score. As such, this sole composite scale score can be used to determine reclassification. Since the 2015-16 school year, however, reclassification from EL services depends on the results of four assessments. To be reclassified from EL services, students must achieve a minimum of a proficient score (level 4 of 5) in each of ELPA21's four assessment domains (reading, writing, listening, and speaking). To address the assessment change, I used a "binding" score approach defined by Robinson (2011) and similar to Lee and Soland (2023). This approach uses all the assessments to create one "rating" variable. To create the rating variable, I first transformed the domain scale scores into standardized scores by year and grade, centered at the threshold. I then took the smallest score from the four domain assessments to create the rating variable, also called the forcing variable. Once the single forcing variable was created for the ELPA21 assessment, I combined it with the forcing variable created for the single ELPA composite score to have one

single forcing variable that spanned all the years in the sample. I use this single forcing variable to implement the RD design.

A sharp RD design is the most straightforward RD design where the forcing variable reliably determines the treatment's assignment. In the following approach, I used a linear probability model. I used a linear probability model instead of logistic regression for the study's binary estimates to facilitate interpretation (Angrist & Pischke, 2008, pp. 103-107). Estimates from linear probability models can be interpreted as the percentage point difference between groups. Additionally, I used a linear specification because a model comparison test showed that the linear model best fit the data based on the Akaike information criterion (AIC). The following equation represents the approach for a sharp RD for my grade 8 sample.

$$(1)\quad Y_{iac} = \beta_0 + \beta_1 forcing_i + \beta_2 eligreclass_i(forcing_i \geq 0) + \beta_3 forcing_i * eligreclass_i + X_i + \Pi_a + \Delta_c + \varepsilon_i$$

Where Y_{iac} represents the outcome for student i who took assessment a in cohort c. β_1 represents the relationship between the rating variable and the probability of earning a regular diploma or graduating with a modified diploma, X_i represents a vector of student-level covariates, including student demographic variables, assessment scores, and participation in special programs, elig*reclass* is a binary variable that takes on a value of 1 when a student's score reaches the cutoff score for English proficiency and β_2 represents the coefficient of interest which is the impact of reclassifying from EL services on the outcome of interest. Because of the changes in reclassification assessments used over time, I also include cohort (Δ_c) fixed effects and cluster the standard errors at the district-year level. To account for the assessment used to derive the forcing variable, I also include a dummy (Π_a) for each assessment used to construct the forcing variable. The modeling approach for grade 5 was similar but without the cohort and

assessment fixed effects since it is only one cohort of students who all reclassified based on one common assessment.

However, eligibility for reclassification did not perfectly predict who reclassified from EL services, so I cannot use a sharp RD design. Most (88 percent), but not all, were correctly reclassified based on the assessment criteria. Using the sharp RD design will tell us the impact of meeting the reclassification criteria but not the impact of being reclassified. To address this limitation, I used a fuzzy RD approach to estimate the impact of reclassification. I used a two-stage least square regression with a linear probability specification. Again, I used a linear probability model to facilitate interpretation. The following set of equations represents this.

$$(2) reclass_{iac} = \beta_0 + \beta_1 forcing_i + \beta_2 eligreclass_i (forcing_i \geq 0) + \beta_3 forcing_i * eligreclass_i + X_i + \Pi_a + \Delta_c + \varepsilon_i$$

$$(3)\ Y_{iac} = \beta_0 + \beta_1 forcing_i + \beta_2 \widehat{reclass}(forcing_i \geq 0) + \beta_3 forcing_i * \widehat{reclass}_i + X_i + \Pi_a + \Delta_c + \mu_i$$

In the first stage (equation 2), I estimated the probability of reclassifying from EL services conditional on the forcing variable and a binary variable that takes on a value of one if a student is eligible to reclassify from EL services (*eligreclass*). In the second stage (equation 3), I used the predicted probability of reclassification from the first stage ($\widehat{reclass}$) to estimate the impact of reclassification on the outcome. The coefficient of interest is β_2 in Equation 3, which represents the impact of reclassifying from EL services.

A critical decision in the modeling approach of an RD design is the bandwidth selection, or how far from the threshold a student must be to be included in the analytic sample. A smaller bandwidth will yield more precise estimates but also limits the sample of students that can be

included, which has implications for the study's ability to identify a significant impact. On the other hand, a bandwidth selection that is too large lowers the estimate's precision and may also introduce bias. I used the means-squared error criterion (Imbens & Kalyanaraman, 2012) to calculate the optimal bandwidth that optimally balances the bias and variance tradeoff (Cattaneo et al., 2020). I used the *robust* package in Stata to estimate the optimal bandwidth for each outcome. These are presented in Table 8. The optimal bandwidths ranged from .29 to .42 standard deviations above and below the cutoff. Other bandwidth estimators also yielded similarly low optimal bandwidths. Moreover, these bandwidths are slightly smaller than in other reclassification studies (Johnson, 2019a).

Table 8

Optimal Bandwidths for Each Outcome

Outcome	Reclassified in grade 8	Reclassified in grade 5
Graduate in four years with a regular or modified diploma	.39	.50
Graduate in four years with a regular diploma	.42	.50
Graduate in five years with a regular or modified diploma	.29	NA
Graduate in five years with a regular diploma	.31	NA

Table 9 presents the descriptive statistics of students around the optimal bandwidth of .42 standard deviations for the grade 8 analytic sample. I selected this sample because it includes the largest sample of students in the grade 8 samples. Compared to the entire sample presented in Table 7, students in the analytic sample were much more balanced on observable characteristics. For example, the ELA state assessment score for students below the eligibility cutoff was -1.12 standard deviations, while the score for students above the eligibility cutoff was -0.98. This difference of .14 standard deviations was much smaller compared to the difference of .62

standard deviations in the entire sample. Table 2A in the appendix provides the descriptive statistics for students in the analytic sample for the grade 5 sample.

Table 9

Descriptive Statistics of the Grade 8 Analytic Sample

Variable	Full analytic sample	Below the eligibility cutoff	Above the eligibility cutoff
Number of students	986	563	423
Assessment results			
Standardized grade 8 ELA score	-1.06	-1.12	-0.98
Standardized grade 8 math score	-0.86	-0.93	-0.77
Demographic information			
Female	41.28%	42.45%	39.72%
Male	58.72%	57.55%	60.28%
American Indian/Alaska Native	1.42%	1.60%	1.18%
Asian/Pacific Islander	12.58%	11.37%	14.18%
Black	2.43%	2.84%	1.89%
Latinx	75.46%	76.73%	73.76%
Multi-racial	0.81%	1.07%	0.47%
White	7.30%	6.39%	8.51%
Home language			
Spanish	75.35%	77.09%	73.05%
Russian	2.33%	2.13%	2.60%
Vietnamese	3.35%	2.84%	4.02%
English	1.83%	1.95%	1.65%
Chinese Mandarin	2.23%	1.60%	3.07%
Arabic	1.83%	1.60%	2.13%
Other languages	13.08%	12.79%	13.48%
Participation in programs in grade 8			
Special education	31.64%	34.64%	27.66%
Economically disadvantaged	89.86%	90.05%	89.60%
Newcomer student	7.81%	6.75%	9.22%
Long term English learner	72.31%	73.53%	70.69%
Cohort			
Cohort 1	39.15%	37.48%	41.37%
Cohort 2	42.29%	39.08%	46.57%
Cohort 3	18.56%	23.45%	12.06%
Course access and graduation			
Enrolled in Algebra 1 by grade 8	6.85%	5.25%	9.00%
Enrolled in ELA in grade 9	95.84%	94.49%	97.64%
Enrolled in Algebra 1 by grade 9	83.98%	82.59%	85.82%
Graduated in 4 years	77.08%	76.20%	78.25%
Graduated in 4 years with regular diploma	71.60%	69.98%	73.76%

Note. Newcomer indicates if a student has been enrolled for three or fewer years. Long-term English learners are students classified as EL for six or more years.

Regression Discontinuity Assumption Checks

The internal validity of the regression discontinuity depends on a set of critical assumptions (Murnane & Willett, 2011). First, the forcing variable must reliably determine if a student is in the treatment group (reclassified from EL services) or comparison group (continued as a current English learner). To check this assumption, I produced a graph that plots the percent of students who were reclassified from EL services on the y-axis against a binned measure of the forcing variable on the x-axis. Intuitively, the proportion of students reclassified should rise dramatically at the cutoff. Figure 1A in the appendix presents this information for the grade 5 sample, and Figure 2A presents this for the grade 8 sample by cohort. For the grade 5 sample, there was a noticeable jump in the proportion of students who reclassify. In all but one year, the 2015-16 school year, I observed a noticeable jump in the proportion of grade 8 students who reclassify. During the 2015-16 school year, the threshold was not a reliable determinant of reclassification. This year, schools transitioned from the old ELPA to the ELPA21. Assessment results were not available to make timely reclassification decisions, so schools used other criteria to reclassify students. During this school year, the compliance rate was 65 percent for students around the optimal bandwidth. For this reason, I exclude students who were reclassified during the 2015-16 school year from the analysis.

Without this cohort, the eligibility cutoff strongly predicted reclassification (see Figure 3A in the appendix). Overall, the compliance rate was 88 percent. Although a strong indicator, it was imperfect, so I employed a two-stage least square. Results from the first stage regression found that eligibility to reclassify was a strong instrument to identify students who reclassified.

For example, grade 8 students above the reclassification threshold were 44 percentage points more likely to reclassify than those below the cutoff (Figure 3A in the appendix).

A second assumption of the RD design is that scores are not manipulated around the cutoff. This scenario could happen if, for example, an administrator decides to directly or indirectly influence a student to stay below the reclassification threshold so that they can continue to get additional support. To check for this assumption, I first produced histograms of the forcing variable to observe if there is any "bunching" around the forcing variable threshold (Figures 5A and 6A in the appendix). Visual inspection found no evidence of crowding around the cutoff for either the 5th or 8th grade samples. To test this assumption more formally, I conducted a McCrary Density test (McCrary, 2008). I rejected the null hypothesis that there is discontinuity (or "jump") in the density of cases around the eligibility threshold.

A third assumption of the RD design is that both groups are equal in expectations within the RD bandwidth. In other words, there should not be any pre-treatment differences at the threshold between groups in the observable and non-observable characteristics of students. I cannot check if there are differences in non-observable, pre-treatment characteristics, but I can check if there are differences in pre-treatment observable characteristics. To check for this assumption, I first plotted the pre-treatment covariates (y-axis) against the binned forcing variable in the x-axis. These graphs are presented in Figures 7A and 8A in the appendix. To check for systematic differences more formally, I ran a regression with the pre-treatment covariate as the outcome measure predicted by the forcing variable, a binary measure that indicates if the student is eligible to reclassify, the interaction between these two variables, and fixed effects for student's cohort and assessment. For most observable variables, the coefficient on the binary eligible to reclassify was not statistically significant for grade 5 and grade 8

samples (Tables 3A and 4A in the Appendix). Non-significant coefficient suggests no systematic differences in observable characteristics between students above and below the eligibility cutoff. The only significant predictor I observed was an increase in grade 8 math assessment scores. For this reason, we include this predictor, along with other student characteristics, in the entire model.

