Waived English Learners in Tennessee:
Exploration at the Intersection of Language and Special Education Status

By

Min Hyun Oh

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Approved:

Jeannette Mancilla-Martinez, Ed.D.

Gigi Luk, Ph.D.

Lynn Fuchs, Ph.D.

Marcia Barnes, Ph.D.

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INTRODUCTION

English Learner Population in the U.S.

The number of U.S. school-age English learners (ELs)—students in the process of English language development while learning grade-level content—is rapidly growing and currently exceeds 5 million (U.S. Department of Education, 2021). ELs, by definition, (1) come from homes where a language other than English is spoken and (2) are in the process of developing English proficiency. The EL population consists of students who vary widely in their proficiency in home language(s), English, and the types of language services they receive (August & Shanahan, 2006). rapidly-growing student group and their academic achievement. In fact, the education of ELs is no longer solely relevant to traditional EL-serving states (e.g., California, New York, Texas); it is also an increasingly relevant area of need in states experiencing an unprecedented growth of ELs, referred to as new destination states (Barrio, 2017; Johnson et al., 2018; McFarland et al., 2019; Park et al., 2018; Ruiz, 2020).

To identify students who are eligible for English language support services, states typically administer a home language survey (HLS) upon school entry as a first step. If a legal guardian indicates that the child uses a language other than English to communicate at home on the HLS, an English language proficiency (ELP) screener is administered to determine the child's eligibility for English language support services (ESSA, §3113(b)(2); U.S. Department of Education, 2017). Although the scope of questions in the HLS and regulations for HLS implementation vary across states, the HLS first identifies children from homes where a language other than or in addition to English is used (see Chapter 3 Introduction for specific topics covered in the Tennessee HLS; Bailey & Kelly, 2011; Salerno & Andrei, 2021). If the child does not pass a specified threshold on the ELP screener (for a summary assessments used in each state, see Villegas & Pompa, 2020), parents and caregivers are notified with: (1) available language support programs, (2) their right to waive English language support services, (3) their right to remove their child from EL services, and (4) English language service exit criteria (Every Student Succeeds Act, §1112(3)(A)). Under the federal requirements of the Every Student Succeeds Act (2015), all states are required to annually assess and monitor ELs' ELP—whether

or not parents have waived the services—until they demonstrate sufficient proficiency to be reclassified as English-proficient.

However, not much is known about ELs whose parents have waived English language services—commonly referred to as Waived ELs (e.g., Manning-Euell, 2020; Rhode Island Department of Education, 2019)—despite being identified eligible for additional English language support. Existing studies on ELs have typically focused on students eligible for English language services in general and do not disaggregate the EL group by whether ELs are actively receiving the services. However, research on ELs continues to caution that, even within the EL student population, there is vast heterogeneity in their language skills and sociodemographic backgrounds (Park et al., 2018). Hence, research on Waived ELs and specifically their academic achievement is urgently needed for more nuanced understanding of not only the EL student population as a whole, but also the extent to which the provision of English language support relates to ELs' academic achievement and outcomes.

Changing Student Demographics: ELs in New Destination States

While the EL population is by no means new in the U.S., certain areas of the country—commonly known as new destination states (e.g., Georgia, South Carolina, Tennessee, Virginia)—have been experiencing a rapid, unprecedented growth of ELs (McFarland et al., 2019; Park et al., 2018). Given that new destination states have not historically served ELs, schools and educators in these states are even more likely to be under-prepared to meet ELs' unique language and literacy needs and support their academic achievement. To effectively support ELs' academic achievement, schools and districts need the internal capacity (e.g., certified teachers, evidence-based EL programs) to provide appropriate services to their ELs. Unfortunately, many schools and districts nationwide continue to experience shortage of teachers qualified to work with ELs (Gándara et al., 2003; National Academies of Sciences, Engineering, and Medicine, 2017). Particularly in new destination states, we might expect that ELs have even less access to educators familiar with and prepared to meet their unique language and literacy needs. Along with the lack of empirical evidence on academic achievement of ELs in new destination states, this emerging educational context raises many questions about educational affordances for ELs.

Existing findings do offer insight into ELs' language and literacy skills (e.g., Mancilla-Martinez & Lesaux, 2017; Pearson et al., 1993), but we must be cautious in assuming that previous findings from traditional EL states (e.g., California, Texas, Florida) hold true for ELs in new destination states. Compared to ELs in traditionally EL-serving states, ELs in new destination states may be much less likely to receive bilingual instructional support (Gándara & Mordechay, 2017) or access necessary resources for their developing ELP (Potochnick, 2014). Consequently, there is a critical need to empirically understand not only academic trajectories of ELs, but also the extent to which English language support services relate to ELs' academic achievement and SPED designation.

Waiver of EL Services

When students are identified as ELs, their parents have the legal right to accept or decline (i.e., waive) EL support services (Office of English Language Acquisition, 2020). Under the federal guidelines (ESSA, §1112(3), 2015), local education agencies are required to notify parents of their right to waive EL services. Although research on ELs has substantially grown in the past decade, empirical work documenting Waived ELs' education is relatively limited (for exceptions, see Flores et al., 2012; Flores & Drake, 2014; Flores & Park, 2011; Kipchumba, 2017; Mavrogordato & Harris, 2017). Language development is a gradual process that requires sustained support (Pearson et al., 2020); hence, exploring Waived ELs' academic trajectories can provide preliminary insight into the implications of receiving or not receiving English language development services. Given the significant growth of not only ELs in general but also those who are waiving EL services in Tennessee (i.e., 146% increase from 2010-2011 to 2020-2021 school years), research focused on ELs' academic outcomes by their English language service waiver status is warranted.

An Overview of the Waived ELs and Current ELs in Tennessee

In this Introduction, I present the yearly average descriptive characteristics by English language service waiver status between academic years 2010-2011 and 2020-2021, based on annual Tennessee state-level datasets made available through a partnership with the Tennessee Education Research Alliance (TERA). For this yearly descriptive overview, I categorized students into two groups based on the English language background indicator: "W"

or “WAI” for Waived ELs and “L” or “ESL” for Current ELs. Across the 11-year span between 2010-2011 and 2020-2021, on average, there were 1,565 Waived ELs (*SD* = 290) and 42,465 Current ELs (*SD* = 8,253) in Tennessee public schools in each school year. Additionally, Waived ELs and Current ELs comprised approximately 3.6% and 96.4% of the total EL student population on average, respectively.

Sociodemographic Information

Table 1 displays the average student-level characteristics by English language service waiver status. The following student-level sociodemographic information are included: gender (1 = female, 0 = male), race/ethnicity, immigrant status (1 = U.S.-born, 0 = immigrant), household income status (i.e., proxied by free-or-reduced lunch eligibility status or economically-disadvantaged status in each academic year; 1 = lower socioeconomic status (SES), 0 = higher SES), and grade level (kindergarten to grade 12).

Table 1. Yearly Average of Student Characteristics by Waiver Status

	Waived EL			Current EL		
Variable	n	*SD*	%	n	*SD*	%
Gender						
Female	640	119	41.4	18,841	3,685	45.3
Race/Ethnicity			0.0			0.0
Asian	172	29	11.2	3,652	294	9.0
Black	128	36	8.1	2,219	343	5.4
Hispanic	921	198	59.3	30,530	7,937	72.5
Native American	10	3	0.7	128	35	0.3
Pacific Islander	6	2	0.4	146	30	0.3
White	308	70	20.1	4,981	630	12.3
Immigrant Status						
U.S.-born	1,273	237	82.3	28,291	3,599	68.9
Household Income						
Lower SES	900	282	59.9	27,074	5,626	68.6
Grade Level						
Primary						
Kindergarten	168	80	11.4	6,249	543	15.8
1	173	61	11.3	6,026	486	14.9
2	155	49	10.0	5,380	999	13.0
Elementary						
3	135	57	8.6	4,630	1,328	11.0
4	121	40	7.8	3,801	1,040	9.0
5	105	22	6.9	2,848	702	6.8
Middle						
6	94	16	6.2	2,172	704	5.1
7	96	12	6.4	2,093	737	4.9
8	99	25	6.4	1,936	762	4.5
High						
9	107	36	6.7	2,459	966	5.7
10	94	36	5.9	1,808	888	4.1
11	88	42	5.5	1,281	693	2.9
12	110	52	6.8	965	475	2.2

Note. Values are averaged across the 2010-2011 and 2020-2021 academic years. EL = English learner. SES = Socioeconomic status.

For both Waived ELs and Current ELs, on average, slightly over 40% of students were female and predominantly Hispanic (i.e., 59.3% and 72.5% for Waived ELs and Current ELs, respectively). Descriptively, there seems to be a slight difference, albeit descriptive, in the racial and ethnic representation within Waived ELs and Current ELs. Although Hispanic students were the majority in both groups, White and Asian ELs—over 20% and 10% respectively—made up a noteworthy proportion of the Waived EL group, compared to the Current EL group. Additionally, while more than half of Waived ELs and Current ELs are U.S.-born (i.e., 82.3% and

68.9% respectively), we see that a larger proportion of Waived ELs tend to be born in the U.S. In terms of household income, on average, over half of Waived ELs and Current ELs were from lower-SES backgrounds, with a higher proportion of low-SES backgrounds among Current ELs. Lastly, both Waived ELs and Current ELs tend to be clustered in the early primary grades (i.e., highest percentages of Waived EL and Current EL classification between kindergarten and second grade) with lower representation in the later grades.

Home Languages

Table 2 displays the top 10 most common home languages among Waived ELs and Current ELs in Tennessee across 2010-2011 and 2020-2021 academic years (i.e., the number of students for each home language is averaged across the 11-year span). As suggested by the high average percentage of Hispanic students for both Waived ELs and Current ELs in Table 1, we see in Table 2 that Spanish and Arabic are the two most common language spoken by the two EL subgroups. This is also in line with the national profile of ELs, where approximately 75% and 3% of all ELs in the U.S. speak Spanish or Arabic at home (Office of English Language Acquisition, 2020). Additionally, common home languages slightly varied by English language service waiver status. While both groups shared some home languages (i.e., Kurdish, Somali, Vietnamese, Chinese, Gujarati), the Waived ELs also included home languages that were not prevalent among Current ELs (i.e., Russian, Korean, German). Likewise, the most common home languages among Current ELs included Japanese and Burmese, which were not in the top 10 common home languages for Waived ELs.

While this descriptive overview of home languages displays the top 10 most-common home languages, it is important to acknowledge that it ranges over a 11-year span. As a new destination state, Tennessee has experienced significant changes in its immigrant population, where the immigrant population grew by 134.9% since 2000 to 2019 (Migration Policy Institute, 2022). As such, Table 2 shows that certain home languages show particularly high standard deviations, such as Spanish, Arabic, Chinese, and Swahili.

Table 2. Top 10 Most Common Home Languages by Waiver Status

Waived EL				Current EL			
Home Language	n	*SD*	%	**Home Language**	n	*SD*	%
Spanish	1,013	196	65.5	Spanish	33,097	7,459	77.0
Arabic	125	31	8.2	Arabic	2,780	494	6.5
Kurdish	43	14	3.0	Somali	469	56	1.2
Somali	33	9	2.0	Vietnamese	469	33	1.2
Vietnamese	27	5	1.7	Chinese	463	113	1.2
Chinese	24	5	1.5	Kurdish	413	49	1.0
Gujarati	20	6	1.3	Swahili	387	271	0.8
Russian	19	4	1.3	Gujarati	283	40	0.7
Korean	18	5	1.2	Japanese	252	31	0.6
German	17	7	1.2	Burmese	250	55	0.6

Note. Values are averaged across the 2010-2011 and 2020-2021 academic years. EL = English learner.

Special Education Status

Nationwide, ELs make up over 10.4% of the U.S. public school student population (National Center for Education Statistics, 2022) and 11.8% of students with disabilities (Office of Special Education Programs, 2022). ELs with disabilities have received growing attention in the recent years with the new Every Student Succeeds Act (ESSA; 2015) requirements for states to disaggregate accountability metrics for ELs with disabilities (i.e., in SPED services; 20 U.S.C. § 3121). Given the relatively new focus on the intersection of EL status and SPED status, research in new destination states, like Tennessee, is limited (for exception, see Mancilla-Martinez, Oh, Luk, & Rollins, 2022). Therefore, I describe the average distribution of Waived ELs and Current ELs in SPED services, by overall SPED (i.e., a student is identified for any disability category) and specific disability category recorded in Tennessee in Table 3. To note, disability categories with low representation of Waived ELs and Current ELs (i.e., less than 0.5%) are placed under the "Other categories" section.

Table 3. Average Distribution of Waived ELs and Current ELs in Overall SPED and by Specific Disability Category

	Waived ELs			Current ELs		
Characteristic	**n**	***SD***	**%**	**n**	***SD***	**%**
Overall SPED	422	105	22.0	5,204	1,134	11.9
Specific Learning Disability	170	31	11.0	1,983	402	4.8
Speech-Language Impairment	122	21	7.9	2,227	432	5.3
Intellectual Disability	54	25	3.3	319	104	0.8
Other Health Impairment	33	17	2.0	322	161	0.7
Autism	47	24	2.9	269	156	0.6
Developmental Delay	30	10	1.9	560	147	1.3
Other Categories						
Intellectually Gifted	1	1	0.1	16	9	0.0
Emotional Disturbance	8	3	0.5	44	28	0.1
Orthopedic Impairments	7	3	0.5	31	7	0.1
Deafness	2	1	0.1	10	5	0.0
Hearing Impairments	6	3	0.4	80	14	0.2
Blind	0	0	0.0	7	4	0.0
Visual Impairments	3	1	0.2	30	5	0.1
Deaf-Blindness	0	0	0.0	1	0	0.0
Multiple Disabilities	8	5	0.5	35	4	0.1
Functional Delay	16	6	1.0	159	36	0.4
Traumatic Brain Injury	1	1	0.1	12	4	0.0

Note. Values are averaged across the 2010-2011 and 2020-2021 academic years. EL = English learner. % = Percent of students identified with corresponding disability category by EL subgroup. SPED = Special education. Overall SPED = Identified with any disability category. Other categories = Disability categories that included equal to or less than 0.5% of each EL subgroup.

Table 3 shows that on average—from 2010-2011 to 2020-2021—Waived ELs generally show higher representation in overall SPED and by disability types compared to Current ELs. Most notably, approximately one out of five Waived ELs is identified as a student with disabilities (indicated by 22.0% for overall SPED), compared to 1 out of 10 Current ELs (indicated by 11.9% for overall SPED). To a lesser degree, Waived ELs also showed higher representation in other disability categories (i.e., specific learning disability, speech-language impairment, intellectual disability, other health impairment, autism, and developmental delay). Given that Waived ELs consist of much fewer students compared to Current ELs, the distinguishable difference in the percent—albeit descriptive—warrants further examination. In fact, I explore this intersection of EL and SPED status more closely in Chapter 1 using a longitudinal sample of Waived ELs and Current ELs.