A fourth assumption is that RD design must use the correct functional form. Using the wrong functional form may lead to biased and incorrect estimates. As previously stated, I used a linear functional form on the running variable. A model comparison test between linear and polynomial measures revealed that the linear specification fit the data best, as determined by comparing the AIC.

Lastly, I also include descriptive, visual results of the relationship between a binned forcing variable and measures of high school graduation. Figures 9A and 10A in the Appendix present this relationship along the optimal bandwidths. Initial descriptive results do not show clear patterns. Among fifth grade students who reclassify, there appears to be no jump in graduation rates at the threshold. For grade 8 students, there appears to be a small decrease at the threshold in four-year graduation rates, but no jump in five-year graduation rates.

Robustness Checks

To check for consistency in the estimated effect of reclassification, I estimated a range of robustness checks, including models with different bandwidths around the eligibility cutoff, different functional forms, and models with different samples. In the main results, I provide additional results for bandwidth at .25 .8 and 1.2 standard deviation units. I selected these alternative bandwidths because they represent smaller and larger bandwidths than my optimal bandwidths. In the Appendix, I share the results of models that use alternate functional forms and

models that exclude baseline covariates. I also examined results for students who were reclassified during ELPA years and students in ELPA21 years. Across all models, estimated effects remain largely consistent.

Lastly, I check for heterogeneity and estimate the impact for different groups of EL-classified students. I estimate the impact of reclassification for long-term English learners (6 or more years in EL services) and students in special education in grade 8. The results of these analyses are presented in the main findings.

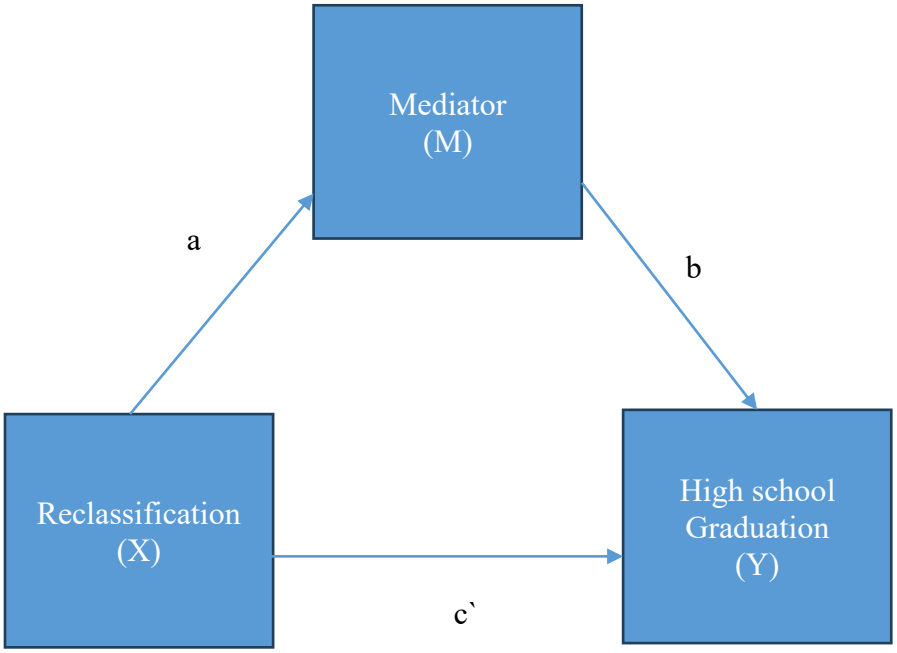
Research Question 2 - Mediation Analysis

To address research question 2, *How does access to Algebra 1 by ninth grade and enrollment in ELA mediate the impact of reclassification on high school completion?* I used mediation analysis (Baron & Kenny, 1986). Mediation analysis allows us to understand if the relationship between reclassification and graduation is influenced by an intermediary variable, such as ELA and Algebra 1 completion in ninth grade.

Figure 10 provides a visual that conceptualizes the mediation analysis. In this model, I conceptualize that the primary variable of interest, reclassification from EL services, directly affects high school graduation (Y). This effect is represented by path c in Figure 10. However, I am interested in knowing the channels through which reclassification from EL services impacts high school graduation. Students may, for example, complete Algebra 1 earlier in high school and have more access to higher-level math courses. To understand if there is an indirect effect, I include the mediator (M) in the model and first test if reclassification impacts the mediators. This effect is represented by path a. Once the effect of reclassification to the mediator is established, I can examine if some of the effects of reclassification from EL services on high school graduation are channeled through the mediators. This indirect effect is represented by path c.

Figure 10

Theorized Pathways of the Mediation Model



To test the mediators and understand if there are indirect effects, I used an approach described by Baron and Kenny (1986), which is similar to prior mediation analysis utilized within a regression discontinuity framework (Sanchez & Velasco, 2012). To understand if there are mediating effects, I need to establish that:

1. Reclassification from EL services impacts high school graduation.
2. Reclassification from EL services impacts the mediator.

The first point is addressed by research question one, which examines the impact of reclassification from EL services on high school graduation (path c in Figure 10). To address the second point, I need to examine the effect of reclassification on the mediator. To do this, I use a similar approach to answer research question one by estimating the first stage equation (Equation

2). After estimating Equation 2, I estimated the impact of reclassification on the mediator using a similar approach as in Equation 3 (fuzzy RD approach). The following second stage equation represents this:

$$(4)\ M_{iac} = \beta_0 + \beta_1 forcing + \beta_2 \widehat{reclass}_i(forcing \geq 0) + \beta_3 forcing * \widehat{reclass}_i + X_i + \Pi_a + \Delta_c + \mu_i$$

Where M_{iac} refers to one of the two mediators for student *i* who took assessment *a* in cohort *c* and $\widehat{reclass}_i$ are the predicted values derived from Equation 2. In this first step, the β_2 coefficient represents the direct causal path to the mediator (denoted by path a in Figure 10). In other words, the impact of reclassification on ELA enrollment in 9th grade and Algebra 1 enrollment by grade 9.

Establishing that reclassification impacts high school graduation and the mediators allows for examination for evidence of indirect effects. To examine if there is evidence of mediation, I again start by running the first stage equation (Equation 2). I then run the following second-stage model, which is very similar to Equation 3 but includes the mediators:

$$(5)\ Y_{iac} = \beta_0 + \beta_1 forcing_i + \beta_2 \widehat{reclass}_i(forcing_i \geq 0) + \beta_3 M_i + X_i + \Pi_d + \Delta_c + \mu_i$$

where Y_{iac} represents the outcome for student i who took assessment a in cohort c and $\widehat{reclass}_i$ are the predicted values derived from Equation 2. M_i represents the mediators, and β_3 is the relationship between the mediators and the outcome. To examine for evidence of indirect effects, I examine the β_2 coefficient in Equation 5, which represents the effects of reclassification accounting for the mediator, and compare it to the β_2 coefficient of Equation 3, which represents the effect of reclassification without any mediators. If there is evidence of indirect effects, it

should be expected that the β_2 coefficient of Equation 5 should deviate from the β_2 coefficient of Equation 3 because of the inclusion of the mediators.

Limitations

Multiple limitations should be considered when interpreting these results. First, like all RD designs, the causal estimates only apply to EL-classified students around the threshold. This is a useful population to study because it helps understand the extent to which reclassification thresholds are calibrated to the supports offered to students. However, the results cannot explain how reclassification impacts students farther away from the bandwidths.

This study also used two distinct English language proficiency assessments to construct the forcing variable for the RD analysis. Past studies have found that a change in RD assessment can change the impact of reclassification (Cimpian et al., 2017). This could be because assessments test for different competencies and essentially change the profile of reclassified students. To mitigate this limitation, I run the analysis separately for each assessment period and examine how the impact changes.

Combining these two assessments is tied to another limitation: sample size. RD estimates require a substantial sample size to detect impacts precisely. Although I had access to a state-wide dataset, I was still limited by the number of students from 5th or 8th grade to high school graduation. Furthermore, the model's calculated optimal bandwidths were very small, further restricting the already limited sample size.

Lastly, it should be noted that the mediation analysis is a simplified approach. Other more sophisticated causal mediation analyses (VanderWeele & Vansteelandt, 2009) and emerging approaches to embed within an RD framework (Chen, 2021). However, the approach in this study was considered an initial exploration into mediation analysis within a reclassification study

that uses an RD design. Furthermore, it should be noted that estimates from the mediation analysis are no longer causal because of the inclusion of the endogenous mediators.

Results

Estimated Effect of EL Reclassification on High School Graduation

I did not identify a statistically significant impact on the likelihood of graduating from high school in four or five years among students near the eligibility threshold to reclassify from English learner services in grade 5 and grade 8. Table 10 summarizes the results of the fuzzy regression discontinuity estimates at the optimal bandwidths. The non-significant coefficient estimates suggest that reclassification in fifth grade led to a 6-percentage point decrease in students who graduated with a modified or regular diploma in four years and a 6.7 percentage-point decrease in the rate of students who graduated with a regular diploma in four years. In both cases, the coefficient estimates were very imprecise. For example, the 95% confidence interval of the impact of reclassification in grade 8 indicates that the impact can range from a positive impact as high as a 31-percentage point increase or a negative impact as low as a 34 percentage point decrease in the rate of students who graduate with a modified or regular diploma in four years.

Results for students who reclassified in grade 8 – which includes a different analytic sample of 3 cohorts – were also not statistically significant but had some differences in the direction of the estimate associated with four- versus five-year graduated rates. Like the direction of the impact of reclassification in grade 5, reclassification in grade 8 led to a 13.5-percentage point decrease in the rate of students who graduated with a modified or regular diploma in four years and a 9-percentage point decrease in the rate of students who graduated with a regular

diploma in four years. However, the direction of the coefficient estimate reversed when examining five-year graduation outcomes. Reclassification in grade 8 led to a 9-percentage point increase in the rate of students who graduated with a modified or regular diploma and a 13-percentage increase in the rate of students who graduated with a regular diploma in five years. Again, the coefficient estimates were not statistically significant in all cases, so we cannot conclude that reclassification from EL services positively or negatively impacted high school graduation.

Table 10

Estimated Effect of Reclassification From EL Services in Grade 8 on the Likelihood of High School Graduation

	Graduate with standard or modified diploma in 4 years	Graduated with standard diploma in 4 years	Graduate with standard or modified diploma in 5 years	Graduated with standard diploma in 5 years
	Panel A: Grade 5 sample			
2SLS – 1st stage	0.730**	0.730**		
	(0.0378)	(0.0378)		
2SLS – 2nd stage (Effect of reclassification)	**-0.060**	**-0.067**		
	(0.0567)	**(0.0577)**		
Covariates	Yes	Yes		
Cohort FE	Yes	Yes		
Binding Assessment FE	Yes	Yes		
Total Observations	1617	1617		
Observations to the left of the bandwidth	931	931		
Observations to the right of the bandwidth	686	686		
Optimal Bandwidth (SD)	0.500	0.500		
	Panel B: Grade 8 sample			
2SLS – 1st stage	0.459**	0.457**	0.385**	0.397**
	(0.0557)	(0.0537)	(0.0811)	(0.0784)
2SLS – 2nd stage (Effect of reclassification)	**-0.135**	**-0.090**	**0.095**	**0.134**
	(0.114)	**(0.119)**	**(0.175)**	**(0.190)**
Covariates	Yes	Yes	Yes	Yes
Cohort FE	Yes	Yes	Yes	Yes
Binding Assessment FE	Yes	Yes	No	

Total Observations	967	986	636	636
Observations to the left of the bandwidth	546	563	309	309
Observations to the right of the bandwidth	421	423	327	327
Optimal Bandwidth (SD)	0.39	0.42	0.29	0.31

Note. Standard errors in parentheses ** p<0.01, * p<0.05, ~ p<0.1

The non-significant and imprecise results were broadly consistent across different bandwidth specifications, model specifications, and samples selected. Table A5 in the appendix presents the coefficient estimates for models using different bandwidth selections (ranging from .2 to 1.2 standard deviation units) for students reclassified in grade 5. Table A6 presents results for the grade 8 sample. For each outcome examined, the coefficient estimates remained consistent in direction and significance, although they varied in magnitude. For example, the estimated effect of reclassification in grade 5 on the impact of graduation with a regular or modified diploma in four years ranged from -.01 to -.13 percentage points across different bandwidth specifications. For grade 8, the effects on four-year graduation rates ranged from -9.5 to 2 percentage points. For five-year graduation rates, the effects ranged from 4 to 37 percentage points.

I also examined results across different model specifications, including models without covariates and models with a quadratic functional form. Tables A7 and A8 in the appendix present results for models with alternate specifications. Models with quadratic specification had consistent estimates in direction and significance across both samples. The models without covariates for grade 5 and grade 8 samples had similar estimates in magnitude and direction. The main difference is that the effect of grade 8 reclassification on the likelihood of graduating with a modified or regular diploma in four years approached statistical significance (p<.10). This result is counterintuitive because additional covariates should make the estimates more precise. However, the change could be because of imbalances in baseline covariates. As was noted in the

methods, there were some imbalances in baseline math score assessments and the percentage of students who identified as White.

Lastly, I examined effect estimates by the type of assessment used to reclassify students, by long-term English learner status in grade 8, and by enrollment in special education in grade 8. Tables A9 and A10 in the appendix present results for different sample specifications. Coefficient estimates were again non-significant for grade 8 students who reclassified through the old ELPA or the new ELPA21. However, the magnitude of the estimated effect size was much larger for students who reclassified through the ELPA21 compared to the old ELPA. Students who reclassified in grade 8 through the ELPA21earned a regular or modified diploma at rates that were 30 percentage points lower compared to students who were not reclassified in grade 8. This effect was seven percentage points for students who reclassified through the old ELPA. The large estimates for ELPA21 could be related to the small ELPA21 sample size. This sample had 164 observations and only 49 above the threshold. As such, small graduation variations may have an outsized impact on the estimates.

The negative coefficient estimate was also magnified for students who were long-term English learners. For example, long-term English learners who reclassified in grade 8 received a modified or regular diploma in four years at rates that were 24 percentage points lower compared to long-term English learners who were not reclassified. This estimate approached statistical significance ($p<.10$). The estimated effect was also similar in magnitude and not statistically significant for students who were in special education and those who were not in special education (see Table A10 in the appendix).

To summarize, I did not observe a statistically significant impact of reclassification in grades 5 and 8 on the likelihood of graduating with a modified or regular diploma or a regular

diploma in four or five years. The coefficient estimates tended in the negative direction for four-year outcomes and positive for five-year outcomes – suggesting that reclassification may negatively impact the likelihood of high school graduation in four years but increase the overall likelihood in five years. These estimates were consistent across multiple models and sample specifications. However, these estimates were very imprecise, so we cannot be confident in the estimates.

The Mediating Role of ELA and Algebra 1 on the Effect of Reclassification on High School Graduation

I did not find evidence that enrollment in ELA in grade 9 and enrollment in Algebra 1 by grade 9 mediates the effect of reclassification on high school graduation. I needed to establish that reclassification from EL services impacts the mediator to investigate potential indirect effects through the course mediators. Table 11 presents the estimated effect of reclassification from EL services on course enrollment using bandwidths of .39 and .42 – the optimal bandwidths for four-year graduation with a standard or modified diploma and the optimal bandwidth for four-year graduation with a standard diploma, respectively. Reclassifying from EL services in grade 8 increased the rate of ELA course enrollment by 13 percentage points for both bandwidths. These results were statistically significant. Reclassifying from EL services in grade 8 increased the rate of enrollment in Algebra 1 by 12-13 percentage points. However, these estimates were not statistically significant. The significant effect of reclassification on the ELA course mediator supports the investigation of mediating effects.

Table 11

Estimated Effect of Reclassification from EL Services in Grade 8 on the Likelihood of Enrollment in ELA and Algebra 1 in Grade 9

	ELA enrollment in grade 9	ELA enrollment in grade 9	Algebra 1 enrollment by grade 9	Algebra 1 enrollment by grade 9
2SLS – 1st stage	0.459**	0.457**	0.459**	0.457**
	(0.0557)	(0.0537)	(0.0557)	(0.0537)
2SLS – 2nd stage (Effect of reclassification)	**0.133****	**0.128****	**0.132**	**0.116**
	(0.0584)	**(0.0573)**	**(0.114)**	**(0.110)**
Covariates	Yes	Yes	Yes	Yes
Cohort FE	Yes	Yes	Yes	Yes
Binding Assessment FE	Yes	Yes	Yes	Yes
Total Observations	967	986	967	986
Observations to the left of the bandwidth	546	563	546	563
Observations to the right of the bandwidth	421	423	421	423
Optimal Bandwidth (SD)	.39	.42	.39	.42

Note. Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

To investigate potential indirect effects through the course mediators, I also needed to establish that reclassification from EL services directly impacts high school graduation. Results from the first research question did not find a significant impact of reclassification on high school graduation. This means that we likely would not expect course enrollments to mediate the effect of reclassification on high school graduation because the effect of reclassification on high school graduation was not observed. However, I still present results for the model that includes the mediators (see Equation 5).

When including the mediator in the full model, I did not find evidence that ELA and Algebra 1 course enrollment mediates the estimated effect of EL reclassification. Table 12 presents the estimated effects of EL reclassification in grade 8 on high school graduation measures and compares the models with and without the mediators. In all cases, the estimated effect of EL reclassification in grade 8 remains consistent in direction and magnitude. For example, the

coefficient estimate was -13 percentage points for the model without the course mediators and -14 percentage points for the model with the mediators, a nearly identical coefficient estimate. This does not mean that course access does not influence high school graduation. Instead, it means that for students who reclassified in 8th grade, higher access to ELA in ninth grade did not alter the graduation trajectories compared to students who did not reclassify and had similar English proficiency levels.

Table 12

Estimated Effect of Reclassification From EL Services in Grade 8 on the Likelihood of High School Graduation

	Graduate with standard or modified diploma in 4 years		Graduate with standard diploma in 4 years		Graduate with standard or modified diploma in 5 years		Graduate with standard diploma in 5 years	
	No mediator	With course mediators	No mediator	With course mediators	No mediator	With course mediator	No mediator	With course mediator
2SLS – 1st stage	0.459**	0.452**	0.457**	0.451**	0.385**	0.373**	0.397**	0.385**
	(0.0557)	0.0557	(0.0537)	0.0537	(0.0811)	0.0808	(0.0784)	0.0781
2SLS – 2nd stage (Effect of reclassification)	**-0.135**	**-0.143**	**-0.090**	**-0.0982**	**0.095**	**0.105**	**0.134**	**0.129**
	(0.114)	**(0.115)**	**(0.119)**	**(0.120)**	**(0.175)**	**(0.181)**	**(0.190)**	**(0.195)**
Covariates	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cohort FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Binding Assessment FE	Yes	Yes	Yes	Yes	No	No	No	No
Total Observations	967	967	986	986	636	636	636	636
Observations to the left of the bandwidth	546	546	563	563	309	309	309	309
Observations to the right of the bandwidth	421	421	423	423	327	327	327	327
Optimal Bandwidth (SD)	0.39	0.39	0.42	0.42	0.29	0.29	0.31	0.31

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Discussion

This study investigated whether reclassifying students from EL services in 5th and 8th grades, which are critical transition points, affects their likelihood of graduating high school. I did not find a statistically significant effect of reclassification in grades five and eight on high school graduation in four or five years. These results remained similar across different bandwidths, models, and sample specifications. These results align with a recent meta-analysis that finds no global effects of EL reclassification on high school graduation (Itoh & Umansky, 2024) but differ from results in other contexts (Johnson, 2019a). In Oregon, reclassification alone does not impact graduation rates, on average, for students near the threshold of reclassification. This could signal that the EL-classified students may be well supported and are transitioning well to a learning environment without English language development support.

Although there were no overall effects, it could still be that effects vary across districts. Districts have substantial control over the support and services students receive, so how students experience reclassification could vary substantially (Mavrogordato & White, 2017). This study did not examine how impacts vary across districts but observed imprecise and wide confidence intervals. The wide confidence intervals could be due to sample size, but it could also be that the effect of reclassification varies significantly across observations in the data. Past studies that examine how reclassification effects vary by district find substantial variation in impact across districts (Cimpian et al., 2017), and the same could be happening in Oregon.

Results in the impact point estimate also signaled differential graduation patterns. The point estimates consistently found negative effects on the four-year graduation rate, but these estimates reversed for the five-year graduation rates. These results differ from other studies that found similar estimates for four- and five-year graduation rates (Johnson, 2019). The patterns in

these estimates suggest that students who reclassified graduated at lower rates in four years but had higher cumulative graduation rates overall. It could be that students who reclassified in grade 8 and do not graduate in four years are more likely to be supported to continue their education. Future research that examines factors influencing continued education beyond four years for students previously classified as English learners can explore whether earlier reclassification influences the likelihood of continued education.

The null effects on high school graduation do not indicate that reclassification is unimportant. Results from this study also found that reclassification had a positive effect on grade 9 ELA course access. This finding aligns with past descriptive work in Oregon (Thompson & Umansky, 2023) and other research that finds students who remain EL-classified in high school have lower access to core content courses (Johnson, 2019b). Students are entitled to access grade-level instruction, and lower access to important courses required for high school graduation is concerning.

This study attempted to understand how access to grade 9 enrollment in ELA and Algebra 1 mediates the impact of reclassification on high school graduation. These courses are essential because they are required for high school graduation, and earlier access increases the likelihood of graduation (Yamaguchi et al., 2020). Although reclassification increased access to ELA in ninth grade – which students need four years to graduate with a regular diploma – I did not find that course enrollment in ninth grade alters the impact of reclassification on high school graduation in four or five years. This suggests that the potential impact of reclassification in eighth grade on high school outcomes was not channeled through access to courses. Again, this does not mean that course access does not influence high school graduation. Instead, it means that for students who reclassified in 8th grade, higher access to ELA in ninth grade did not alter

the graduation trajectories compared to students who did not reclassify and had similar English proficiency levels. This could be because some of the barriers to EL classification, like crowding out due to ELD courses or placement in lower track courses (Lillie et al., 2013; Callahan, 2005; Callahan & Shifrer, 2016), were not experienced by students who did not reclassify in grade 8 because they exited from EL services shortly after starting high school. About three-quarters of students in the analytic sample who were not eligible to reclassify in grade 8 eventually reclassified in high school. As such, it is possible that students who had lower assessment scores in the English language proficiency assessment experienced more barriers to course access. However, they were not part of the analytic sample.