Representation by District Locale

Finally, I present the average number of Waived ELs and Current ELs by district locale (i.e., city, suburban, town, rural) in Table 4, given emerging research findings that suggest differential access to resources for effective EL teaching and learning by district locale (e.g., Barrio, 2016; Coady, 2020; Hill & Flynn, 2004; Umansky et al., 2018). To note, district locale information is not directly available in the state-level database via TERA. To retrieve this information, I extracted district identification numbers from the state-assigned school identifier values (variable "sch_id"), which consist of a three-digit district identification number and a four-digit school identification number.

After extracting the district numbers, I used the Common Core of Data system to find matching National Center for Education Statistics (NCES) identification numbers (https://nces.ed.gov/ccd/districtsearch/) and retrieve district locale information, then merged this information into the main dataset. To note, the NCES classifies locales into four categories (i.e., city, suburban, town, and rural), which are then divided into three subcategories for each district based on population and proximity to an urbanized area (for summary, see NCES, 2021). Given the relatively small size of Waived ELs, I present the distribution of Waived ELs and Current ELs by four major locale classifications (i.e., city, suburb, town, rural), instead of the full 12 locale classifications. According to the NCES, "city" refers to a territory inside an urbanized area and inside a principal city; "suburban" refers to a territory outside a principal city and inside an urbanized area; "town" refers to a territory inside an urban cluster; and "rural" refers to a census-defined rural territory (for specific distance for locale boundaries, see NCES, 2021).

Table 4. Yearly Average Number of Waived ELs and Current ELs by District Locale

	Waived EL			Current EL		
District Locale	n	*SD*	%	n	*SD*	%
City	963	223	61.3	27,429	5,091	65.9
Suburb	275	44	18.2	6,742	2,158	15.8
Town	102	15	7.0	3,077	344	7.5
Rural	208	55	13.4	4,497	1,008	10.7

Note. Values are averaged across the 2010-2011 and 2020-2021 academic years.
% = Average percentage within the total EL population in each year. EL = English learner.

Across the four main locale classifications, Waived ELs and Current ELs were similarly distributed across the district locales. As shown in Table 2, over 60% of both Waived ELs and

Current ELs were in city school districts, followed by suburb districts, rural districts, and town districts (for yearly count of Waived ELs and Current ELs by district locale, see Figures A1 and A2 in Appendix A). This pattern mostly aligns with national trends and reports, where public schools in more urbanized locales tend to have higher percentages of ELs (NCES, 2022): city (14.8%), suburban (10.0%), town (7.0%), and rural (4.4%). However, we do see that schools in rural districts have experienced noticeable changes in their EL population—both Waived ELs and Current ELs)—as indicated by the standard deviation of 55 and 1,008, respectively. Figures A1 and A2 in Appendix A also confirm the steady growth of ELs in rural school districts, suggesting that research anchored on ELs' educational outcomes is relevant to all parts of the state and not solely to urbanized school districts with the largest EL populations.

PAPER 1

WAIVED ENGLISH LEARNERS IN TENNESSEE: AT THE INTERSECTION OF ENGLISH LEARNER STATUS AND SPECIAL EDUCATION STATUS

INTRODUCTION

Understudied Intersection of EL and SPED Status

As one of the fastest growing student populations in the U.S., ELs constitute 12% of students with disabilities as of school year 2021-2022, up from 9% in 2012-2013 (Office of Special Education Programs, 2022). Although the intersection of EL and SPED status remains under-researched, studies continue to underscore the complexity and importance of accurate identification of ELs for SPED services (e.g., Artiles & Ortiz, 2002; Fletcher & Navarrette, 2003; Mancilla-Martinez et al., in press; Sullivan, 2011; Yamasaki & Luk, 2018). Of the 13 federally recognized SPED disability categories (IDEA, § 300.8(c)), ELs tend to be most represented in two language-based disability categories: specific learning disabilities (SLD; includes conditions such as reading difficulties and dyslexia (IDEA, § 300.8(c)(10)) and speech-language impairment (SLI; includes conditions such as a communication disorder (IDEA, § 300.8(c)(11)). SLD and SLI are relevant to students' reading achievement (Gilmour et al., 2018) and, unsurprisingly, SLD and SLI are two most common disability categories among ELs (Office of English Language Acquisition, 2020).

Relatedly, detangling language *difference* (i.e., language development patterns that differ from those of English monolinguals but expected in bilingually developing children) from language *disabilities* (i.e., special needs that require clinical, explicit, and systematic support) remains a complex task for educators and educational researchers (Stutzman & Lowenhaupt, 2020). In fact, identification of ELs for SPED services is a highly contentious topic, with disproportionality reported across disability types, grades, and locations (e.g., Artiles & Ortiz, 2002; Sullivan, 2011; Sullivan & Bal, 2013; Yamasaki & Luk, 2018). Some studies report over-representation (e.g. Sullivan, 2011), under-representation (e.g., Artiles et al., 2005; Morgan et al., 2012, 2015, 2017), and even a shift from underrepresentation in the primary grades to overrepresentation in the upper elementary and secondary grades (e.g., Hibel & Jasper, 2012;

Samson & Lesaux, 2009; Umansky et al., 2017). Therefore, persistent findings on disproportionality in SPED placement of ELs—one of the fast-growing and vulnerable student groups in the U.S. (National Center for Education Statistics, 2020)—signal an issue of educational equity for this student population (Linn & Hemmer, 2011; Skiba et al., 2008).

Until recently, studies on ELs' representation in SPED have mostly relied on cross-sectional analyses (e.g., Artiles et al., 2005; Mancilla-Martinez et al., 2022; Morgan et al., 2015; Samson & Lesaux, 2008), and longitudinal evidence on the timing and likelihood of SPED placement has been limited (for exceptions, see Umansky et al., 2017; Linn & Hemmer, 2011). To be clear, both cross-sectional and longitudinal insight are equally important to inform efforts to make appropriate identification and placement decisions for ELs. However, as the EL population continues to grow and increasingly become a substantial part of the U.S. student population, longitudinal exploration of their representation in SPED services (e.g., timing and likelihood of SPED identification, factors that predict ELs' SPED placement)—specially for SLD and SLI that tend to be most prevalent among ELs—will help inform ongoing efforts to better assess, identify, and support ELs dually-identified with disabilities.

Competing Needs: EL Services and SPED Services

Research at the intersection of EL status and SPED status suggest that the two programs are often perceived to be competing needs, where SPED services tend to be prioritized over English language support services (Kangas, 2014, 2018; Schissel & Kangas, 2018). In fact, studies have documented that the double demands of serving dually-identified students often lead to SPED services becoming prioritized over English language support services (e.g., Kangas, 2014; Stutzman & Lowenhaupt, 2020), partially due to the lack of accountability in EL education compared to SPED services (e.g., lack of legal documents equivalent to an Individualized Educational Plan (IEP) that places legal accountability) that portray English language support services as a more quasi-legal, negotiable service (Kangas, 2014, 2018). Most recently, in a study on teacher and administrator perceptions of ELs with disabilities, Stutzman and Lowenhaupt (2020) documented that students' SPED needs were prioritized over English language support services due to the "unspoken hierarchy" (p. 11) of services in which SPED services took precedence. However, by federal law, dually-identified students are entitled to

English language support services *and* SPED services (U.S. Department of Education, 2015), and researchers have continued to push the importance of dispelling the misconception that SPED and EL support services are mutually exclusive or that SPED services matter more than English language programs (Carnock & Silva, 2019; Lopes-Murphy, 2020). Therefore, based on the emerging evidence pointing to a hierarchy of educational services among ELs with disabilities (Kangas, 2018; Schissel & Kangas, 2018; Stutzman & Lowenhaupt, 2020), I hypothesize that Waived ELs (i.e., ELs whose parents opted them out of English language support services) may show higher likelihoods of being placed in SPED services compared to their Current EL peers.

CURRENT STUDY

A long line of research has attended to ELs' educational outcomes in the U.S. (e.g., Callahan, 2005; Gándara et al., 2003; Hakuta et al., 2000; Mancilla-Martinez, 2020). However, few studies to date have examined the academic outcomes of ELs in new destination states (e.g., Gándara & Mordechay, 2017; Gibney & Henry, 2020; Hwang et al., 2020; Mancilla-Martinez et al., in press, 2020, 2021; McFarland et al., 2019; Oh & Mancilla-Martinez, 2021a, 2021b; Park et al., 2018), where schools are experiencing unprecedented growth of ELs in their classrooms. Hence, this study focuses on ELs in Tennessee, where the overall EL population grew by 45% (Tennessee Department of Education, 2018) and the Waived EL population grew by 145% in the past 10 years. Waived ELs are emerging as a fast-growing EL subgroup in Tennessee since the 2010-2011 academic year; however, to my knowledge, Waived ELs' SPED representation have not been studied the field. This is the first study to longitudinally explore the likelihood and timing of SPED placement by ELs' waiver status. With ELs' increasing representation across the U.S., the findings from this study will contribute to a more nuanced understanding of ELs in SPED services and whether English language support service waiver relates to ELs' SPED representation.

In this paper, I investigate whether and to what extent ELs' English language support service waiver status ("waiver status") relates to their SPED representation. To examine the intersection of waiver status and SPED status, I use discrete-time hazard modeling to estimate longitudinal trends of ELs' placement in SPED services broadly and more specifically in SLD and SLI (i.e., language-based disability categories known to be most prevalent among ELs). In doing

so, I account for student-level covariates that have been hypothesized in the literature to contribute to SPED placement (see Method) and explore to what extent, if any, the likelihood of SPED placement—beyond waiver status—is accounted for by student-level characteristics. To address the growing, yet limited research at the intersection of EL and SPED status, I ask: How does the likelihood and timing of placement into overall SPED, SLD, and SLI differ between Current ELs and Waived ELs, accounting for student-level covariates?

METHOD

Data

Given that the option to waive English language support services was first introduced in the 2010-2011 academic year, the analytic sample for this study includes student-level data from 2010-2011 to 2020-2021. Specifically, the sample only includes students who entered the Tennessee public school system as kindergartners between 2010-2011 and 2020-2021. The longitudinal dataset for this study has been organized using an intact-cohort analysis approach similar to previous longitudinal EL studies (e.g., Clotfelter et al., 2009; Flores & Drake, 2014), where the dataset only includes students who enter the Tennessee school system in kindergarten and stay in the system until eighth grade (i.e., "intact" sample of students who have data from all 9 timepoints from kindergarten to eighth grade). This approach to organizing a longitudinal dataset provides a focused sample with a maximum number of datapoints for the groups of interest. This is particularly helpful for studying Waived ELs, given that the Waived EL population starts small since its introduction in 2010-2011 but gradually increases over time.

Within each cohort, students were categorized into two categories of waiver status: (1) ever-Waived ELs or (2) never-Waived ELs. Ever-Waived ELs include ELs who ever waived English language support services, whether consistently until reaching English proficiency or even for one school year between kindergarten and eighth grade. Never-waived ELs include ELs who never waived English language support services and received direct English language support services (i.e., ELs who were *only* Current ELs). As shown in Table 5, after categorizing the sample into either the ever-Waived EL group or the never-Waived EL group, I combined three cohorts of students who remained in the Tennessee school system between kindergarten and eighth grade

(i.e., those who started kindergarten in 2010, 2011, and 2012) to maximize sample sizes for each subgroup.

Table 5. Kindergarten Entrants by Waiver Status

	Ever-Waived EL			Never-Waived EL		
Academic Year	C1	C2	C3	C1	C2	C3
2010-2011	K			K		
2011-2012	1	K		1	K	
2012-2013	2	1	K	2	1	K
2013-2014	3	2	1	3	2	1
2014-2015	4	3	2	4	3	2
2015-2016	5	4	3	5	4	3
2016-2017	6	5	4	6	5	4
2017-2018	7	6	5	7	6	5
2018-2019	8	7	6	8	7	6
2019-2020		8	7		8	7
2020-2021			8			8

Note. Ever-Waived EL = An EL whose parents waived English language services for at least one academic year. Never-Waived EL = An EL who never waived English language services. C1/2/3 = Cohort1/2/3. Cohorts 1, 2, and 3 were combined to create one analytical sample.

The focus on ELs' status as "ever" waived status expands the growing focus in the literature on the Ever-EL framework (e.g., Hamilton et al., 2020; Linquanti et al., 2016; Umansky et al., 2017), which recognizes that ELs are a dynamic group of students who enter and leave English language support services at different timepoints. Given that this dynamic nature of the EL population may lead to misleading conclusions when comparing them to their peers especially in longitudinal studies (Thompson, 2017; Umansky & Reardon, 2014), the Ever-EL framework organizes all ELs (e.g., those who used to receive language services, those actively receiving language services) in the same group. Under the Ever-EL framework, the ever-ELs are compared to their never-EL peers (i.e., students who come from non-English language backgrounds but did not qualify for English language support services). Preliminary review of the ELs' waiver status showed that like EL status, waiver status was also a dynamic variable, where a substantial proportion of ELs switched between waiving and receiving English language support services. In fact, the Tennessee State Board of Education clearly states that parents have the legal right to waive direct English language support services at any time during the

school year (Tennessee State Board of Education, 2021). Therefore, I use the Ever-Waived framework to examine the Waived EL population, to explore how the timing and likelihood of SPED, SLD, and SLI identification relate to whether ELs ever waived English language support services at any point between kindergarten and eighth grade.

After applying the organizational method shown in Table 5, the analytic sample for this study includes 14,612 students who entered the Tennessee public school system as kindergarteners and stayed until the end of eight grade. By language status, the dataset includes 946 ever-Waived ELs and 13,666 never-Waived ELs. Each of the 14,612 students have data from 9 timepoints, resulting in 131,508 observations in total.

Variables

The following student-level covariates were included: female, Hispanic, lower socioeconomic status (SES), and chronic absenteeism. Students' gender was included (1 = female, 0 = male), given research that report gender to be associated with SPED identification rates (e.g., Coutinho et al., 2002; Coutinho & Oswald, 2005). Additionally, ELs' Hispanic status was used to indicate their racial and ethnic status (1 = Hispanic, 0 = non-Hispanic). I selected Hispanic status given that ELs predominantly come from Spanish-speaking homes (i.e., 28% of the U.S. student population and 13% of the Tennessee student population; National Center for Education Statistics, 2022). The non-Hispanic group in the sample include the following racial and ethnic groups: Asian, Black, Native American/Alaskan Native, Native Hawaiian/Pacific Islander, and White. Furthermore, students' household socioeconomic status (SES) was included, based on their eligibility for free or reduced-price lunch (1 = eligible, 0 = not eligible) for academic years 2010-2017 and economically-disadvantaged status for 2017-2021 (1 = economically-disadvantaged, 0 = not economically-disadvantaged). To note, household SES indicator changed in 2017 from free or reduced-price lunch eligibility to economically-disadvantaged status, where Tennessean students were automatically classified as economically-disadvantaged based on their participation in public nutrition assistance programs, instead of self-reports of household income (TDOE, 2021). Lastly, students' chronic absenteeism status was included (1 = chronic absenteeism, 0 = no chronic absenteeism), as defined by the TDOE (i.e., missing more than 10% of instructional days in each school year).

Chronic absenteeism was selected given its importance during SPED identification processes (e.g., for SLD; Sprick et al., 2020) and that higher attendance (i.e., 0 = no chronic absenteeism) relates to lower likelihoods of SPED identification (Sullivan & Bal, 2013).