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APPENDIX

Table A1

Descriptive Statistics of Full Grade 5 Sample

Variable	Full sample	Below the eligibility cutoff	Above the eligibility cutoff
Number of students	3550	2571	979
Assessment results			
Grade 5 ELA score	-1.07889	-1.30767	-0.47809
Grade 5 Math score	-0.82479	-1.01015	-0.33802
Demographic information			
Female	44.11%	41.50%	50.97%
Male	55.89%	58.50%	49.03%
American Indian/Alaska Native	1.32%	1.44%	1.02%
Asian/Pacific Islander	8.17%	7.62%	9.60%
Black	1.92%	2.10%	1.43%
Latinx	80.31%	81.52%	77.12%
Multi-racial	0.85%	0.74%	1.12%
White	7.44%	6.57%	9.70%
Home language			
Spanish	80.25%	81.37%	77.32%
Russian	3.94%	3.35%	5.52%
Vietnamese	2.54%	2.33%	3.06%
English	1.61%	1.67%	1.43%
Chinese Mandarin	1.13%	0.97%	1.53%
Arabic	0.70%	0.70%	0.72%
Other languages	9.83%	9.61%	10.42%
Participation in programs			
Special education in grade 8	22.39%	28.24%	7.05%
Economically disadvantaged in grade 8	92.42%	93.35%	89.99%
Course access and graduation			
Enrolled in ELA in grade 9	98.00%	97.71%	98.77%
Enrolled in Algebra 1 by grade 9	87.44%	85.38%	92.85%
Graduated in 4 years	79.77%	77.99%	84.47%
Graduated in 4 years with regular diploma			

Table A2

Descriptive Statistics of the Grade 5 Analytic Sample

Variable	Full sample	Below the eligibility cutoff	Above the eligibility cutoff
Number of students	1638	946	692
Assessment results			
Grade 5 ELA score	-0.75	-0.88	-0.58
Grade 5 Math score	-0.58	-0.68	-0.45
Demographic information			
Female	49.08%	48.20%	50.29%
Male	50.92%	51.80%	49.71%
American Indian/Alaska Native	1.16%	1.06%	1.30%
Asian/Pacific Islander	8.12%	7.51%	8.96%
Black	1.34%	1.37%	1.30%
Latinx	80.83%	82.77%	78.18%
Multi-racial	1.04%	1.06%	1.01%
White	7.51%	6.24%	9.25%
Home language			
Spanish	81.07%	82.77%	78.76%
Russian	4.15%	3.17%	5.49%
Vietnamese	2.87%	3.07%	2.60%
English	1.40%	1.37%	1.45%
Chinese Mandarin	0.79%	0.63%	1.01%
Arabic	0.61%	0.42%	0.87%
Other languages	9.10%	8.56%	9.83%
Participation in programs			
Special education in grade 8	11.48%	14.59%	7.23%
Economically disadvantaged in grade 8	92.67%	93.87%	91.04%
Course access and graduation			
Enrolled in ELA in grade 9	98.78%	99.05%	98.41%
Enrolled in Algebra 1 by grade 9	92.25%	91.75%	92.92%
Graduated in 4 years	83.15%	82.35%	84.25%
Graduated in 4 years with regular diploma			

Figure 1A

Percent of Students that Reclassified from English Learner Services in Grade 5, by Eligibility to Reclassify

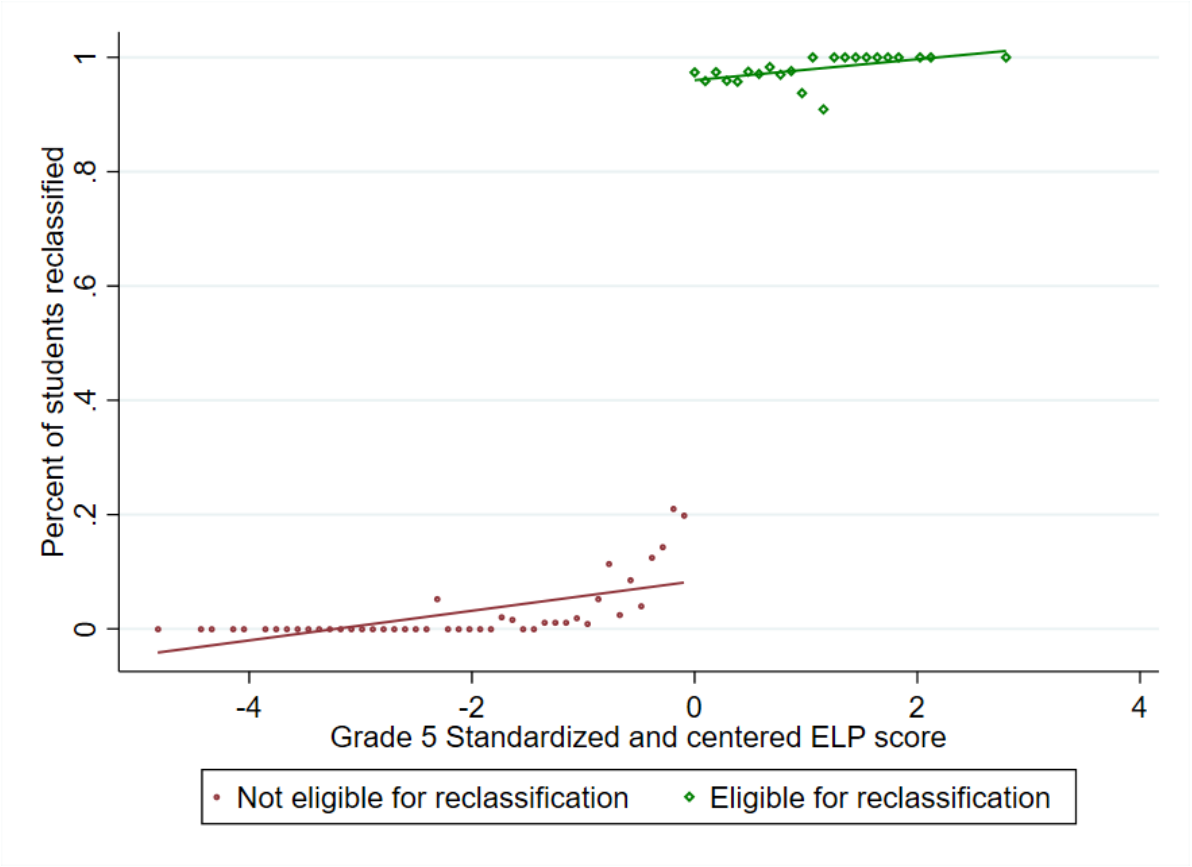

Figure 2A

Percent of Students that Reclassified from English Learner Services in Grade 8, by Eligibility to Reclassify and Ninth Grade Cohort

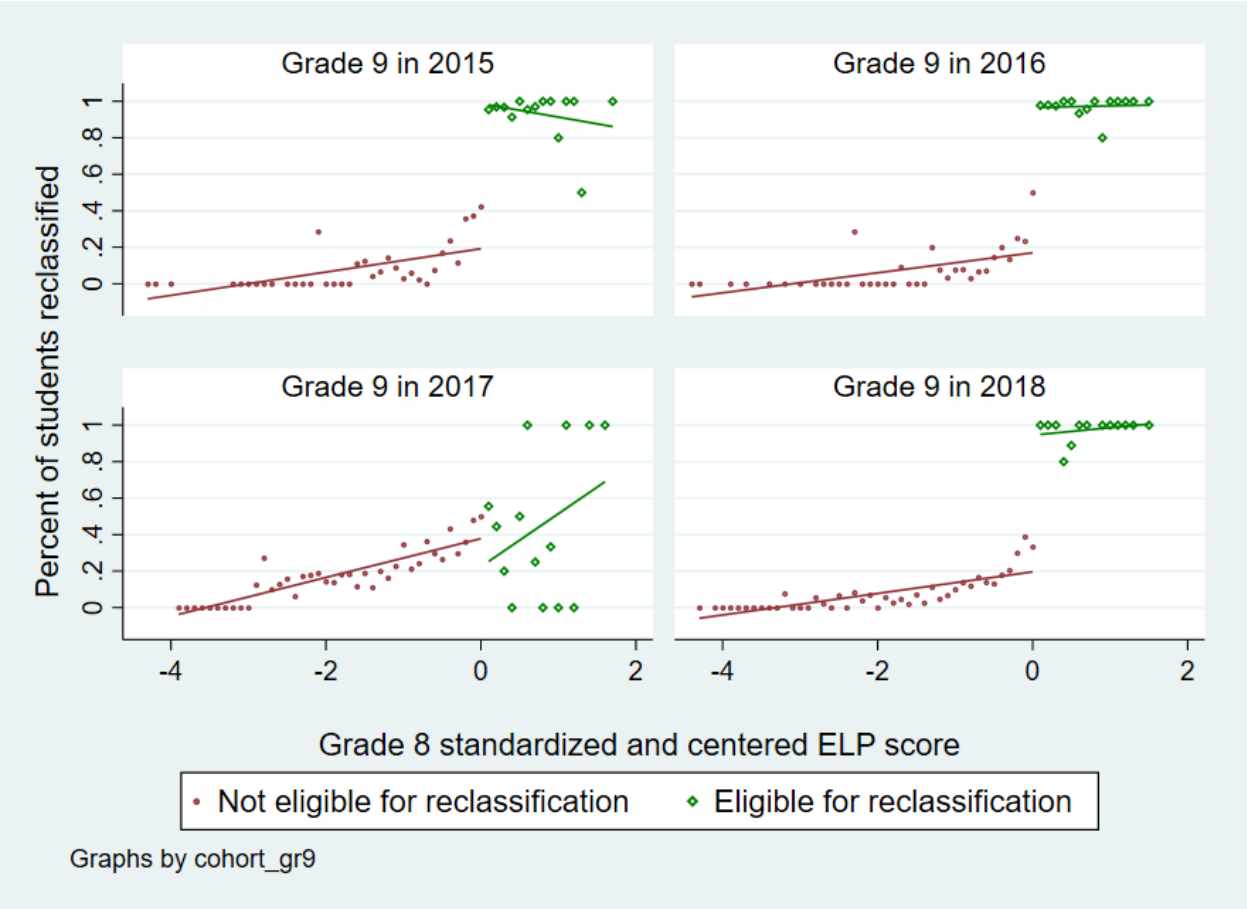

Figure 3A

Percent of Students that Reclassified from English Learner Services in Grade 8, by Eligibility to Reclassify