Discrete-Time Hazard Analysis

I will investigate the likelihood and timing of SPED designation between ever-Waived ELs and never-Waived ELs over time using discrete-time hazard analysis (Singer & Willett, 2006). In doing so, the never-Waived ELs (i.e., ELs who never waived English language support services) are used as a reference group, to examine the extent to which waiving English language support services accounts for ELs' SPED placement timing and likelihood. Discrete-time hazard models are useful for answering longitudinal questions about whether and when an event (i.e., SPED placement) occurs across a period of discrete timepoints (i.e., grade levels). Further, discrete-time hazard models allow researchers to examine the probability of event occurrence over time without making assumptions about students who were "censored," meaning students who never experienced the outcome of interest (i.e., ELs who were never identified for SPED until eighth grade). In the current analytic sample, censoring occurs when ELs never receive SPED services during the observed period (kindergarten to eighth grade).

The visual representation of the discrete-time hazard modeling results will be presented as hazard functions and cumulative hazard functions, which are the two common methods for describing hazard analysis findings. The hazard function represents the likelihood that a student will be placed into SPED services at a particular grade level, given that the student has not already received SPED services. In other words, hazard functions present the timing at which students, by language status, are most at-risk for SPED placement. The *cumulative* hazard functions—or commonly referred to as cumulative probabilities—slightly differ from hazard functions, in that these plots show the cumulative likelihood of SPED placement up to a certain time point.

In the discrete-time hazard models for this study, the start time of the analysis is kindergarten year, which corresponds to ELs' first year in Tennessee public schools. To note, the dataset for this study is nested, where time points are nested within each student (i.e., 9 timepoints per student), and students are nested within their schools. As such, the discrete-

time hazard models also include school fixed effects to adjust for systematic differences between students across different schools. This decision was made to achieve the main goal of this paper: to explore the extent to which waiver status—adjusting for student-level factors found to be predictive of SPED identification rates—explains any differences in ELs' representation in overall SPED, SLD, and SLI in Tennessee.

RESULTS

Table 6 presents an overview of mean descriptive characteristics by waiver status. On average (2010-2011 to 2020-2021), there were no distinguishable differences in the proportion of female students and students with chronic absenteeism (attendance rates less than 90%). In general, female students made up half of the sample, and on average, 5% of all ELs showed chronic absenteeism, with slight variations by waiver status. In contrast, students' household SES and Hispanic status showed noticeable differences by waiver status. Overall, 75% of the total EL sample came from lower SES backgrounds, with the never-Waived EL showing a similar proportion (73%). However, ever-Waived ELs (59%) included a smaller portion of lower-SES backgrounds. Similarly, Hispanic background was the predominant background among total EL sample (81%) and never-Waived ELs (82%), but ever-Waived ELs showed a slightly lower percentage of Hispanic students (65%).

Table 6. Key Demographic Characteristics by Waiver Status

	Total (N = 14,612)	Ever-Waived EL (*n* = 946)	Never-Waived EL (*n* = 13,666)
Variable	%	%	%
Female	48.09	45.56	48.27
Hispanic	80.87	65.12	81.96
Lower SES	75.12	58.47	72.46
Chronic Absenteeism	5.36	6.47	4.90

Note. EL = English learner. SES = Socioeconomic status. Values for time-varying variables, lower SES and chronic absenteeism, are averaged between 2010-2011 and 2020-2021.

Likelihood and Timing of Special Education Placement by Waiver Status

In this section, I present the discrete-time hazard analysis results on the likelihood and timing of overall SPED placement, followed by results for SLD and SLI disability categories. As a reminder, the overall SPED placement likelihood reflects the likelihood of a group's (e.g., ever-

Waived EL, never-Waived EL) placement into any of the SPED disability categories recorded in the Tennessee database (e.g., SLD, SLI, autism, developmental delay, emotional disturbance).

Overall SPED Status

Table 7 presents the frequencies and percentages of ELs placed into SPED services at each grade level. The "Beginning Total" column shows the number of students at the beginning of each grade level ("Beginning Total" column), and the "Received SPED Status" column indicates the number of students who received SPED status at that grade level. The percentages in parentheses under the "Received SPED Status" column show the percentage of students who received SPED status for the first time in each grade level. As a reminder, no student was censored until reaching eighth grade (i.e., indicated by consecutive zeros under "Censored" column until eighth grade) because the dataset only includes students who stayed in the Tennessee public school system from kindergarten entry to eighth grade. Table 7 shows that the majority of SPED placement occurred in kindergarten (11.3% for ever-Waived ELs and 8.8% for never-Waived ELs), indicating that students either enter the Tennessee public school system with already-known SPED needs or become identified with SPED needs in the first year of their schooling. As shown under the "Censored" column, approximately 75.6% of Ever-Waived ELs (715 out of 946 ever-Waived ELs) and 80.5% of never-Waived ELs (11,000 out of 13,666 never-Waived ELs) did not receive SPED status by eighth grade.

Table 7. Distribution of SPED Placement Occurrences by Waiver Status

	Ever-Waived ELs			Never-Waived ELs		
Grade	Beginning Total	Received SPED Status	Censored	Beginning Total	Received SPED Status	Censored
K	946	107 (11.3%)	0	13,666	1,197 (8.8%)	0
1	839	26 (3.1%)	0	12,920	312 (2.4%)	0
2	813	31 (3.8%)	0	12,608	292 (2.3%)	0
3	782	19 (2.4%)	0	12,316	344 (2.8%)	0
4	763	27 (3.5%)	0	11,972	253 (2.1%)	0
5	736	13 (1.8%)	0	11,719	157 (1.3%)	0
6	723	5 (0.7%)	0	11,562	46 (0.4%)	0
7	718	1 (0.1%)	0	11,516	40 (0.3%)	0
8	717	2 (0.3%)	715	11,476	25 (0.2%)	11,000

Note. EL = English learner. K = Kindergarten. Grade indicates the year in which a student received SPED status. Percentage of students placed in SPED services in each grade are in parentheses. In this analytical sample, Waived ELs and Current ELs are censored when they do not receive SPED status until the end of eighth grade.

Table 8 reports the regression coefficients for the relations among student-level factors and likelihood of SPED placement. For ease of interpretation, the estimates are presented as odds ratios (ORs). An OR of 1.0 indicates that the group of interest (i.e., ever-Waived ELs), when compared to the reference group (i.e., never-Waived ELs), have about the same probability of experiencing an event (i.e., SPED placement) at each timepoint. An OR greater than 1.0, however, indicates that a group of interest is more likely to experience an event compared to the reference group. Finally, an OR less than 1.0 indicates that a group of interest is less likely to experience an event compared to the reference group.

Table 8. Discrete-Time Hazard Modeling Results Predicting SPED Placement by Waiver Status

Variable	Odds Ratio (*SE*)
Ever Waived EL	1.25* (0.12)
Female	0.60*** (0.03)
Hispanic	1.07 (0.07)
Lower SES	0.79** (0.06)
Chronic Absenteeism	1.50*** (0.17)

Note. Standard error in parentheses. EL = English learner. Never Waived ELs used as a reference group to Ever Waived ELs.
*p < 0.05. **p < 0.01. ***p <0.001.

Table 8 shows that at each time point, ever-Waived ELs are 25% more likely than otherwise similar never-Waived ELs to be placed into SPED services (as indicated by statistically significant, covariate-adjusted OR of 1.25). For female students, they are 40% (indicated by OR of 0.60) less likely than their male peers to be placed into SPED services. Similarly, students from lower-SES households were less 21% less likely (indicated by OR of 0.79) than their peers from higher-SES households. ELs with chronic absenteeism were 50% more likely (indicated by OR of 1.50) to receive SPED status compared to their peers who attended school for more than 90% of the school year (I.e., not chronically absent). Lastly, students' Hispanic status was the only predictor of SPED placement (for any disability categories) that was not significant (i.e., non-significant OR of 1.07).

Figures 1 and 2 display the covariate-adjusted hazards and cumulative hazards ("cumulative probability"), respectively, of SPED placement by waiver status. For the specific

values of hazard and cumulative hazard values for each grade, see Table B1 in Appendix B. First, Figure 1 presents the hazard functions for SPED placement for ever-Waived ELs and never-Waived ELs. As a reminder, hazard functions represent the conditional probability that a student will be placed into SPED services at each time point, assuming that the student has not already been placed into SPED services. Hence, hazard functions allow us to examine not only the likelihood but also the timing at which SPED placement is most likely to occur (i.e., the highest point in the hazard function plot indicates the time of highest risk), by language status.

Figure 1 reveals that ELs' likelihood of SPED placement, adjusting for other student-level factors, starts more elevated in kindergarten year. Most notably, ever-Waived ELs were slightly more likely than their Never-Waived EL peers. However, both ever-Waived ELs and never-Waived ELs followed similar patterns over time. In other words, regardless of waiver status, students began kindergarten already with SPED status at school entry. For both ever-Waived ELs and never-Waived ELs, similar likelihoods of SPED placement between kindergarten and second grade (ranging 0.031-0.034 (3.1%-3.4%) for ever-Waived ELs and 0.024-0.026 (2.4%-2.6%) for never-Waived ELs) suggest that regardless of waiver status, the likelihoods of SPED placement are elevated but stable in the primary years. After a slight peak in third grade, both groups show a noticeable dip in SPED likelihoods in fourth grade. This trend indicates that the likelihood of SPED placement—for students who have not been previously identified for SPED services—declines as they progress towards middle school. This declining pattern continues into the middle grade years, with even more noticeable drop in SPED likelihoods in sixth grade (i.e., beginning of middle school) and the gap between Ever-Waived ELs and Never-Waived ELs almost overlap towards eighth grade.

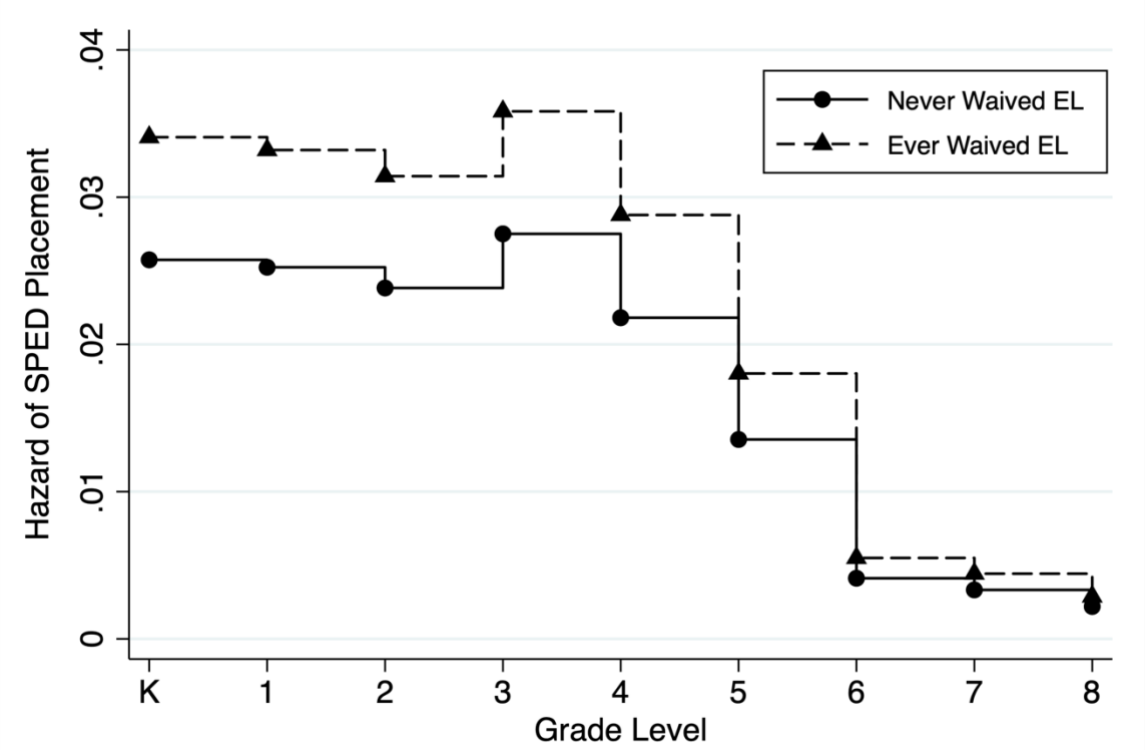


Figure 1. Hazard of SPED placement by waiver status
Note. EL = English learner.

Figure 2 presents the cumulative likelihood of SPED placement (see Table B1 for specific values of cumulative hazard functions). Cumulative hazard, or commonly referred to as cumulative probability, indicates the likelihood that a student will experience an event (i.e., SPED placement) *by* each time point (versus *at* each time point). These values can be easily interpreted as follows: if we were to follow 100 Ever-Waived ELs who entered the Tennessee public school system in kindergarten, the group's cumulative probability of 0.034 (or approximately 3%) by the end of their first school year (i.e., end of kindergarten) would mean that approximately three ever-Waived ELs have been placed into SPED services by that time point. Likewise, the cumulative probability of 0.095 (or approximately 10%) by the end of second grade, for example, indicates that after two years since school entry, approximately 10 ever-Waived ELs out of the original 100 ever-Waived ELs who entered kindergarten—including the original three ever-Waived ELs (hence "cumulative")—will have been placed into SPED.

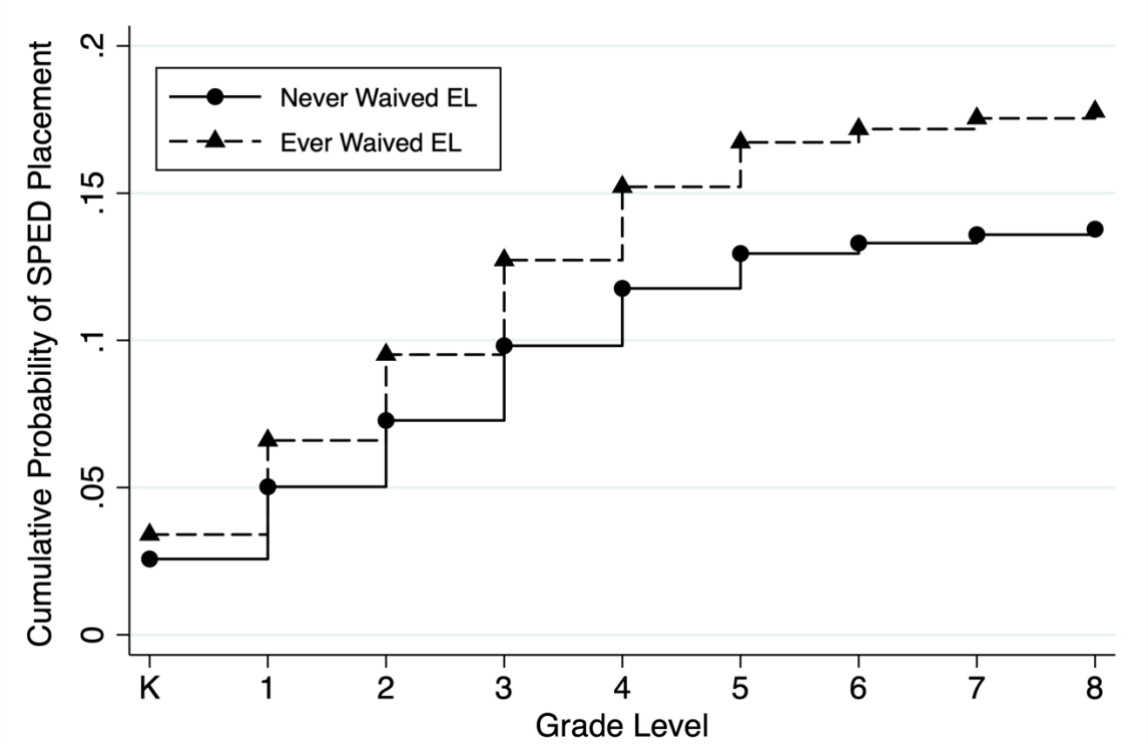


Figure 2. Cumulative probability of SPED placement by waiver status
Note. EL = English learner.

The covariate-adjusted cumulative probabilities in Figure 2 show that ever-Waived ELs have an approximately 18% likelihood of being identified for SPED services by the end of eighth grade (i.e., cumulative probability of 0.178). This is slightly higher than 14% cumulative probability (i.e., cumulative probability of 0.138 in eighth grade) for never-Waived ELs. These results are by no means intended to imply causal relations between the impact of waiver status on SPED placement. Rather, this finding simply suggests that from kindergarten to the end of middle school, ELs whose parents waived English language support services at any point had a higher cumulative likelihood of receiving SPED services by the end of eighth grade (i.e., after 9 years in the school system).

SLD and SLI

In addition to overall SPED placement (i.e., any disability category), I conducted discrete-time hazard analyses for SLD and SLI disability categories, which are the top two disability categories for which the majority of ELs with disabilities are classified (Counts et al., 2018; Hibel & Jasper, 2012; Office of English Language Acquisition, 2020; WIDA, 2017). First, Table 9

presents the distribution of frequencies and percentages of SLD and SLI identification by waiver status and grade level. This table can be interpreted similarly as Table 7. Between SLD and SLI, the frequencies of identification noticeably differ. The majority of SLD identifications for both ever-Waived ELs and never-Waived ELs occurred between second and fourth grades (2.1%-2.8% and 1.1%-1.5% of each group, respectively). In contrast, the majority of SLI identifications for ever-Waived ELs and never-Waived ELs were concentrated in primary grades, specifically in kindergarten (5.5% and 3.7%, respectively). In other words, while SLD identification appears to occur mostly in later elementary grades, SLI identification occurs most frequently at school entry, suggesting that students may be entering schools already diagnosed with SLI.

Table 9. Distribution of SLD and SLI Placement Occurrences by Waiver Status

	SLD						SLI					
	Ever-Waived EL			Never-Waived EL			Ever-Waived EL			Never-Waived EL		
Grade	Beginning Total	Received SLD Status	Censored	Beginning Total	Received SLD Status	Censored	Beginning Total	Received SLI Status	Censored	Beginning Total	Received SLI Status	Censored
0	946	1 (0.1%)	0	13,666	1 (0.01%)	0	946	52 (5.5%)	0	13,666	509 (3.7%)	0
1	945	10 (1.1%)	0	13,665	59 (0.4%)	0	894	20 (2.2%)	0	13,157	245 (1.9%)	0
2	935	21 (2.2%)	0	13,606	148 (1.1%)	0	874	21 (2.4%)	0	12,912	172 (1.3%)	0
3	914	26 (2.8%)	0	13,458	204 (1.5%)	0	853	10 (1.2%)	0	12,740	143 (1.1%)	0
4	888	19 (2.1%)	0	13,254	189 (1.4%)	0	843	5 (0.6%)	0	12,597	91 (0.7%)	0
5	869	9 (1.0%)	0	13,065	148 (1.1%)	0	838	8 (1.0%)	0	12,506	39 (0.3%)	0
6	860	4 (0.5%)	0	12,917	55 (0.4%)	0	830	1 (0.1%)	0	12,467	8 (0.1%)	0
7	856	1 (0.1%)	0	12,862	39 (0.3%)	0	829	0 (0%)	0	12,459	14 (0.1%)	0
8	855	3 (0.4%)	852	12,823	32 (0.2%)	12,791	829	0 (0%)	829	12,445	5 (0.04%)	12,440

Note. EL = English learner. Grade indicates the year in which a student received SLD or SLI status. Percentage of students identified with SLD or SLI in each grade are in parentheses. In this analytical sample, students are censored when they are never identified for SLD or SLI until the end of eighth grade.

Table 10 displays the discrete-time hazard analysis results for both SLD and SLI, presented as ORs. Most notably, ever-Waived ELs showed greater odds of SLD identification compared to SLI (covariate-adjusted ORs of 1.64 versus 1.33), where they were 64% more likely to have SLD status and 33% more likely to have SLI status at any time point compared to their Never-Waived EL peers. ORs for SLD and SLI placement based on students' gender and chronic absenteeism were comparable to findings for overall SPED placement. That is, female students were significantly less likely than their male peers to receive either SLD or SLI identification. Chronic absenteeism did significantly predict higher odds of SLD identification (33% as indicated by OR of 1.33) but not SLI. In contrast to the findings for overall SPED placement, being Hispanic emerged as a significant and positive predictor of both SLD and SLI status (60% and 39%, respectively). However, lower SES was no longer a significant predictor for odds of SLD and SLI classification.

Table 10. Discrete-Time Hazard Modeling Results for SLD and SLI Status by Waiver Status

	Odds Ratio (*SE*)	
Variable	SLD	SLI
Ever Waived EL	1.64*** (0.19)	1.33* (0.18)
Female	0.64*** (0.04)	0.55*** (0.04)
Hispanic	1.60*** (0.15)	1.39** (0.14)
Lower SES	1.05 (0.10)	0.90 (0.10)
Chronic Absenteeism	1.33* (0.19)	1.33 (0.22)

Note. SLD = Specific Learning Disability. SLI = Speech or Language Impairment. Standard error in parentheses. EL = English learner. Never Waived ELs used as a reference group to Ever Waived ELs. *p < 0.05. **p < 0.01. ***p <0.001.

Based on the findings shown in Table 10, Figure 3 plots the covariate-adjusted hazard functions for SLD (left panel) and SLI (right panel) over time by language status (see Tables B2 and B3 in Appendix B for specific values of the hazard functions for SLD and SLI models). Ever-Waived ELs were consistently more likely to be identified for SLD or SLI than never-Waived ELs, as shown by the Ever-Waived EL line (dashed line) that is consistently above that of Never-Waived ELs (solid line). Additionally, as indicated by the highest points, or peaks, in the hazard function lines, the highest likelihood of SLD identification is in third grade and the highest likelihood of SLI occurs in kindergarten (i.e., at school entry) for both waiver status groups. The

shape of the SLD hazard plots for both waiver groups show that the likelihood of SLD identification increases towards third grade, peaks in third grade, and decreases over time, with the gap in likelihoods narrowing between ever-Waived ELs and never-Waived ELs. In contrast, the likelihood of SLI identification steadily declines over time, indicating that regardless of waiver status, ELs generally start kindergarten already having been identified with SLI or are identified with SLI soon after starting school.

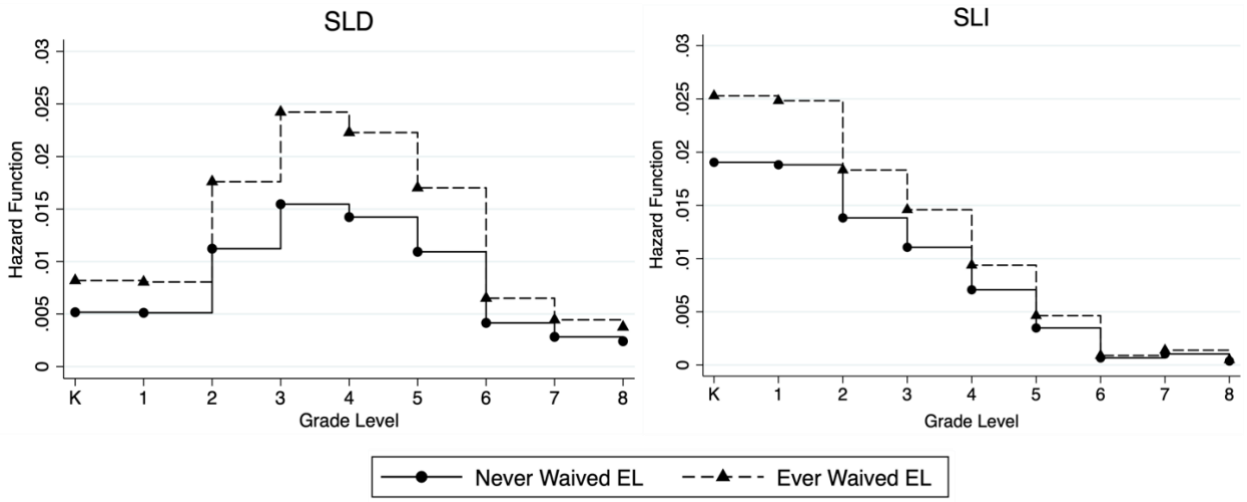


Figure 3. Hazard functions of SLD and SLI identification by waiver status
Note. SLD = Specific learning disability. SLI = Speech or language impairment. EL = English learner.

Figure 4 presents the cumulative probabilities of SLD and SLI identification by waiver status (see Tables B2 and B3 in Appendix B for specific values of cumulative probability by waiver status). Results show that after nine years in the Tennessee public school system since kindergarten, ever-Waived ELs had a 9.5% (cumulative probability of 0.095) and 7.3% (cumulative probability of 0.073) probability of being identified with SLD and SLI, respectively. Similar to the cumulative probability for overall SPED placement (Figure 2), ever-Waived ELs consistently showed highest cumulative probabilities for both SLD and SLI. Additionally, as expected based on the peak of hazard functions in third grade for SLD and in kindergarten for SLI, Figure 4 shows a steep increase in cumulative probability at third grade (height of the difference between second grade to third grade) for SLD and at kindergarten for SLI (height of the difference between 0 and kindergarten). Overall, both waiver groups gradually became less likely to be identified with SLD and SLI towards the end of elementary school and throughout

middle school, as indicated by the plateauing of cumulative probabilities over time.

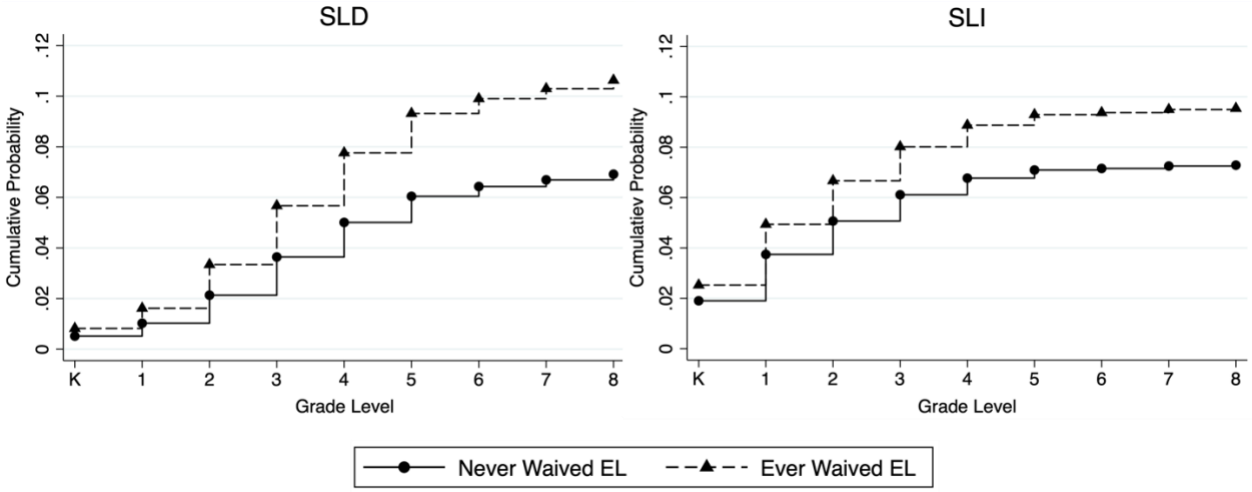


Figure 4. Cumulative probability of SLD and SLI status by waiver status
Note. SLD = Specific learning disability. SLI = Speech or language impairment. EL = English learner.

DISCUSSION

This study builds on the growing literature on ELs' representation in SPED (e.g., Artiles & Ortiz, 2002; Hibel & Jasper, 2012; Morgan et al., 2015; Samson & Lesaux, 2009; Skiba et al., 2016; Sullivan, 2011; Sullivan & Bal, 2013; Umansky et al., 2017; Yamasaki & Luk, 2018;) and offers insight into an understudied EL subgroup: Waived ELs. To my knowledge, this is the first study to examine how Waived ELs are represented in SPED services overall and specifically in SLD and SLI (i.e., most common disability categories among ELs).

Ever-Waived ELs Overrepresented in SPED, SLD, and SLI

Ever-Waived ELs' covariate-adjusted odds of SPED, SLD, and SLI identification indicated that they were consistently more likely than their never-Waived EL peers to experience the three outcomes. Although not much is known about ever-Waived ELs' representation in SPED in the field, their overrepresentation in SPED relative to their similarly situated never-Waived ELs suggests that the parental decision to waive English language support services may be related to the need for SPED services, especially in SLD (64% more likely than never-Waived ELs) followed by SLI (33% more likely than never-Waived ELs). Indeed, Zhao and Maina (2015) also discovered that ELs whose parents refused English language support services in Maryland consists of a substantial proportion of Waived ELs (36.7%) received SPED services, which further

strengthens the speculation that parents' decision to waive English language support services might be related to their child's need for SPED services.

Ever-waived ELs' consistently higher likelihoods of SPED, SLD, and SLI identification compared to their never-waived EL peers also contribute to the growing conversation in the field about the competing nature of English language support services and SPED service (e.g., Carnock & Silva, 2019; Kangas, 2014, 2018; Lopes-Murphy, 2020; Schissel & Kangas, 2018; Stutzman & Lowenhaupt, 2020). Although the goal of this study was not about whether parents' decision to waive English language support services for their children was due to SPED eligibility, the noticeably different trends between ever-Waived ELs and never-Waived ELs—where ever-Waived ELs consistently showed greater odds of SPED, SLD, and SLI placement—signal that waiver of English language support services could be related to the need for SPED services, at the cost of English language support. That is, it may be that the hierarchy of services may be involved (i.e., SPED prioritized over English language support services; Kangas, 2018; Schissel & Kangas, 2018; Stutzman & Lowenhaupt, 2020), where misguided perceptions that ELs need to choose *either* English language support services *or* SPED services, but not both, might be guiding parents' decision to decline language services for their children. If so, this raises serious concerns about whether ELs' need for both language and disability services are being overlooked or addressed much later than their English-proficient or native English speaker peers with similar learning disabilities.