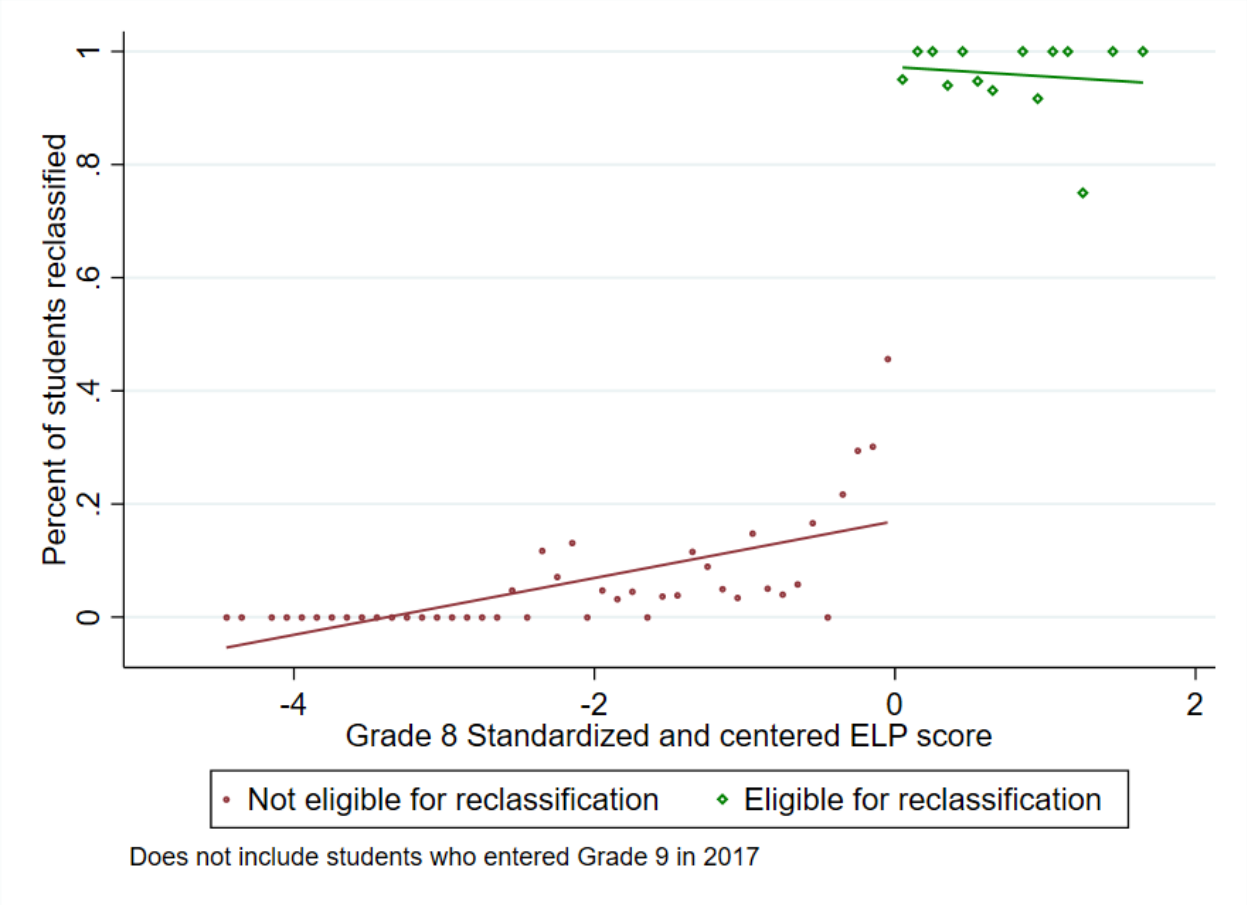

Figure 4A

Percent of Students that Reclassified from English Learner Services in Grade 8, by Eligibility to Reclassify and Assessment Used to Determine Eligibility to Reclassify

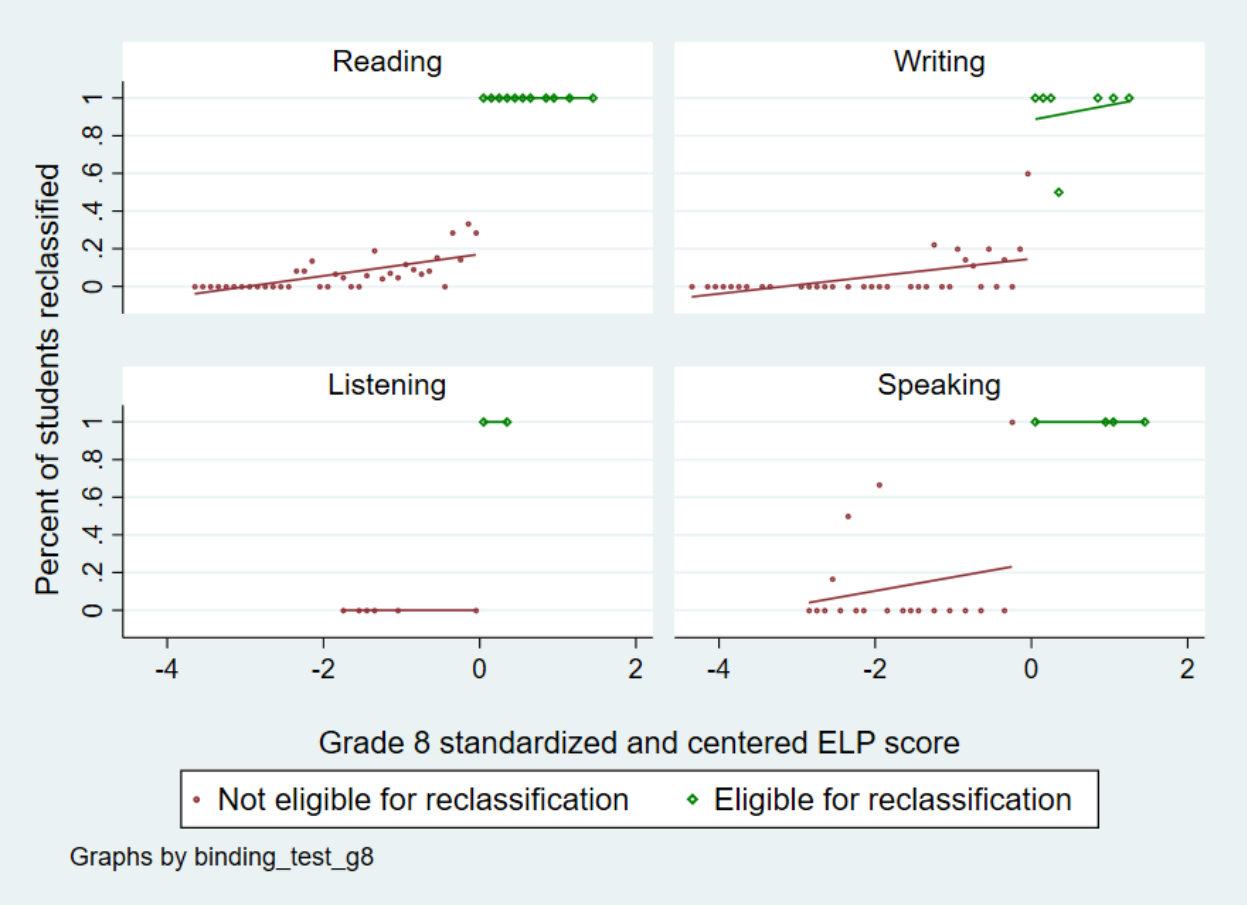

Figure 5A

Histogram of Standardized and Centered English Language Proficiency Scores for Students in the Grade 5 Sample

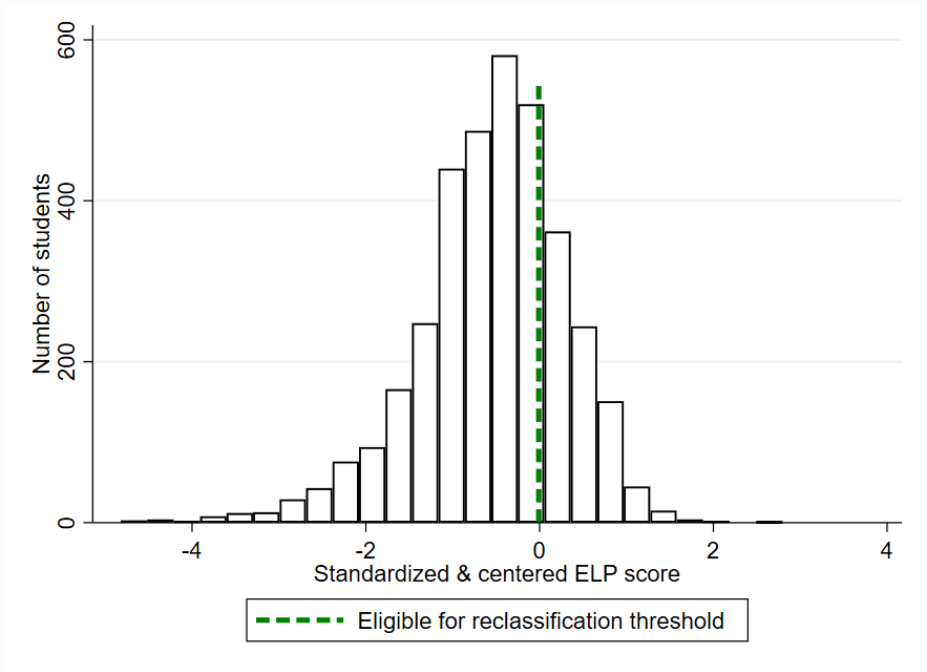

Figure 6A

Histogram of Standardized and Centered English Language Proficiency Scores for Students in the Grade 8 Sample

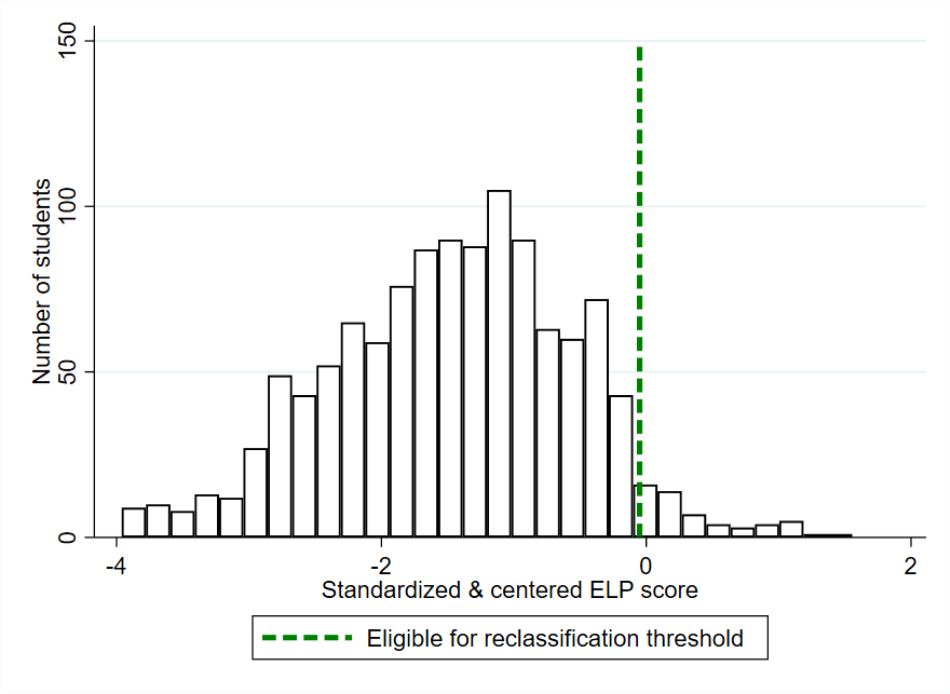

Figure 7A

Relationship Between the Grade 5 Standardized ELP Score and Various Pre-Treatment Covariates

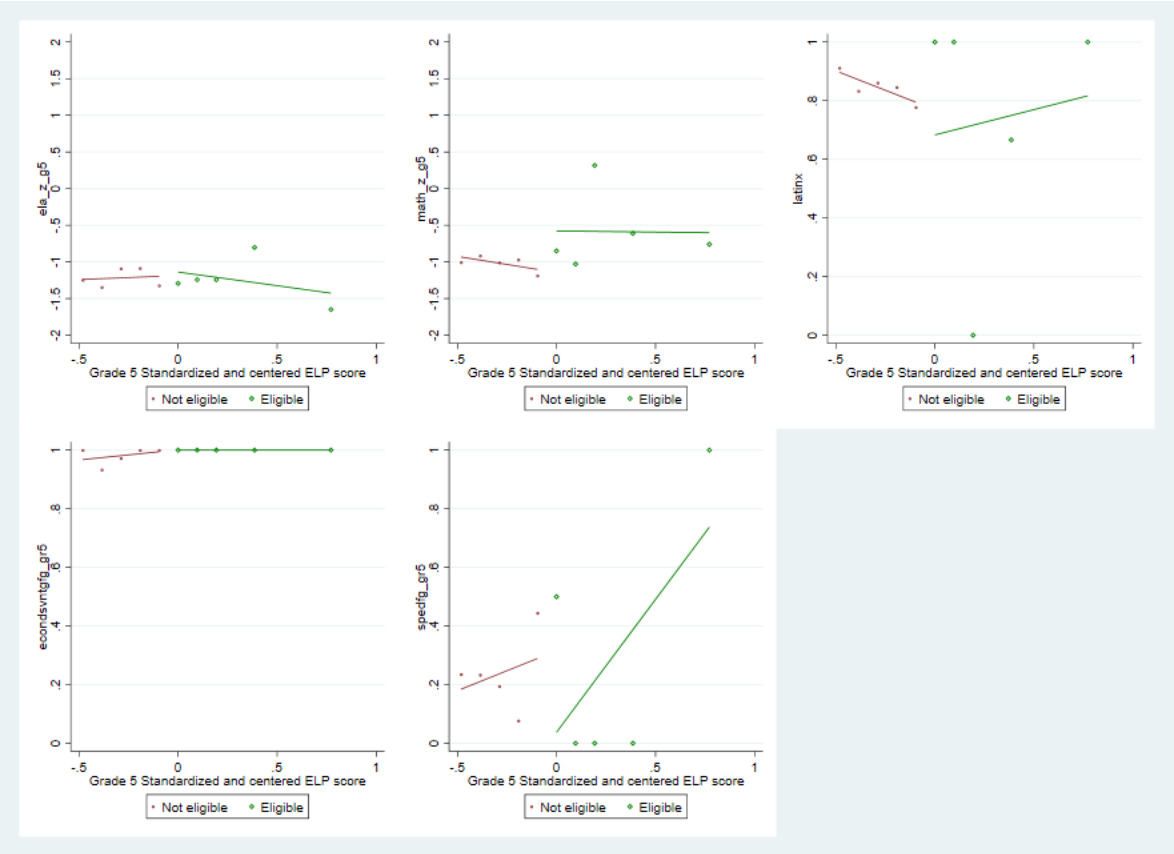

Table A3

Relationship Between the Grade 5 Standardized ELP Score and Various Pre-Treatment Covariates

	female	Spanish	AIAN	Asian/ PI	Black	Latinx	White	Multi-Ethnic	SPED	FRPL	ELA assessment	Math assessment
Running	-0.0451	0.0161	-0.0342	0.0349	0.00104	0.0219	-0.0420	0.0183	-0.0415	0.0595	0.621***	0.575***
	[0.123]	[0.0964]	[0.0263]	[0.0672]	[0.0284]	[0.0968]	[0.0648]	[0.0250]	[0.0780]	[0.0641]	[0.132]	[0.160]
Eligible	**-0.0174**	**-0.0387**	**0.00694**	**0.0210**	**0.00104**	**-0.0520**	**0.0334**	**-0.0104**	**-0.0517**	**-0.0353**	**0.0126**	**-0.0122**
	[0.0497]	**[0.0389]**	**[0.0106]**	**[0.0271]**	**[0.0115]**	**[0.0391]**	**[0.0262]**	**[0.0101]**	**[0.0315]**	**[0.0259]**	**[0.0531]**	**[0.0644]**
Eligible X Running	0.298	-0.0463	0.0610	-0.117	-0.0113	-0.0235	0.0861	0.00431	-0.00727	-0.110	-0.119	-0.220
	[0.170]	[0.133]	[0.0364]	[0.0928]	[0.0392]	[0.134]	[0.0895]	[0.0345]	[0.108]	[0.0885]	[0.182]	[0.220]
N	1,638	1,638	1,638	1,638	1,638	1,638	1,638	1,638	1,638	1,638	1,638	1,638
R-squared	0.003	0.003	0.002	0.002	0.000	0.003	0.004	0.001	0.013	0.004	0.089	0.040

Note. Standard error in parenthesis. *** p<0.001, ** p<0.01, * p<0.0

Figure 8A

Relationship Between the Grade 8 Standardized ELP Score and Various Pre-Treatment Covariates

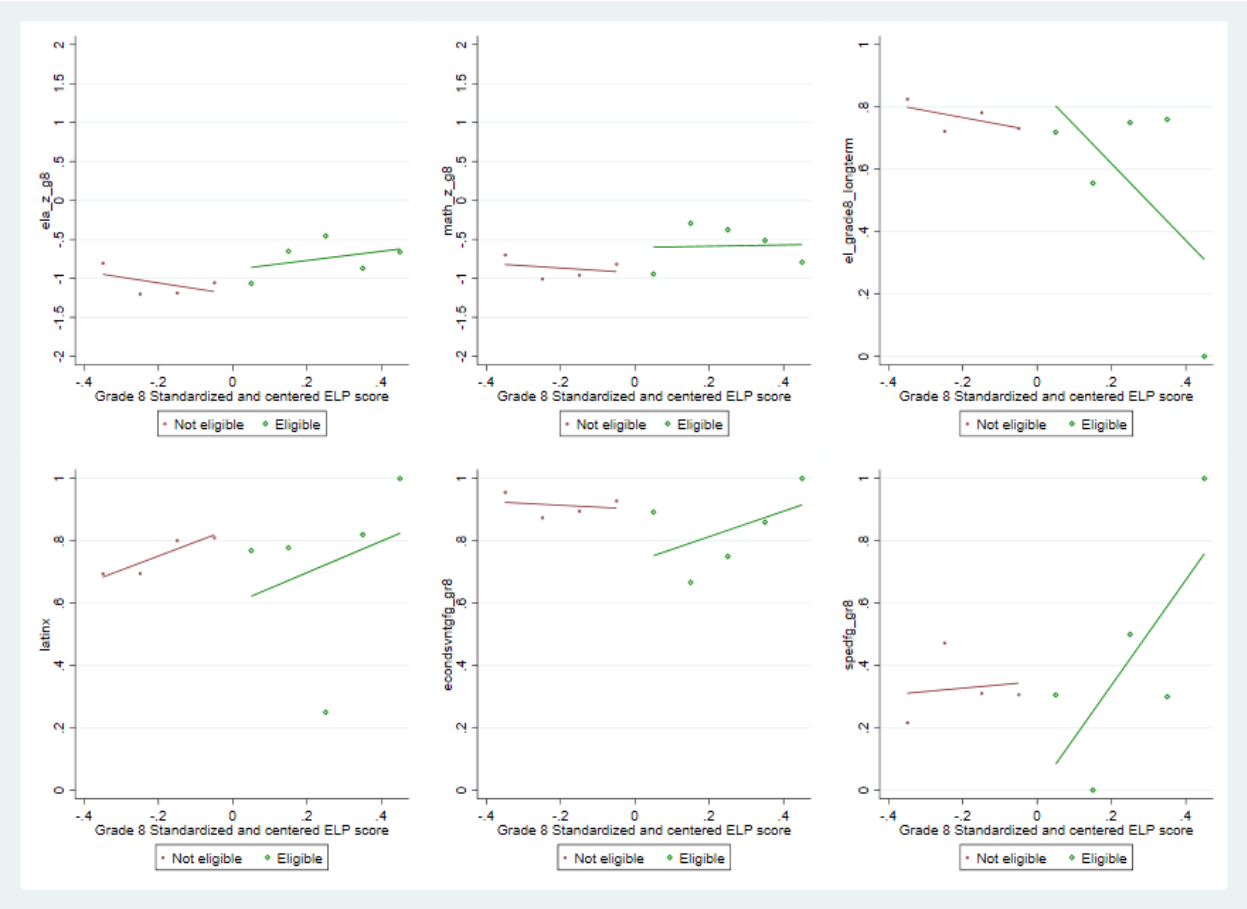

Table A4

Relationship Between the Grade 8 Standardized ELP Score and Various Pre-Treatment Covariates

	female	Spanish	AIAN	Asian/ PI	Black	Latinx	White	Multi-Ethnic	SPED	FRPL	Long Term EL	Newcomer	Algebra	ELA	Math
Running	0.107	0.206	0.0362	-0.116	0.0276	0.243	-0.136	-0.0554	-0.310	0.165	0.0121	0.0384	0.149	0.854***	1.133***
	[0.19]	[0.17]	[0.05]	[0.13]	[0.06]	[0.17]	[0.10]	[0.04]	[0.18]	[0.12]	[0.18]	[0.11]	[0.10]	[0.22]	[0.29]
Eligible	-0.0885	-0.0765	-0.00537	0.0391	-0.0162	-0.0811	**0.0635***	0.000136	-0.0127	-0.0293	-0.0195	0.0132	-0.0461	-0.0572	**0.198***
	[0.06]	[0.05]	[0.01]	[0.04]	[0.02]	[0.05]	**[0.03]**	[0.01]	[0.06]	[0.04]	[0.06]	[0.03]	[0.03]	[0.07]	**[0.09]**
Eligible X Running	0.188	-0.306	-0.0959	0.240	-0.0156	-0.301	0.0798	0.0927	0.247	-0.271	-0.110	0.00789	0.245	-0.376	-0.154
	[0.28]	[0.24]	[0.07]	[0.19]	[0.09]	[0.24]	[0.15]	[0.05]	[0.26]	[0.17]	[0.25]	[0.15]	[0.14]	[0.32]	[0.42]
N	986	986	986	986	986	986	986	986	986	986	986	986	963	986	986
R-squared	0.009	0.016	0.007	0.021	0.003	0.017	0.011	0.009	0.043	0.007	0.005	0.017	0.036	0.171	0.072

Note. Standard error in brackets. *** p<0.001, ** p<0.01, * p<0.0

Figure 9A

Relationship Between 5th Grade Standardized ELP Score and Four Year High School Graduation