Similar Trends between Ever-Waived ELs and Never-Waived ELs

Both ever-Waived ELs and never-Waived ELs were most likely to be placed into SPED and identified with SLD in third grade. That is, ELs in Tennessee reached peak likelihood of SPED and SLD placement at the start of upper elementary years (i.e., third grade, immediately after primary years (K-2)) and the likelihoods declined overtime, toward middle grades. In other words, there appears to be a window for overall SPED and SLD identification that closes before sixth grade (as indicated by significant drops in hazard functions in sixth grade; see Figures 1 and 3), in that ELs—both ever-Waived ELs and never-Waived ELs—who did were not identified for SPED services by the end of elementary school (between kindergarten and fifth grade) become much less likely to receive SPED identification in middle school (between sixth grade

and eighth grade), compared to those who were reclassified during elementary school years.

This pattern of SLD identification in Tennessee aligns with national trends, where SLD identification tends to mostly occur around second and fourth grades (Umansky et al., 2017). In fact, this trend could be explained by how SLD is defined: "a disorder in one or more of the basic psychological processes involved in understanding or in using *language*, spoken or written, that may manifest itself in the imperfect ability to listen, think, speak, read, write, spell [emphasis added]" (Sec. 300.8(c)(10) of IDEA). Studies find that students with reading-based difficulties and signs of low academic achievement tend to be referred to SLD identification, especially when academic demands (e.g., reading comprehension) increase in upper elementary grades and academic underachievement become more difficult to address (Boardman et al., 2106; Butler et al., 2010; Flynn et al., 2012; Torgesen et al., 2001). In Massachusetts, Yamasaki and Luk (2018) found that ELs (referred to as emerging bilinguals in their study) showed a lower rate of SLD identification in early grades (in grade 3) then higher rates of SLD identification in later grades (in grades 4 and 5). Similarly, in an undisclosed new destination state, Umansky and colleagues (2017) found that ELs who entered school in kindergarten were most likely to be placed into SPED services around fourth and fifth grade. Most notably, the likelihood of SLD identification for ELs remained lower than that of never-ELs between kindergarten and third grade, but soon outpaced never-ELs' likelihood for SLD identification at fourth grade and remained elevated into middle school (Umansky et al., 2017). Likewise, studies on SLD identification of Hispanic students—which is the predominant background of ELs in this study—also reported a gradual increase in SLD identification likelihood from lower to upper elementary grades, at which point the likelihood of identification declines (e.g., fifth grade; Morgan et al., 2015) or remains elevated throughout middle school (e.g., Cruz & Firestone, 2021).

The SLI identification trends, however, differ from the longitudinal trends found for overall SPED and SLD. As shown in Figure 3 (right panel), the likelihood of SLI identification already started at its peak in kindergarten and gradually declined. In other words, ever-Waived ELs and never-Waived ELs were most likely to have SLI status at school entry (i.e., kindergarten). This is consistent with longitudinal research on representation of minority learners by disability

category (e.g., Cruz & Firestone, 2022; Morgan et al., 2015). That is, in contrast to SLD where the highest likelihoods occur in third and fourth grades (see Figure 3, left panel), the window of SLI identification appears to be in primary grades (i.e., kindergarten to second grade), after which the likelihood of being newly identified for SLI continues to drop. Although SLI is also a language-related category like SLD, the early identification rates may be attributable to the fact that SLI identification involves more clinical elements such as impaired articulation, stuttering, or voice impairment that tend to be more visible earlier on, compared to reading comprehension difficulties that may not be as noticeable until later grades when reading demands increase.

Additionally, although it is unknown if the peak of SLD identification in upper elementary grades indicates delayed identification, the distinctive peak at the start of upper elementary grades suggests that for SLD—for which students are identified based on signs of academic difficulty—may be particularly susceptible to the "wait-and-see" phenomenon that is often attributed to increased proportion of ELs in SPED services in later elementary grades (e.g., Limbos & Geva, 2001; Samson & Lesaux, 2009). That is, teachers may be hesitant to refer ELs for SLD identification in the early elementary years (K-2) under the assumption that ELs need more time to develop English language proficiency before attributing academic underachievement to SLD. In fact, Hibel and Jasper (2012) report that English language support services are sometimes viewed as alternatives to SPED services in early elementary grades, which relates to disproportionate representation of ELs in later grades. Although this exploratory study was not designed to identify whether wait-and-see approach or delayed SPED identification occurs in Tennessee schools, the findings nonetheless confirm the complicated intersection of EL status and SPED status.

Implications for Practice and Policy

This study revealed variability in SPED, SLD, and SLI status by English language support service waiver status. Given this, districts and local education agencies may benefit from reviewing the policies and practices related to parents' waiver declaration and systematically document the extent to which institutional factors (e.g., district or school culture and resources related to parent involvement and decision-making) influence this choice. Based on growing

research suggesting hierarchy of services in school settings where SPED services trump English language support (e.g., Kangas, 2018) and how this culture of SPED prioritization often begins at the district-level and filters down to classroom practices (Stutzman & Lowenhaupt, 2020), evaluating if and to what extent this perception exists in Tennessee schools would be informative. Relatedly, it is possible that parents who are already aware of their child's need for SPED services may be opting out of English language support services when their child is identified as an EL. Additionally, given that the "ever-Waived" status in this study includes ELs who may have received English language support services in one year but later declined language services, it is also possible that, ELs may have been receiving EL services for a certain period of time before waiving the English language support services to receive SPED services that they needed from the beginning (Stutzman & Lowenhaupt, 2020).

While these are speculations based on limited literature on English language support service waiver and ELs with disabilities, the findings in this study raise important questions about whether parents are declining English language support services for the sake of SPED services. If this is the case, policy-level efforts to allocate resources to build capacity across districts, schools, and teachers to not only have qualified SPED and EL teachers prepared to serve ELs with disabilities but also ensure that they have appropriate resources and space to collaborate to make consequential educational decisions for ELs will be needed (Kangas, 2018; Stutzman & Lowenhaupt, 2020). Time is gold, especially in school settings, and school administrators and educators want to be judicious with the time they have with their students. That is even more why district-level efforts and systematic investments for dually-identified students are much needed (Kangas, 2018; Stutzman & Lowenhaupt, 2020), such as more EL-related content requirements for pre-service teacher training and SPED teacher credentialing (Umansky et al., 2017), professional development opportunities to strengthen teachers' asset-driven, research-based understanding of ELs (e.g., that ELs with disabilities can and should learn English), and school-level support for interdisciplinary teams and opportunities in which educators can collaboratively evaluate data and evidence centered on ELs and ELs with disabilities.

LIMITATIONS AND FUTURE DIRECTIONS

This exploratory study has several limitations that future research could address. Despite the novel attention to longitudinal trends of SPED, SLD, and SLI identification by waiver status, I did not examine how the trends might vary by school-level or district-level factors. ELs' representation in SPED and specific disability categories can vary based on educational contexts (e.g., Artiles et al., 2005; Barrio, 2017; Umansky et al., 2017; Zehler et al., 2003), such as local policies and referral practices, proportion of certified EL teachers, and the size of the ELs population in the district. Therefore, more in-depth studies that account for school or district variability for identifying and supporting dually-identified ELs—such as availability of trained bilingual school personnel (e.g., school psychologists, speech language pathologists, special education teachers) and resources (e.g., bilingual assessment materials, professional development training focused on identifying and serving ELs with disabilities)—would be valuable to better understand the contributors to ELs' representation in SPED.

Another limitation relates to how the analytic dataset was organized. Based on the English language background indicator in the TERA database, ELs were categorized into either ever-Waived ELs or never-Waived ELs. In particular, the ever-Waived EL group not only included ELs who were *only* Waived ELs (i.e., never received English language support services), but also included students who were identified as Current ELs in one year but as Waived ELs in another year. Therefore, although this exploratory study offers preliminary insight into the ever-Waived EL group broadly, future research should compare how the shift(s) in waiver status relates to representation in SPED services (i.e., Are ELs who switched from Current EL to Waived EL status more likely to be in SPED, compared to those who switched from Waived EL to Current EL status? Does the frequency of changes in waiver status relate to SPED status?). Second, the analytic data for this study only included students who entered the Tennessee public school system in kindergarten and remained in the system until the end of middle school. Future research should explore variability in SPED placement likelihoods based on the timing of later school entry (e.g., Does school entry in third grade versus sixth grade relate to English language support service waiver and/or SPED status differently?).

In addition, the majority of the ELs in the sample—for both ever-Waived ELs and never-

Waived ELs—were Hispanic. It is true that the majority of ELs come from Spanish-speaking homes in the U.S. (Office of English Language Acquisition, 2019). Nonetheless, Spanish is not the predominant language spoken by ELs in all states. In fact, top languages spoken by ELs (and thus ethnic backgrounds) could vary across schools and districts within the same state. Therefore, more research is needed in states, districts, and schools that: (1) have large EL population from other home language backgrounds (e.g., Arabic, Chinese, Somali), (2) offer formal bilingual programs in schools (e.g., Delaware, Utah), and (3) offer parents the option to waive English language support services.

Finally, very few studies have documented parents' choice to refuse English language support services for their children, and there is even more limited understanding of *how* and *why* parents do so. There is a clear need for more research on the parents of Waived ELs. Based on studies that report parents' concerns about potential prejudice and stigma associated with the EL or students with disabilities label (e.g., Kabuto, 2020; Zuckerman et al., 2014), future studies should explore the perspectives of parents who choose to waive English language support services, whether they already knew of their child's disability status or if the decision to waive English language support services was influenced by their child's need for SPED services. More work of this nature, not just focused on ELs but also their parents, can provide insights into the Waived EL population across different schools or districts.

PAPER 2

ENGLISH LEARNERS' ACADEMIC GROWTH BY WAIVER STATUS

INTRODUCTION

Academic Achievement of ELs in the U.S.

Reading Comprehension Achievement

Although ELs vary in the home languages they speak and English language support services they receive, they all share the fact that their developing English proficiency plays a crucial role in their academic achievement (Mancilla-Martinez, 2020). Given that English proficiency is a non-negotiable for successful academic achievement—especially for ELs attending schools in English-only instructional contexts like Tennessee schools—ELs' English reading achievement has often been conceptualized as a valuable indicator of their general academic achievement (e.g., Ardasheva et al., 2011; Mancilla-Martinez & Lesaux, 2010). Unfortunately, national reports continue to report persistently low reading achievement for both ELs (i.e., one in 10 fourth graders reading at or above the proficient level) and non-ELs (i.e., less than half of fourth graders reading at or above the proficient level; NAEP, 2019), which raises concerns given the essential role of RC in successful academic achievement, civic engagement, and social life (DeWalt et al., 2004; Hernandez, 2011; Vaughn et al., 2015; World Literacy Foundation, 2018). Because learning relies on processing and comprehending academic content (Gersten et al., 2001), the consequences of compromised RC can be far-reaching.

The concern of low reading achievement is not exclusive to ELs (e.g., Cho et al., 2019; Lesaux & Kieffer, 2010; RAND, 2002; NAEP, 2019). However, it is a particularly salient topic related to their academic achievement, given that in many U.S. classrooms, ELs are expected to simultaneously develop English language proficiency while also acquiring academic content in their developing English. To be clear, ELs' use of another language at home (i.e., bilingualism) is not a risk factor for low academic achievement (Han, 2012; Hernandez et al., 2008; Mancilla-Martinez, 2020; Paradis et al., 2011). Rather, low socioeconomic status (SES)—a prominent sociodemographic background among ELs and one that is unfortunately associated with limited access to schools with experienced teachers and qualified EL-support specialists (Samson &

Collins, 2012)—is often confounded with ELs' bilingualism, leading to the misconception that bilingualism is a risk factor for poor academic achievement (e.g., Goodrich et al., 2016; Hernandez et al., 2008; U.S. Census Bureau, 2013). Given negative implications of low reading proficiency on multiple dimensions of life (e.g., Hernandez, 2011; DeWalt et al., 2004), better understanding how ELs' reading achievement might vary based on the types of services they receive (e.g., English language support services) is a matter of educational equity for this rapidly growing student population.

Mathematics Achievement

In addition to reading comprehension achievement, math achievement is the second most common content area examined in the EL literature. In particular, increased attention to math *literacy* (i.e., reading, writing, and discussing math) in standardized testing practices has called for more emphasis on multi-step word problem-solving skills. In other words, the common perception of mathematics as a "language-free" discipline or one of "universal" language is in fact not true (Adoniou & Qing, 2014; Morita-Mullaney et al., 2020), math achievement requires many layers of language knowledge. Although all students—regardless of language status—encounter linguistic demands in word-problem solving tasks, the demands are compounded for ELs. For ELs who are simultaneously developing English proficiency and acquiring math content in their developing English, they must first filter the language of symbols (>, =, x, +) to access abstract mathematical concepts (Freeman & Crawford, 2008). Additionally, they must access the meaning of academic mathematics vocabulary (e.g., scale, quotient, dividend; Orosco, 2014). In fact, ELs often struggle with word problems due to unfamiliar or difficult vocabulary and lack of experience in using them (Abedi & Lord, 2001; Fuchs et al., 2006, 2016; Orosco, 2014; Powell et al., 2020). Further, syntactic structures used in word problems are often complex and highly specific, such as passive voice (e.g., A is subtracted from B) and comparatives (e.g., A is as much as B) (Chamot & O'Malley, 1994; Martiniello, 2008). Due to additional linguistic demands unique to math, some argue that math becomes ELs' third language, in addition to their home language and English (Brown, 2005).

For example, Abedi and Lord (2001) investigated the role of language complexity on eighth-grade ELs' word-problem solving skills by examining how students' achievement changed

when test items were linguistically modified (e.g., passive verbs changed into active verbs, relative clauses removed or recast). The linguistic adjustments improved all students' performance, but ELs benefitted particularly more than their English-proficient peers (Abedi & Lord, 2001). These findings suggest that language complexity indeed matters for inexperienced and low-achieving problem-solvers, and the interaction between language and math problem-solving must be taken into account in research and practice (Abedi & Lord, 2001). In fact, the relation between reading comprehension and math achievement—especially for word-problem solving tasks—is highly correlated and significant (Fuchs et al., 2006, 2008; Swanson, 2006; Vilenius-Tuohimaa et al., 2008), and when reading comprehension skills are still developing, processing and comprehending mathematical information in assessments may be especially challenging for ELs (Abedi, 2004).

Academic Achievement at the Intersection of EL Status and SPED Status

With recent requirements under the Every Student Succeeds Act (ESSA; 2015) for states to disaggregate accountability metrics for ELs with disabilities (20 U.S.C § 3121), there has been a growing interest in the field on the educational experiences and academic achievement of ELs with disabilities (e.g., Burho & Thompson, 2021; Kangas, 2020; Kangas & Cook, 2020; Klingner et al., 2005, 2006; Trainor et al., 2016; Umansky & Porter, 2020). However, little is known about the implications of waiving English language support services (i.e., Waived ELs) on ELs' academic trajectories and how this decision relates to provision of other services, namely SPED services. Although the research base in this area is thin, studies have documented prioritization of SPED services over English language support services for dually-identified ELs (i.e., ELs who are also identified for SPED services) in schools (Kangas, 2014, 2018; Schissel & Kangas, 2018), further highlighting Waived ELs' academic trajectories as a critical area for research.