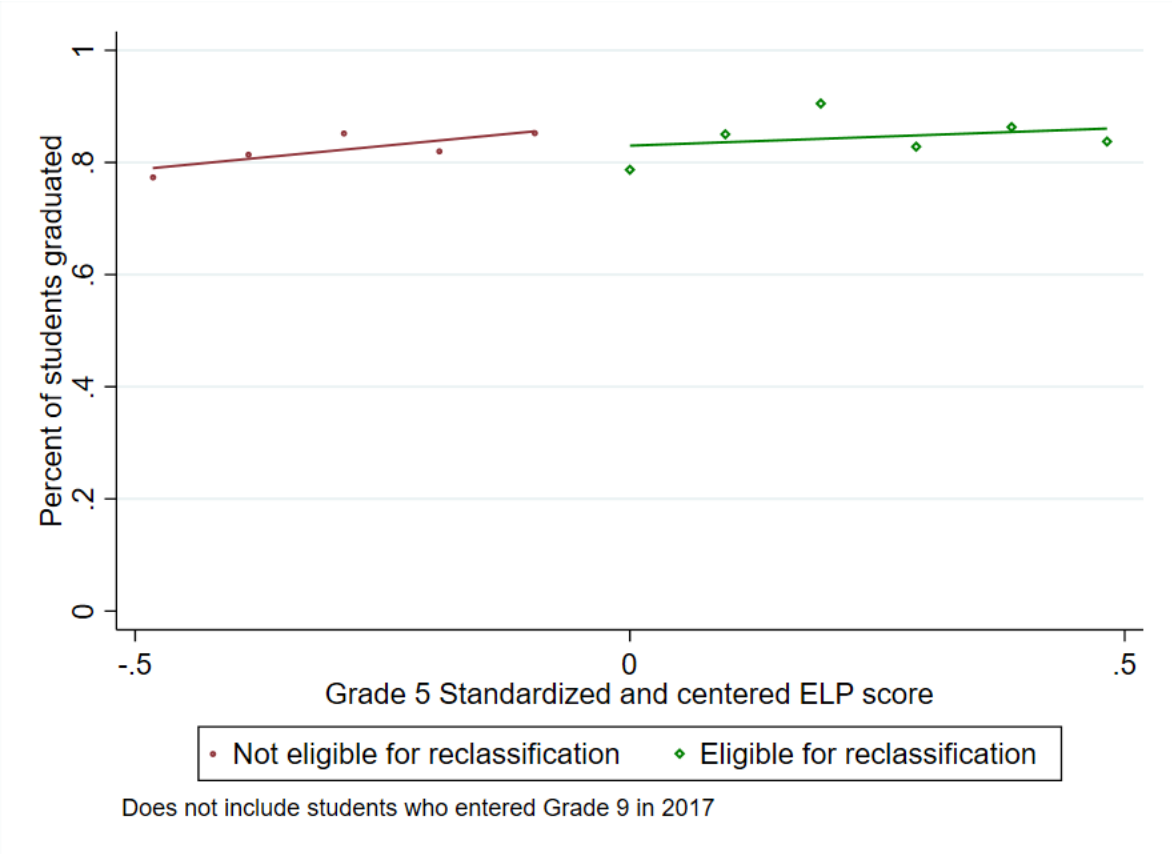

Figure 10A

Relationship Between 8th Grade Standardized ELP Score and High School Graduation

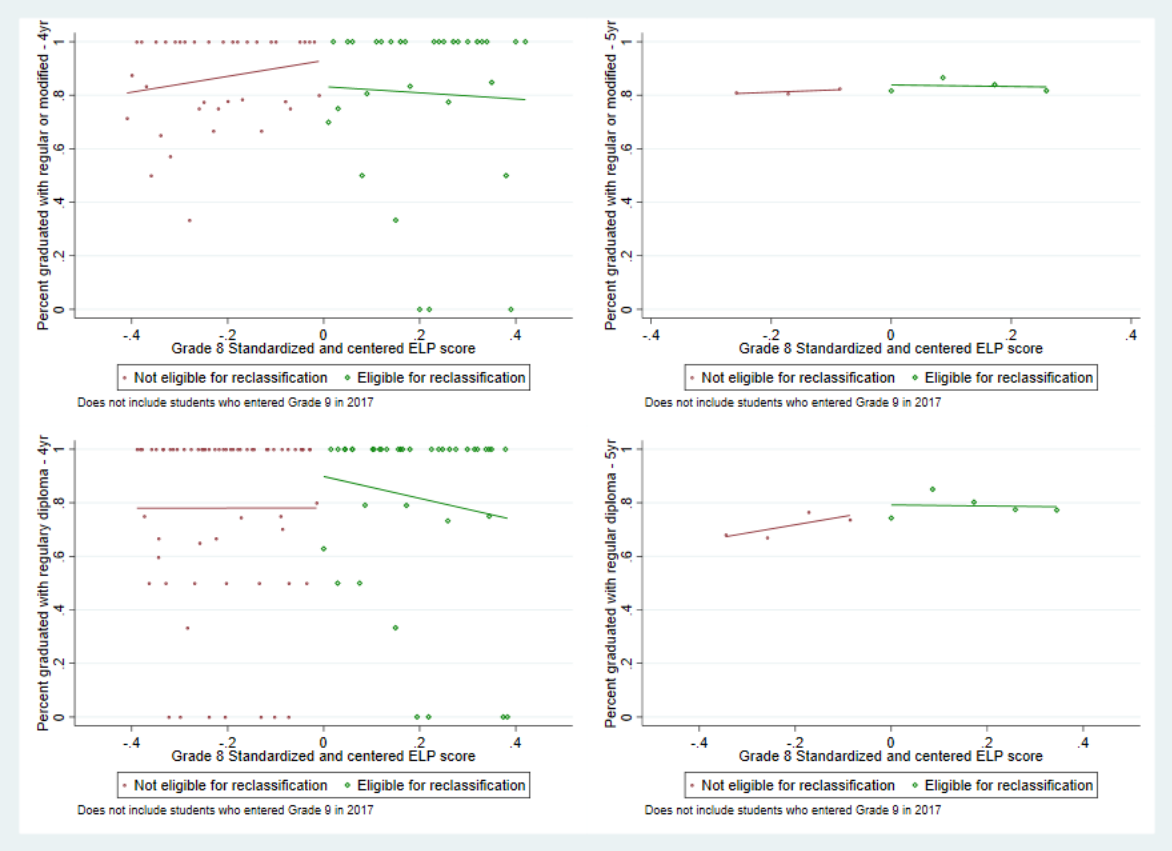

Table A5

Estimated Effect of Reclassification in Grade 5 on High School Graduation Across Different Bandwidth Specifications

	Panel A: Graduate In 4 years with regular or modified diploma			
	BW = .25	.75	1	1.25
2SLS – 1st stage	0.788*	0.723**	0.742**	0.753**
	(0.0689)	(0.0287)	(0.0242)	(0.0215)
2SLS – 2nd stage (Effect of reclassification)	-0.0935	-0.0558	-0.0436	-0.0339
	(0.0856)	(0.0464)	(0.0397)	(0.0361)
Covariates	Yes	Yes	Yes	Yes
Cohort FE	No	No	No	No
Binding Assessment FE	No	No	No	No
Total Observations	770	2081	2563	2790
Observations Left	356	1267	1658	1850
Observations Right	414	814	905	940
	Panel B: Graduate In 4 years with a regular			
	BW = .25	.75	.1	1.25
2SLS – 1st stage	0.788*	0.723**	0.742**	0.753**
	(0.0689)	(0.0287)	(0.0242)	(0.0215)
2SLS – 2nd stage (Effect of reclassification)	-0.135	-0.0583	-0.0519	-0.0530
	(0.0879)	(0.0475)	(0.0407)	(0.0371)
Covariates	Yes	Yes	Yes	Yes
Cohort FE	No	No	No	No
Binding Assessment FE	No	No	No	No
Total Observations	770	2081	2563	2790
Observations Left	356	1267	1658	1850
Observations Right	414	814	905	940

Note. Standard error in brackets. *** p<0.001, ** p<0.01, * p<0.0

Table A6

The Estimated Effect of Reclassification in Grade 8 on High School Graduation Across Various Bandwidth Specifications

	Panel A: Graduate In 4 years with regular or modified diploma					Panel B: Graduated with a standard diploma in 4 years				
	BW = .2	.6	.8	1	1.2	.2	.6	.8	1	1.2
2SLS – 1st stage	0.480***	0.491***	0.520***	0.548***	0.576***	0.480***	0.491***	0.520***	0.548***	0.576***
	0.0914	0.0430	0.0358	0.0310	0.0279	0.0914	0.0430	0.0358	0.0310	0.0279
2SLS – 2nd stage (Effect of reclassification)	**-0.0521**	**-0.0956**	**-0.0691**	**-0.0471**	**-0.0165**	**0.0263**	**-0.0744**	**-0.0553**	**-0.0438**	**-0.0264**
	(0.163)	**(0.0889)**	**(0.0743)**	**(0.0650)**	**(0.0582)**	**(0.172)**	**(0.0942)**	**(0.0784)**	**(0.0684)**	**(0.0612)**
Covariates	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cohort FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Binding Assessment FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Total Observations	550	1384	1853	2186	2474	550	1384	1853	2186	2474
Observations Left	260	875	1271	1578	1854	260	875	1271	1578	1854
Observations Right	290	509	582	608	620	290	509	582	608	620

	Panel C: Graduate In 5 years with regular or modified diploma					Panel D: Graduated with a standard diploma in 5 years				
	BW = .2	.6	.8	1	1.2	.2	.6	.8	1	1.2
2SLS – 1st stage	0.311	0.464	0.499	0.524	0.553	0.311	0.464	0.499	0.524	0.553
	0.106	0.0491	0.0405	0.0353	0.0319	0.106	0.0491	0.0405	0.0353	0.0319
2SLS – 2nd stage (Effect of reclassification)	**0.150**	**0.0418**	**0.0695**	**0.0878**	**0.0884**	**0.367**	**0.0800**	**0.0924**	**0.0911**	**0.0726**
	(0.281)	**(0.0977)**	**(0.0795)**	**(0.0697)**	**(0.0623)**	**(0.338)**	**(0.111)**	**(0.0893)**	**(0.0778)**	**(0.0693)**
Covariates	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cohort FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Binding Assessment FE	No	No	No	No	No	No	No	No	No	No
Total Observations	466	1102	1476	1659	1804	466	1102	1476	1659	1804
Observations Left	210	654	958	1122	1259	210	654	958	1122	1259
Observations Right	256	448	518	537	545	256	448	518	537	545

Note. Standard error in brackets. *** p<0.001, ** p<0.01, * p<0.05

Table A7

Estimated Effect of Reclassification in Grade 5 on High School Graduation Across Different Functional Forms