Waived ELs

Few studies on ELs' waiver status and academic outcomes mostly attend to ELs' transition to college (e.g., Flores et al., 2012; Flores & Drake, 2014). Within the small literature on Waived ELs, Flores and Drake (2014) report that their sample of predominantly Hispanic Waived ELs in Texas high schools were significantly less likely to need remediation coursework in writing to be prepared for college-level coursework compared to their non-Hispanic peers. In

contrast, other studies find that Hispanic Waived ELs are more likely to perform poorly on advanced college-preparation curriculum (i.e., Advanced Placement program, International Baccalaureate program) compared to their peers who did receive English language support services (Flores & Park, 2011). However, research remains limited in elementary and middle grades, when high-stakes educational decisions (e.g., learning disabilities identification) are often made and when important developmental periods of oral language and literacy skills occur (Halle et al., 2012; Kieffer, 2011, 2012).

If Waived ELs are identified to need English language support services to build requisite English language skills to access the school curriculum, how does the waiver of services influence their school achievement, especially in states like Tennessee where alternative instructional programs (e.g., bilingual programs) to English-only instruction are unavailable? Through this lens, EL services can be also seen as an intervention whose impact can be examined between those who receive it (i.e., Current ELs) and those who do not (i.e., Waived ELs). Given that ELs' opportunities to learn and access to general education instruction can be restricted by insufficient English language support (Olsen, 2014), it is imperative to examine the Waived EL subgroup and how their academic outcomes compare to their Current EL peers.

CURRENT STUDY

In this longitudinal study, I investigate ELs' changes in English reading comprehension and math achievement from kindergarten to eighth grade. Specifically, I focus on how ELs' waiver status at kindergarten entry (i.e., Waived EL versus Current EL) relates to their academic achievement. It is hypothesized that when students classified as ELs (i.e., identified to benefit from additional English language support services) waive direct English language support services designed to support their school achievement, they will show slow changes in their academic achievement. Two research questions guide this study:

1. What are the patterns of English reading comprehension and math achievement among Waived ELs and Current ELs, compared to the Tennessee state-level average in each academic year?
2. Within each waiver status group (i.e., Waived ELs and Current ELs), to what extent do the longitudinal patterns differ by eligibility for SPED services?

METHOD

Data

The original datasets for this longitudinal study were made available from a partnership with the Tennessee Education Research Alliance (TERA). Eleven datasets—one from each academic year between 2010-2011 and 2020-2021—were merged and organized into one comprehensive file by using intact-cohort analysis approach (Clotfelter et al., 2009; Flores & Drake, 2014). The analytical sample only included students who entered the Tennessee public school system in kindergarten and stayed until eighth grade (i.e., students who have 9 datapoints, from kindergarten to eighth grade). However, as explained in more detail under Measures, academic achievement data from kindergarten to second grade are systematically unavailable because there is no state-level standardized assessment that all Tennessee students take during these primary years. Therefore, students' academic achievement data between third and eighth grade are included in this study.

Despite this limitation in assessment data availability from kindergarten to second grade, I use students' language status in their first year (i.e., Waived EL or Current EL) to maximize longitudinal information on small, yet growing population of Waived ELs in Tennessee and follow them from the beginning of their schooling in Tennessee. I first categorized students into three cohorts between 2010 and 2021 (i.e., those who started kindergarten in academic years 2010-2011, 2011-2012, and 2012-2013) to maximize sample sizes for each waiver status subgroup (see Table 11). The final analytic sample included 14,059 students (393 Waived ELs and 13,666 Current ELs).

Table 11. Sample Composition by Waiver Status at Kindergarten Entry

	Waived EL (N = 393)			Current EL (n = 13,666)		
Academic Year	C1	C2	C3	C1	C2	C3
2010-2011	K			K		
2011-2012	1	K		1	K	
2012-2013	2	1	K	2	1	K
2013-2014	3	2	1	3	2	1
2014-2015	4	3	2	4	3	2
2015-2016*	5	4	3	5	4	3
2016-2017	6	5	4	6	5	4
2017-2018	7	6	5	7	6	5
2018-2019	8	7	6	8	7	6
2019-2020*		8	7		8	7
2020-2021			8			8

Note. Ever-Waived EL = An EL whose parents waived English language services for at least one academic year. Never-Waived EL = An EL who never waived English language services. C1/2/3 = Cohort1/2/3. Cohorts 1, 2, and 3 were combined to create one analytical sample. *Academic achievement data unavailable.

Measures

Academic Achievement: Reading Comprehension and Math

Students' reading comprehension and math achievement scores are drawn from the Tennessee Comprehensive Assessment Program (TCAP) and TNReady, which are annually administered to students from third grade to eighth grade in Tennessee. To note, Tennessee's assessment program changed from the TCAP to TNReady in the 2015-2016 academic year. Because 2015-2016 was a transitional year, achievement scores are unavailable. Additionally, achievement scores from 2019-2020 are also unavailable due to the pandemic. Therefore, I use students' TCAP reading and math scores between school years 2010-2011 and 2014-2015 and TNReady reading and math scores from 2016-2017 to 2018-2019, and 2020-2021. With this systematic missingness in achievement data in school years 2015-2016 and 2019-2020, each cohort of kindergarten entrants were missing academic achievement scores for at least one year (see asterisk in Table 11 for the years and grade levels with missing achievement data).

Due to this transition from TCAP to TNReady, and consequently different achievement score scales between the two assessments, students' reading comprehension and math scores

were standardized (i.e., turned into z-scores) based on the grade-level average for the whole state. For example, a third-grade student's reading score would be standardized in comparison to all the third graders who took the assessment in the same year in Tennessee. I acknowledge that using z-scores may limit how the results are interpreted, given that that z-scores technically do not allow direct monitoring of academic "growth" per se, but rather how a student's relative rank changes across the years compared to their grade-matched peers in the whole state. Nonetheless, this approach was determined to be appropriate for addressing the unique circumstance of state-level assessment changes in Tennessee. Despite this limitation, the z-scores will still provide important insight into how waiver status relates to ELs' changes in reading comprehension and math achievement from third grade to eighth grade.

Waiver Status in Kindergarten

Students' waiver status in their kindergarten year was one of the key predictors in this study. Waiver status (1 = Waived EL, 0 = Current EL) is based on ELs' reported English language background status in their kindergarten year, where students belong to one of two groups: (1) Waived EL ("W" or "WAI" code in the TERA database) or (2) Current EL ("L" or "ESL" code in the TERA database).

SPED Status

Students' SPED status was another key predictor in this study. Given the time-varying nature of SPED status (i.e., students might be eligible for SPED services in one year but not the next), students were either ever eligible for SPED services ("ever-SPED" or never eligible for SPED services ("never-SPED"). This dichotomous indicator of ELs' SPED history (1 = ever-SPED, 0 = never-SPED) allows a more nuanced exploration of Waived ELs and Current ELs and examine the extent to which receiving SPED services relates to changes in academic achievement for Waived ELs and Current ELs (i.e., Ever-SPED Waived ELs, Never-SPED Waived ELs, Ever-SPED Current ELs, Never-SPED Current ELs). In addition, given that ELs tend to be predominantly identified with specific learning disabilities (SLD) and speech-language impairment (SLI) within the 13 federally-recognized SPED disability categories under the IDEA, I include a second type of SPED status, ever-SLD/SLI (1 = Ever identified with SLD or SLI, 0 = Never identified with SLD or SLI) status in a separate analytical model. To note, SLD and SLI status were combined due to the

small number of Waived ELs separately in SLD and SLI in the analytic sample (see Table 12 for a detailed breakdown).

Data Analysis

To address the two research questions on the changes in reading comprehension and math achievement between Waived ELs and Current ELs, a taxonomy of two-level longitudinal multilevel models for change—one for reading comprehension and another for math achievement—was fit using a person-period dataset. Using multilevel model for change is useful for examining student-level differences and inter-individual differences over time (Singer & Willett, 2003), which aligns nicely with the goals of this study. Students' waiver status in kindergarten (i.e., Waived EL and Current EL) and SPED status (i.e., Ever-SPED or Ever-SLD/SLI) were used as predictors of changes in students' academic achievement. For waiver status, the Current EL group was specified as a reference group in the multilevel models for change, meaning that the parameter estimates for Waived ELs are interpreted relative to Current ELs.

First, two unconditional models were estimated, separately for reading comprehension and math: unconditional means model (Model 1) and unconditional model of change (Model 2). Preliminary inspection of empirical plots of reading and math scores as a function of grade level suggested a linear pattern of change. I thus specified a linear growth specification for reading comprehension and math achievement scores. Indeed, preliminary comparison of unconditional growth models with linear growth specification versus quadratic growth specification (not reported) confirmed that the model with linear specification of change led to better goodness of fit statistics and quadratic specification of change was not statistically significant. Building on a linear specification of time identified in the unconditional phase, two conditional models of change were fit to investigate the main effects of waiver status and SPED status (Model 3) and their interaction effect (Model 4) on initial status and rates of change in reading comprehension and math achievement. The components of the final model (i.e., Model 4) are as follow:

Level 1:

$$\widehat{Achievement} = \pi_{0i} + \pi_{1i} Grade_{ij} + \varepsilon_{ij} \quad (1)$$

Level 2:

$$\pi_{0i} = \gamma_{00} + \gamma_{01} WaivedEL_i + \gamma_{02} SPED_i + \gamma_{03} WaivedEL_i \times SPED_i + \zeta_{0i} \quad (2)$$

$$\pi_{1i} = \gamma_{10} + \gamma_{11} WaivedEL_i + \gamma_{12} SPED_i + \gamma_{13} WaivedEL_i \times SPED_i \quad (3)$$

where $\varepsilon_{ij} \sim N(0, \sigma_\varepsilon^2)$ and $\zeta_{0i} \sim N(0, \sigma_\zeta^2)$

As a reminder, SPED status was conceptualized as ever-SPED and ever-SLD/SLI in this study, where Models 3 and 4 each has two sub-models: (1) Models 3.1 and 4.1 for ever-SPED and (2) Models 3.2 and 4.2 for ever-SLD/SLI models. The coefficient γ_{00} represents the average initial score for all ELs (i.e., in third grade) and γ_{10} indicates the average linear rate of change. Parameters γ_{01}, γ_{02}, and γ_{03} represent the effects of waiver status (i.e., Waived EL, Current EL), SPED status (i.e., ever-SPED or ever-SLD/SLI), and their interaction on initial reading or math achievement; parameters γ_{11}, γ_{12}, and γ_{13} represent the effects of waiver status, SPED status, and their interaction on linear rate of change. The random effect ε_{ij} is a Level-1 residual for student *i* at time *j* and is assumed to be drawn from a normal distribution with a mean of 0 and unknown variance σ_ε^2. Random effect ζ_{0i} refers to Level-2 residual for intercept and is hypothesized to be drawn from a normal distribution with a mean of zero and unknown variance σ_ζ^2. I used Stata 15.1 software with the MIXED command to conduct the analyses.

Based on the multilevel modeling results, I plotted the predicted achievement changes for ELs by waiver status (i.e., Waived ELs and Current ELs) and compared them to the Tennessee state-average at each grade level (z-score of 0 at each grade level). To quantify and interpret the differences between students' predicted scores and Tennessee state average at each time point, I calculated effect sizes at each time point by dividing the differences between each group's predicted achievement scores (i.e., reading comprehension and math) and the state average (i.e., z-score = 0) by the standard deviation of each student group at each time point (i.e., from third grade to eighth grade). Using this approach, the effect sizes reveal how many standard deviations a group's mean (e.g., by waiver status, by interaction of waiver status and SPED status) was apart from the Tennessee average at each time point. To interpret the magnitudes of effect sizes, I follow Cohen's (1992) conventions: small = 0.2, medium = 0.5, and large = 0.8.

RESULTS

Descriptive Statistics

Table 12 presents the average student characteristics of the total analytic sample and by waiver status in kindergarten. Waived ELs and Current ELs in the current sample shared some similarities: approximately half of the sample in each group were female (52.42% and 48.38%, respectively) and more than 90% were U.S.-born (92.37% and 92.95%, respectively). Waived ELs and Current ELs slightly differed in their household socioeconomic status (SES): on average, Waived ELs included a smaller percentage of students from lower SES households (57.08%) when compared to Current ELs (81.05%). Additionally, racial and ethnic composition in each group slightly differed. Over half of both Waived ELs and Current ELs were Hispanic; however, Waived ELs included a smaller percentage of Hispanic students (55.22%) compared to Current ELs (81.85%) but included noticeably more Asian (13.74%, almost double the 6.82% within Current ELs), Black (6.62%, over double the 2.95% within Current ELs) and White students (23.92%, almost triple the 8.04% within Current ELs). Lastly, Waived ELs and Current ELs included similar percentages of Ever-SPED students (13.99% and 16.21%, respectively). Although there was a smaller percentage of Waived ELs with Ever-SLD/SLI status (6.11%) compared to Current ELs (13.03%), it is worth noting that Ever-SLD/SLI was the predominant disability category within students who were ever-SPED: Ever-SLD/SLI Waived ELs made up close to half of all Ever-SPED Waived ELs (43.64%; 24 out of 55 Ever-SPED Waived ELs) and Ever-SLD/SLI Current ELs comprised 80.41% of all Ever-SPED Current ELs (1,781 out of 2,215 Ever-SPED Current ELs).

Table 12. Student Characteristics by Waiver Status at Kindergarten Entry

Variable	Waived ELs	Current ELs
Female	206 (52.42%)	6,611 (48.38%)
U.S.-Born	363 (92.37%)	12,702 (92.95%)
Low SES	224 (57.08%)	11,076 (81.05%)
Race/Ethnicity		
Asian	54 (13.74%)	932 (6.82%)
Black	26 (6.62%)	504 (2.95%)
Hispanic	217 (55.22%)	11,186 (81.85%)
Native American/Alaskan Native	0	24 (0.18%)
Pacific Islander	2 (0.51%)	22 (0.16%)
White	94 (23.92%)	1,099 (8.04%)
SPED Status		
Ever-SPED	55 (13.99%)	2,215 (16.21%)
Ever-SLD/SLI	24 (6.11%)	1,781 (13.03%)
N	393	13,666

Note. EL = English learner. SES = Socioeconomic status. SPED = Special education. Ever-SPED = Ever identified for SPED services. Ever-SLD/SLI = Ever identified with either SLD or SLI. Values for Low SES are averaged across the 2010-2011 and 2020-2021 academic years.

Academic Achievement by Initial Language Status

Descriptive Analyses

As a reminder, English reading comprehension and math scores were standardized based on Tennessee average at each grade level due to assessment changes in the 2015-2016 school year (i.e., from TCAP to TNReady). Table 13 presents average reading comprehension and math achievement scores (z-scores) by waiver status at each grade level. Waived ELs' average reading comprehension and math scores at each time point show that Waived ELs consistently performed above the Tennessee average (z-score = 0). For Current ELs, their consistently negative average achievement scores (i.e., ranging from -0.38 to -0.20 for reading comprehension and from -0.24 to -0.14 for math) indicate that Current ELs consistently performed below the state average at each time point. However, Current ELs' scores in both reading comprehension and math did steadily approach the state average (z = 0). In slight contrast, Waived ELs showed more fluctuations in their achievement scores, which may be attributable to their smaller sample size compared Current ELs.

Table 13. Average Reading Comprehension and Math Achievement Scores by Waiver Status and Grade

	Reading Comprehension						Math					
	Waived EL			Current EL			Waived EL			Current EL		
Grade	n	M	*SD*	n	M	*SD*	n	M	*SD*	n	M	*SD*
3	229	0.21	0.79	8,014	-0.37	0.92	229	0.29	0.87	8,013	-0.15	0.90
4	198	0.15	0.81	9,019	-0.38	0.93	198	0.21	0.88	9,022	-0.24	0.91
5	309	0.12	0.87	9,317	-0.35	0.89	309	0.22	0.88	9,319	-0.23	0.92
6	373	0.28	0.81	13,405	-0.26	0.91	373	0.28	0.89	13,464	-0.22	0.95
7	241	0.20	0.91	8,614	-0.25	0.91	237	0.37	0.97	8,603	-0.18	0.95
8	187	0.17	0.89	8,756	-0.20	0.88	148	0.09	0.87	8,002	-0.14	0.94

RQ 1: Average Pattern of Change by Waiver Status

A set of multilevel models for change was fit to describe the average pattern of change in reading comprehension and match achievement between third grade and eighth grade, when Tennessee-level standardized assessments were administered (i.e., TCAP or TNReady depending on the academic year). Table 14 presents the results of the series of four multilevel models of change.

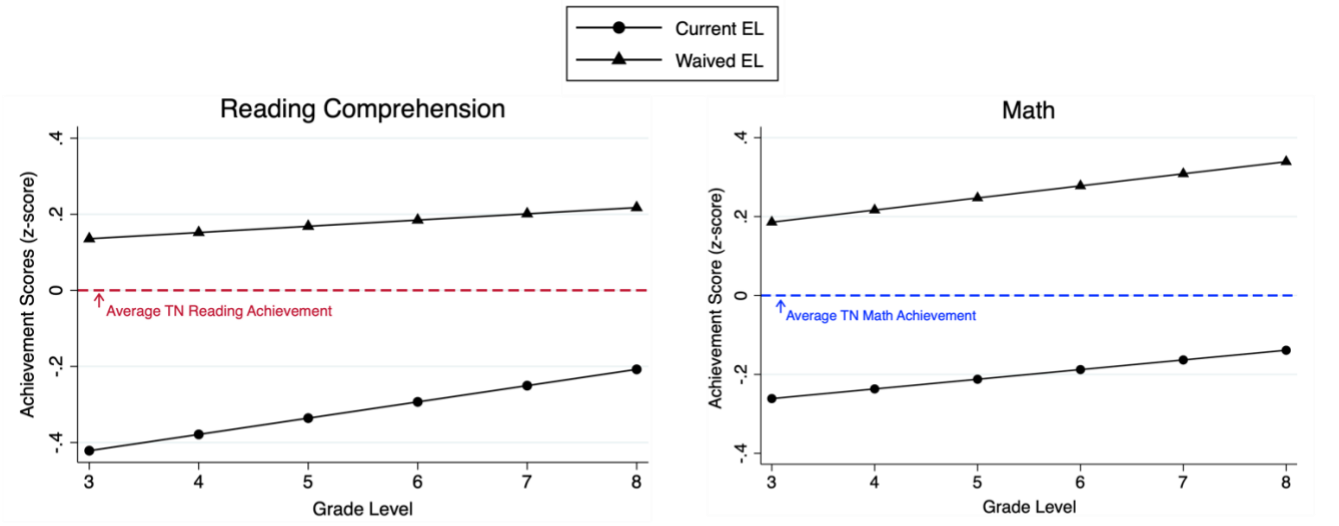
Table 14. Taxonomy of Fitted Models of Change Predicting Academic Achievement by Subject Area

		Model 1		Model 2		Model 3.1 (Ever-SPED)		Model 3.2 (Ever-SLD/SLI)		Model 4.1 (Ever-SPED)		Model 4.2 (Ever-SLD/SLI)	
Variable	Symbol	Reading	Math	Reading	Math	Reading	Math	Reading	Math	Reading	Math	Reading	Math
Fixed Effects													
Initial status, π_{0i}													
Intercept	γ_{00}	-0.30*** (0.01)	-0.19*** (0.01)	-0.53*** (0.01)	-0.33*** (0.01)	-0.44*** (0.01)	-0.22*** (0.01)	-0.43*** (0.01)	-0.22*** (0.01)	-0.44*** (0.01)	-0.22*** (0.01)	-0.43*** (0.01)	-0.22*** (0.01)
Waived EL	γ_{01}					0.60*** (0.06)	0.41*** (0.06)	0.57*** (0.06)	0.37*** (0.06)	0.60*** (0.06)	0.35*** (0.07)	0.57*** (0.06)	0.37*** (0.07)
SPED	γ_{02}					-0.72*** (0.03)	-0.74*** (0.03)	-0.94*** (0.03)	-0.98*** (0.03)	-0.72*** (0.03)	-0.75*** (0.03)	-0.94*** (0.03)	-0.98*** (0.03)
Waived EL x SPED	γ_{03}									-0.01 (0.19)	0.50* (0.21)	-0.04 (0.26)	0.14* (0.28)
Initial Rate of Change, π_{1i}													
Intercept	γ_{10}			0.04*** (0.001)	0.03*** (0.001)	0.04*** (0.001)	0.02*** (0.002)	0.04*** (0.001)	0.02*** (0.001)	0.04*** (0.001)	0.02*** (0.002)	0.04*** (0.001)	0.02*** (0.001)
Waived EL	γ_{11}					-0.03** (0.01)	0.01 (0.01)	-0.03** (0.01)	0.01 (0.01)	-0.03** (0.01)	0.01 (0.01)	-0.02** (0.01)	0.01 (0.01)
SPED	γ_{12}					0.02*** (0.004)	0.03*** (0.004)	0.02*** (0.004)	0.04*** (0.004)	0.02*** (0.004)	0.03*** (0.004)	0.02*** (0.004)	0.04*** (0.004)
Waived EL x SPED	γ_{13}									0.02 (0.03)	-0.07* (0.03)	-0.03 (0.04)	-0.08* (0.04)
Variance Components													
Level 1: Within-student		0.23 (0.002)	0.26 (0.002)	0.22 (0.002)	0.26 (0.002)	0.22 (0.002)	0.26 (0.002)	0.22 (0.002)	0.26 (0.002)	0.22 (0.002)	0.26 (0.002)	0.22 (0.002)	0.26 (0.002)
Level 2: Between-student		0.61 (0.01)	0.63 (0.01)	0.61 (0.01)	0.63 (0.01)	0.55 (0.01)	0.59 (0.01)	0.53 (0.01)	0.57 (0.01)	0.55 (0.01)	0.59 (0.01)	0.53 (0.01)	0.57 (0.01)
Goodness of Fit Statistics													
Deviance (-2LL)		114,486	119,846	113,324	119,491	112,002	118,427	111,467	117,951	112,000	118,421	111,464	117,945
AIC		114,492	119,852	113,332	119,499	112,020	118,444	111,484	117,967	112,018	118,441	111,483	117,965
BIC		114,519	119,879	113,368	119,535	112,110	118,531	111,574	118,054	112,090	118,515	111,555	118,039

Note. Model 3 = Final model for research question 1. Models 5.1/5.2 = Final models for research question 2. EL = English learner. SPED = Special education. Ever-SPED = Received SPED services for at least a year. Ever-SLD/SLI = Received SLD/SLI services for at least a year. The Current EL group is the reference group to the Waived EL group. Model 1 = Unconditional means model. Model 2 = Unconditional growth model. Model 3 = Included waiver status. Model 4 = Included waiver status and Ever-SPED status. Model 5 = Included interaction term of waiver status and Ever-SPED status. *p < .05. **p < .01. ***p < .001.

The first research question focused on the extent to which ELs' waiver status in kindergarten was associated with initial level and rates of growth of reading comprehension and math over six years (from third grade to eighth grade). As shown in Model 2 of Table 14, including a linear specification of time in Model 2 improved model fit for reading and math (Δ-2*LL* = 1,162 and 355, respectively) from Model 1 (i.e., unconditional means model). In Model 3, the statistically significant and positive main effect of waiver status was found in the intercepts for both reading and math achievement (γ_{01} = 0.60 and 0.57, respectively) and linear rate of change only for reading (γ_{11} = -0.03). That is, for Waived ELs, the average initial level in reading and math increased by 0.60 and 0.57 compared to Current ELs, but only the linear rate of change in reading was statistically significant and negative, indicating that for Waived ELs in our sample, their reading achievement—though vary minimally—decreased by 0.03 compared to Current ELs.

Figure 5 presents the fitted trajectories of changes in reading and math achievement by waiver status. As expected, both groups' predicted reading and math trajectories followed a linear pattern, from third grade to eighth grade. Similarly, both groups showed higher initial scores in math than reading comprehension. While both Waived ELs and Current ELs showed a steady increase in their academic achievement, Waived ELs' initial reading achievement and predicted change in reading scores were consistently above those of Current ELs and the state-level average, although the magnitudes of difference were generally smaller (effect sizes 0.19 - 0.30 above the Tennessee average) than Current ELs' reading achievement (effect sizes 0.28 - 0.54 below the Tennessee average).



Waiver Status	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
Waived EL	0.19	0.22	0.24	0.26	0.28	0.30
Current EL	-0.54	-0.49	-0.44	-0.39	-0.33	-0.28

Waiver Status	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
Waived EL	0.26	0.30	0.33	0.37	0.40	0.42
Current EL	-0.35	-0.31	-0.28	-0.24	-0.21	-0.17

Figure 5. Reading comprehension and math achievement trajectories from grade 3 to grade 8 by waiver status at kindergarten entry
Note. EL = English learner. Reading and math scores are standardized using Tennessee-level average for each grade level. Red dotted line indicates state-level average in reading scores. Blue dotted line indicates state-level average in math scores.

In contrast, Current ELs' reading achievement started out well-below the Tennessee average in in reading (effect size = -0.54) and math (effect size = -0.35) compared to the state average and remained below the state average until eighth grade. However, it is important to point out that Current ELs' reading achievement steadily increased and approached the state average, as indicated by the steady growth of effect sizes toward 0 (i.e., no difference between group achievement and Tennessee state average). Similar to the positive changes in their reading scores, Current ELs showed a steady increase in their math achievement (i.e., effect size starting at -0.35 in third grade but gradually increasing to -0.17 in eighth grade), where the gap between their achievement and state-level average continue to narrow even more noticeably than their reading comprehension scores.

RQ 2: Average Pattern of Change by Waiver and SPED Status

The second research question for this study explored the moderating effect of SPED status on the relation between waiver status and academic achievement (separately for reading and math). As a reminder, SPED status is categorized into: (1) ever-SPED status (see Models 3.1 and 4.1) or (2) Ever-SLD/SLI status (see Models 3.2 and 4.2). Model 3 includes the main effects

of waiver status and SPED status, and their interaction term is included in Model 4. The deviance comparison between Models 3 and 4 indicated that Model 4 with the interaction term (both Models 4.1 and 4.2) was a slightly better fitting model than Model 3 that only included separate main effects of ELs' waiver status and SPED status (based on smaller values of deviance between Models 3.1 and 4.1 and between Models 3.2 and 4.2). Additionally, the AIC and BIC information favored reading and math models in Model 4, confirming Model 4 as the preferred model for the data.

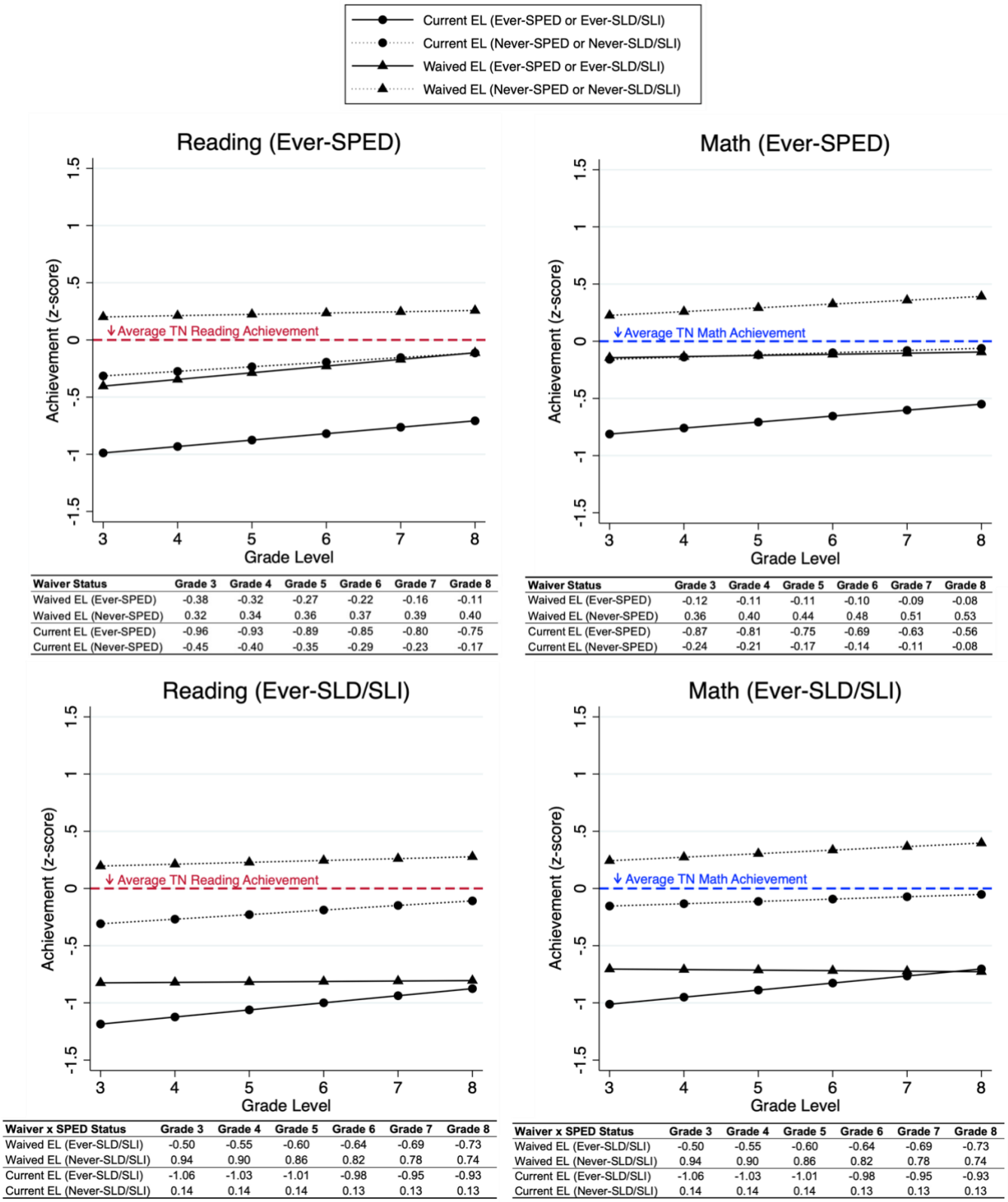
The parameter estimates of initial status and rate of change for Ever-SPED status (Model 3.1) and Ever-SLD/SLI status (Model 3.2) were all statistically significant. First, in Model 3.1, Waived ELs showed higher initial status in both reading (γ_{01} = 0.60) and math (γ_{01}= 0.41) compared to their Current EL peers (i.e., reference group) when accounting for Ever-SPED status. Additionally, the rate of change for Waived ELs' reading achievement was significant and negative (γ_{11} = -0.03), but the rate of change for Waived ELs' math achievement was not statistically significant. That is, for ELs whose parents waived English language support services at school entry in kindergarten, their average initial level of academic achievement was 0.60 higher in reading and 0.41 higher in math than their Current EL peers, controlling for ever-SPED status. Additionally, ever-SPED students, on average, showed lower initial status in both reading (γ_{02} = -0.72, p < 0.001) and math (γ_{02} = -0.74) when controlling for waiver status but showed positive and significant rate of change for reading (γ_{12} = 0.02) and math (γ_{12} = 0.03). That is, on average, reading and math achievement of ever-SPED students increased with time.