	Graduate In 4 years with regular or modified diploma		Graduated with a standard diploma in 4 years	
	No covariates	Quadratic functional form	No covariates	Quadratic functional form
2SLS – 1st stage	0.728**	0.728**	0.783**	0.783**
	(0.0384)	(0.0384)	(0.0731)	(0.0731)
2SLS – 2nd stage (Effect of reclassification)	-0.0741	-0.0822	-0.0539	-0.0838
	(0.0586)	(0.0602)	(0.0915)	(0.0935)
Covariates	No	Yes	No	Yes
Cohort FE	No	No	No	No
Binding Assessment FE	No	No	Yes	No
Total Observations	1617	1617	1617	1617
Observations Left	931	931	931	931
Observations Right	686	686	686	686

Note. Standard error in brackets. *** p<0.001, ** p<0.01, * p<0.05

Table A8

Estimated Effect of Reclassification in Grade 8 on High School Graduation Across Different Functional Forms

	Graduate In 4 years with regular or modified diploma		Graduated with a standard diploma in 4 years		Graduate In 5 years with regular or modified diploma		Graduated with a standard diploma in 5 years	
	No covariates	Quadratic functional form	No covariates	Quadratic functional form	No covariates	Quadratic	No covariates	Quadratic functional form
2SLS – 1st stage	0.459	0.517	0.458	0.509	0.387	0.100	0.399	0.0984
	0.0557	0.104	0.0537	0.101	0.0819	0.202	0.0791	0.202
2SLS – 2nd stage (Effect of reclassification)	**-0.229***	**-0.0146**	**-0.194**	**0.0461**	**-0.001**	**0.973**	**0.0152**	**3.034**
	(0.123)	**(0.167)**	**(0.129)**	**(0.175)**	**(0.181)**	**(2.547)**	**(0.197)**	**(6.455)**
Covariates	NO	Yes	NO	Yes	NO	Yes	NO	Yes
Cohort FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Binding Assessment FE	Yes	Yes	Yes	Yes	No	No	No	No
Total Observations	967	967	986	986	636	636	636	636
Observations Left	546	546	563	563	309	309	309	309
Observations Right	421	421	423	423	327	327	327	327

Note. Standard error in parenthesis. *** p<0.001, ** p<0.01, * p<0.05

Table A9

Estimated Effect of Reclassification in Grade 8 on High School Graduation Across Different Sample Specifications

	Graduate In 4 years with regular or modified diploma			Graduated with a standard diploma in 4 years			Graduate In 5 years with regular or modified diploma	Graduated with a standard diploma in 5 years
	ELPA	ELPA21	Long term	ELPA	ELPA21	Long term	Long term EL	Long term-EL
2SLS – 1st stage	0.401**	0.644**	0.455**	0.400**	0.639**	0.452**	0.350**	0.367**
	(0.0641)	(0.102)	(0.0641)	(0.0621)	(0.0989)	(0.0615)	(0.0940)	(0.0909)
2SLS – 2nd stage (Effect of reclassification)	-0.0978	-0.299	-0.248~	-0.0796	-0.287	-0.163	0.0428	0.0734
	(0.151)	(0.226)	(0.133)	(0.160)	(0.217)	(0.144)	(0.225)	(0.246)
Covariates	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cohort FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Binding Assessment FE	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Total Observations	803	164	700	803	183	713	464	464
Observations Left	431	115	401	431	132	414	230	230
Observations Right	372	49	299	372	51	299	234	234
Bandwidth	0.39	0.39	.39	0.42	0.42	0.42	0.29	0.31

Note. Standard errors in parenthesis. ** p<.01 *p<.05 ~p<.10

Table A10

Estimated Effect of Reclassification in Grade 8 on High school Graduation by Special Education Status

	Graduate In 4 years with regular or modified diploma		Graduated with a standard diploma in 4 years		Graduate In 5 years with regular or modified diploma		Graduated with a standard diploma in 5 years	
	In special education	Not in special education	In special education	Not in special education	In special education	Not in special education	In special education	Not in special education
2SLS – 1st stage	0.520**	0.425**	0.515**	0.425**				
	(0.0914)	(0.0695)	(0.0887)	(0.0667)				
2SLS – 2nd stage (Effect of reclassification)	**-0.0982**	**-0.104**	**0.0240**	**-0.0861**				
	(0.174)	**(0.147)**	**(0.203)**	**(0.146)**				
Covariates	Yes	Yes	Yes	Yes				
Cohort FE	Yes	Yes	Yes	Yes				
Binding Assessment FE	Yes	Yes	Yes	Yes				
Total Observations	308	659	312	674				
Observations Left	192	354	195	368				
Observations Right	116	305	117	306				

Note. Standard errors in parenthesis ** p<.01 *p<.05 ~p<.10

CHAPTER V. CONCLUSION

This three-article dissertation investigated the interplay between system choices in three policy areas – initial enrollment, service provision, and reclassification – and the high school outcomes of students classified as English learners (EL). The policy choices made by state education agencies (SEAs) and school districts in these areas have a direct and lasting impact on the opportunities and outcomes for multilingual learners (Umansky & Porter, 2020). The overarching objective of this dissertation was to deepen understanding of how choices in distinct EL policy areas can reshape the long-term trajectories of EL-classified students. This new knowledge is designed to provide policymakers and education leaders with the practical insights they need to make decisions that enhance the opportunities for EL-classified students. In this concluding chapter, I outlined the insights from each article and their potential to support future decision-making.

Strengthen Intake Procedures and Guidance for Newcomer Students

Chapter II analyzed the state statutes, regulations, and guidance from SEAs that support the transfer of credits for newcomer students upon their initial enrollment. The study's results revealed that very few states have specific education statutes or regulations requiring school districts to have procedures for transferring credits for new students, and very few SEAs provide comprehensive guidance to support the implementation of credit transfer procedures inclusive of newcomers. The absence of clear statutes, regulations, and guidance creates opportunities for states and districts to establish more standardized procedures in this area.

State legislatures and state boards of education can review existing statutes and regulations to identify ways to strengthen intake procedures for newcomer students. The study only identified ten states with explicit statutes or regulations requiring districts to review

newcomer students' prior schooling experiences to award credits. As such, many state boards of education and legislatures are in a position where they can strengthen their language to address this area. When updating their education code, legislatures can introduce new legislation that outlines this requirement or state boards of education can update existing regulations that already provides pathways for credit transfer for out-of-state students. State legislatures and state boards of education can review the education statutes and regulations from states identified in this study for examples of language that they can adopt. Education statutes or regulations targeted specifically on newcomer credit transfer can be a powerful lever that will have an immediate effect on districts to engage in this practice.

Strong language mandating districts to establish procedures for transferring credits for newcomer students should be accompanied by clear guidance supporting consistent procedures across states. Results from Chapter II identified only six SEAs that provided robust guidance to support the implementation of newcomer credit transfer procedures. This means that most SEAs will have to flesh out their guidance further so that districts have a uniform understanding of the components of credit transfer procedures for newcomer students. Districts do not uniformly award credits to secondary newcomer students for prior schooling experiences partly due to the lack of professional experience and clarity in this process (Porter, 2022, pp. 69-70). As such, new requirements will require clear guidance and resources. SEA leaders can use guidance from the six states to inform their guidance.

State and district education leaders can also develop new innovative tools. For example, community colleges and higher education institutions have developed articulation agreements to facilitate credit transfer with accompanying tools that easily demonstrate the equivalent of a community college course at the partner four-year university (Hodara et al., 2017; Assist, n.d).

State or districtwide tools that easily equate local courses to commonly observed international courses can facilitate and standardize this process.

This policy area has significant potential for further refinement. Ideally, states should have explicit legal language and robust guidance. At the time of the study, only one state—Rhode Island—had an explicit regulation requiring credit transfer for newcomer students and robust guidance from the SEA. Therefore, almost all states have growth opportunities. Additionally, this is an area where more research is needed. Future research can explore how districts define credit awarding decisions for newcomers, what implementation looks like in local settings, and how those decisions relate to secondary newcomer students' long-term outcomes.

Expand Bilingual Programming

Chapter III examined the causal effects of Portland Public Schools (PPS) dual language immersion (DLI) programs on high school outcomes. Prior causal literature that examined the effects of participating in DLI finds academic and linguistic benefits in elementary and middle school (Steele et al., 2017; Bibler, 2021; Morales, 2024). Results from this study found that the documented benefits of DLI programs in earlier grades extend to high school. Assignment to DLI in kindergarten increased the number of credits students earned, their graduation rates, and the rates at which they earned the Seal of Biliteracy. These results further cement the expansive literature that identifies the benefits of bilingual education, underscoring the need to expand bilingual programs (Porter et al., 2023).

District education leaders can utilize the findings from this study to further expand access to bilingual, establishing it as the primary program model for EL-classified students. In Oregon, the setting of this study, only about 23% of EL-classified students in elementary are enrolled in a bilingual program (Thompson & Umanksy, 2023). District leaders who already have established

programs can expand access by reviewing home language data to identify opportunity sites to establish new programs. Moreover, district leaders can also engage in informational campaigns to communicate the benefits of bilingual education to families to ensure a shared understanding of the goals and outcomes of bilingual programs.

State and federal leaders can help expand bilingual programming by improving data collection systems and addressing a significant hurdle: the shortage of multilingual teachers (Boyle et al., 2015). The federal Raise the Bar initiative aims to promote pathways to multilingualism. To track our progress, states and the federal government can establish new data collection procedures to gather comprehensive information on participation in bilingual programming. This data could be included in future Civil Rights Data collection efforts. To support the development of teachers, the federal government and states can allocate funding to grant programs that aim to increase the number of multilingual teachers' certifications to teach in DLI programs or to support Grow Your Own initiatives (Porter et al., 2023).

Improve Access to Grade Level Content and Closely Monitor Reclassified Students

Chapter IV examined the causal effect of reclassifying in 5^{th} and 8^{th} grade on high school graduation and the mediating role of course access. This study expanded the literature that examined the link between reclassification and high school graduation but focused on how access to courses influences downstream high school graduation completion. I found that reclassification in eighth grade increased access to English language arts. However, I did not find evidence that reclassification positively or negatively impacted high school graduation. Moreover, the mediation analysis did not find evidence that early course access mediates the impact of reclassification. This means that reclassification might impact short-term access to ELA. However, this impact may not play a role in influencing later high school graduation on

average, at least not for the group of students included in this study. Moreover, EL-classified students who reclassify are transitioning smoothly to learning environments without EL support. Despite the non-significant effects, there are still significant considerations for state and district leaders.

Reclassification from EL services did not have a conclusive impact on high school graduation, but there were still differences in access to courses and high school graduation. Students with lower levels of English proficiency, below the bandwidth selected for the current study, had much lower access to ELA and Algebra 1. They also had lower high school graduation rates. This is still a problem and requires that state and district leaders design effective support for students to access grade-level core content regardless of English proficiency. Access to grade-level content is a student's civil right.

The study found non-significant effects, which could be due to the substantial variation across districts. The wide confidence intervals in the study suggest that reclassification might have a positive effect in some places and a negative effect in others, as documented in prior literature (Robinson-Cimpian & Thompson, 2016). State and district leaders should improve data tracking and support services for recently reclassified students to address this variability and ensure a smooth transition for EL-classified students across districts. Despite the requirement for districts to monitor students, there is typically a lack of funds or resources to support monitoring and implement appropriate interventions. States can play a crucial role by providing funding, guidance, and support in this area.

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