Compared to the Model 3.1, Model 3.2 showed similar trends: Waived ELs again showed higher initial status in both reading (γ_{01} = 0.57) and math (γ_{01} = 0.37) compared to Current ELs, this time controlling for ever-SLD/SLI status. The rates of change for reading and math achievement were likewise positive and significant (γ_{12} = 0.02 and 0.04, respectively). Most notably, ever-SLD/SLI students, on average, showed much lower initial status in both reading (γ_{02} = -0.94) and math (γ_{02} = -0.98) compared to ever-SPED status (see Model 4.1).

Finally, Model 4 expands Model 3 by accounting for an interaction term between waiver status and SPED status (Ever-SPED as a predictor in Model 4.1 and Ever-SLD/SLI as a predictor in Model 4.2). As shown in Model 4.1, the fixed effects of the intercept and linear rate of change

of the interaction (i.e., Waived EL and ever-SPED status) were only significant for math achievement (γ_{03} = 0.50; γ_{13} = -0.07). That is, ever-SPED Waived ELs' math achievement started higher than ever-SPED Current ELs' achievement in third grade, although their math achievement slowly declined compared to ever-SPED Current ELs. Model 4.2 showed similar findings found in Model 4.1; the interaction term between waiver status and SPED status (i.e., Ever-SLD/SLI) was a significant predictor of both initial status and rate of change only in math achievement (γ_{03} = 0.14 and γ_{13} = -0.08), but not in reading achievement. That is, Ever-SLD/SLI Waived ELs had significantly higher initial math achievement compared to their Current EL peers, but their math scores slowly declined compared to Current ELs who were also ever-SLD/SLI.

Based on Model 4 findings (i.e., the final model), Figure 6 displays the reading comprehension and math trajectories as a function of the interaction between waiver status and SPED status (i.e., Ever-SPED and Ever-SLD/SLI). The red and blue lines indicate the Tennessee-average reading and math scores, respectively. I also present the effect sizes at all time points for each group at the bottom of the figure to quantify the magnitude of observed differences in students' achievement compared to Tennessee average by grade level. The top two panels in Figure 6 correspond to the estimates generated in Models 3.1 and 4.1 and plot the predicted achievement trajectories of: (1) ever-SPED Waived ELs, (2) never-SPED Waived ELs, (3) ever-SPED Current ELs, and (4) never-SPED Current ELs. The bottom two panels correspond to the estimates generated in Models 3.2 and 4.2 and plot the predicted achievement trajectories of: (1) ever-SLD/SLI Waived ELs, (2) never-SLD/SLI Waived ELs, (3) ever-SLD/SLI Current ELs, and (4) never-SLD/SLI Current ELs. Figure 6 also includes effect sizes indicating the magnitude of differences compared to the Tennessee average.



Waiver Status	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
Waived EL (Ever-SPED)	-0.38	-0.32	-0.27	-0.22	-0.16	-0.11
Waived EL (Never-SPED)	0.32	0.34	0.36	0.37	0.39	0.40
Current EL (Ever-SPED)	-0.96	-0.93	-0.89	-0.85	-0.80	-0.75
Current EL (Never-SPED)	-0.45	-0.40	-0.35	-0.29	-0.23	-0.17

Waiver Status	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
Waived EL (Ever-SPED)	-0.12	-0.11	-0.11	-0.10	-0.09	-0.08
Waived EL (Never-SPED)	0.36	0.40	0.44	0.48	0.51	0.53
Current EL (Ever-SPED)	-0.87	-0.81	-0.75	-0.69	-0.63	-0.56
Current EL (Never-SPED)	-0.24	-0.21	-0.17	-0.14	-0.11	-0.08

Waiver x SPED Status	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
Waived EL (Ever-SLD/SLI)	-0.50	-0.55	-0.60	-0.64	-0.69	-0.73
Waived EL (Never-SLD/SLI)	0.94	0.90	0.86	0.82	0.78	0.74
Current EL (Ever-SLD/SLI)	-1.06	-1.03	-1.01	-0.98	-0.95	-0.93
Current EL (Never-SLD/SLI)	0.14	0.14	0.14	0.13	0.13	0.13

Waiver x SPED Status	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
Waived EL (Ever-SLD/SLI)	-0.50	-0.55	-0.60	-0.64	-0.69	-0.73
Waived EL (Never-SLD/SLI)	0.94	0.90	0.86	0.82	0.78	0.74
Current EL (Ever-SLD/SLI)	-1.06	-1.03	-1.01	-0.98	-0.95	-0.93
Current EL (Never-SLD/SLI)	0.14	0.14	0.14	0.13	0.13	0.13

Figure 6. Reading and math achievement trajectories from grade 3 to grade 8 by language status at kindergarten entry and SPED status (i.e., Ever-SPED and Ever-SLD/SLI)

Note. EL = English learner. SPED = Special education. Ever-SPED = Identified for SPED services for at least a year. SLD = Specific learning disability. SLI = Speech-language impairment. Ever-SLD/SLI = Identified for SLD or SLI services for at least a year. Reading scores are standardized using Tennessee-level average for each grade level. Red line indicates state-level average in reading scores. Blue line indicates state-level average in math scores.

There were four notable findings. First, students who were never eligible for SPED services (i.e., never-SPED, never-SLD/SLI) consistently outperformed their ever-SPED peers, as indicated by the dotted lines above the solid lines in all panels of Figure 6. Second, the top two panels for ever-SPED models show that most of the EL subgroups continued to make progress, reaching or exceeding the Tennessee state-average in reading and math scores. The only exception was the ever-SPED Waived ELs group's math achievement, which appeared to plateau over time. Again, although the use of z-scores—which were used due to the statewide shift from TCAP to TNReady assessments—limits interpretations about students' academic growth across years, the positive changes in achievement levels compared to the state average for all EL subgroups reveal that on average, both Waived ELs and Current ELs made progress on their academic achievement, regardless of their ever-SPED status. The ever-SLD/SLI plots (bottom two panels in Figure 6) also show similar trends of positive change in academic achievement, with ever-SLD/SLI Waived ELs showing a slightly decreasing trend in their math achievement. Third, Waived ELs who were never eligible for SPED services—whether for overall SPED or specifically for SLD/SLI—consistently performed above the state average, regardless of their ever-SPED or ever-SLD/SLI status. Lastly, the overlapping trajectories of ever-SPED Waived ELs (solid black line with triangle markers) and never-SPED Current ELs (dotted black line with circle markers) suggest that the achievement levels and changes in reading and math achievement between these two groups were indistinguishable.

DISCUSSION

This study was designed to examine the extent to which waiver status relates to ELs' reading and math achievement changes over six years (i.e., from third grade to eighth grade) (RQ1). I also investigated the moderating role of SPED status on this relation over six years (RQ2). As the first study to document longitudinal changes in reading comprehension and math

achievement of ELs by waiver status, the findings in this offer nuanced insights into the academic achievement of the Waived ELs in Tennessee.

First, both Waived ELs and Current ELs generally performed better in math than in reading. It is unsurprising that ELs would score higher on math compared to reading comprehension, since reading assessments would require more English language and literacy skills compared to math assessment. Indeed, ELs' math achievement levels have been consistently higher than those of reading comprehension across the U.S., where only 10% and 16% scored at or above proficient in reading and math, respectively, and 35% and 59% scored at or above basic in reading and math, respectively (NAEP, 2019).

When assessments are only administered in English, which was the case for TCAP and TNReady, it is not surprising that ELs—who are still developing English language proficiency—would perform lower than the state average that predominantly consists of native English speakers. However, Waived ELs consistently outperformed their Current EL peers. This seems counterintuitive, given that Current ELs would be expected to show higher achievement since they receive direct English language support that Waived ELs do not have. In fact, Waived ELs' above-average achievement contradicts existing studies—albeit very few—on their academic achievement. In a national study of ELs' long-term academic achievement, Thomas and Collier (2002) reported that Waived ELs in the South Central region of the U.S. (from 1996 to 2001) showed large decreases in reading and math achievement by fifth grade compared to their peers who did receive English language support ("Current ELs"). The authors even asserted that parents who decline English language support services for their children must be informed of the *negative* long-term consequences of refusing the additional language support.

More recently, Zhao and Maina (2015) reported that Waived ELs in Maryland (2012 to 2014) mostly showed intermediate English language proficiency on ACCESS for ELLs and made minimal progress in reading and writing, again pointing to the negative consequences of waiving English language support services. Their findings showed that Waived ELs included fewer students meeting the expanding/bridging/reaching levels (i.e., the highest levels in ACCESS for ELLs standards). However, they had compared Waived ELs to Current ELs in the highest-achieving level (Level 5, the highest EL level in the school district). In fact, when

comparing the distribution of ACCESS for ELLs achievement levels between Waived ELs and Level 4 Current ELs (i.e., Current ELs in the second highest tier of English proficiency), both groups showed similar distribution of English proficiency levels. Even further, when comparing Waived ELs to Current ELs in Levels 1, 2, and 3 in the EL program in the district, Waived ELs included a greater proportion of students in the advanced ACCESS for ELLs achievement levels. Hence, it is possible that disaggregating comparing Waived ELs' achievement to Current ELs by their English language proficiency levels (i.e., ACCESS for ELLs composite score) could reveal similar findings as those of Zhao and Maina (2015).

To make sense of this unexpected finding, I turn to the difference in the proportion of low-SES students among Waived ELs (57%) and Current ELs (81%). Although studies have yet to examine the factors that explain parents' decision to waive English language support services and how this decision relates to student outcomes, studies report that parents of immigrant and low-SES backgrounds are likely to have less familiarity with the inner workings of schools and knowledge about the choices available to them to navigate educational programs for their children (Yettick et al., 2008). In other words, it may be possible that the parents of Waived ELs, who tend to come from higher-income backgrounds compared to Current ELs (43% versus 19%, respectively), may be savvier with navigating school systems and services. Future research needs to continue disentangling the nature of the interactions EL parents have with school personnel and how sociocultural variables such as race, ethnicity, and culture interact with ELs' waiver status. Relatedly, studies also claim that parents from higher SES are more familiar with accessing, understanding, and negotiating school services for their children, namely SPED services, (Yettick et al., 2008), which also helps explain ever-SPED and ever-SLD/SLI Waived ELs' higher achievement than their Current EL peers.

To be clear, higher achievement among Waived ELs should not be interpreted to mean that ELs are better off not receiving English language support services. In fact, Current ELs consistently do make progress and their achievement, where the gap between their fitted trajectories in reading and math achievement and average Tennessee reading or math achievement gradually narrowed down (i.e., indicated by shrinking effect sizes). I speculate that this unexpected pattern could be explained by ELs' WIDA ACCESS for ELLs screener results at

kindergarten entry (i.e., which only became available starting in the 2014-2015 academic year when WIDA standards were adopted in Tennessee). It may be possible that Waived ELs consist of students who scored near the cutoff score for EL identification but did not score above the threshold (for specific cutoff points, see Tennessee State Board of Education, 2021). In other words, Waived ELs—at least in the analytic sample in this study—may be ELs who *do* have sufficient English proficiency to not need language services starting in kindergarten. It is possible that because of their non-English language background they were flagged for English language proficiency screening and scored below the English-proficiency threshold. Hence, it may be the case that while Waived ELs were technically eligible for English language support services based on their screener achievement, their parents may have refused the services under the assumption that their child simply needs more exposure to English in a formal school setting knowing their child's English language proficiency. Although this is speculative, based on studies that have critiqued the arbitrary nature of using cut-off points on standardized assessments to determine acceptable English proficiency (Abedi, 2008), it is possible that Waived ELs are those who may have scored very close to, but did not exceed, the cut-off point on the English language proficiency screener.

In addition, the relation between waiver status and academic performance differed as a function of SPED status (i.e., ever-SPED or ever-SLD/SLI). However, the moderating effect of SPED status was significant only for the initial level and rates of growth in math achievement, but not reading comprehension. Although the differential impact of the interaction term between waiver status and SPED status between reading and math might be attributable to the small sample size of dually-identified Waived ELs (i.e., 55 for ever-SPED and 24 for ever-SLD/SLI), the low initial reading and math achievement among ever-SPED ELs and *even lower* achievement levels for ever-SLD/SLI ELs is consistent with research that suggests substantial variability in academic achievement for students with high-incidence disability categories, namely SLD (e.g., Biancarosa & Zvoch, 2013). Additionally, lower initial achievement status among ever-SLD/SLI ELs underscores the close relation between language-related disability categories of SLD and SLI and academic outcomes for ELs, regardless of waiver status. Although the separate contributions of SLD and SLI on ELs' academic trajectories are unknown because

they were combined in this study, as a first step, findings show that ELs' identification for language-related disability categories (i.e., SLD and SLI) significantly relate to lower reading and match achievement levels compared to the general ever-SPED status.

Implications for Policy and Practice

The findings underscore the need for more research and data documenting parent engagement, specifically how parents decide to decline English language support services for their children. To my knowledge, there is no systematic collection of parents' rationale for declining English language support services for their children. Therefore, schools and districts should establish a system of documenting and tracking ELs' waiver status, namely parents' reasons for opting their children out of EL support programs. This information could be valuable for schools and local education agencies to understand parents' views of English language support services provided in Tennessee and potentially address: (1) any weaknesses or misunderstandings that parents might have about the services for their child and (2) if applicable, sources of their concerns (e.g., prioritization of SPED services over English language support services; biases towards English language support services) about placing their children into English language support services that ultimately leads to the decision to waive English language support services.

Additionally, documenting parents' decision-making process when waiving English language support services could also inform how teachers and school professionals communicate with parents of ELs (e.g., about their right to opt their children out of EL services, types of instructional models available to their children, how parents' concerns about dual-services are addressed by educators). In fact, studies have shown that the EL label is sometimes perceived with negative and lower expectations from educators and ELs themselves and associated with lower likelihood for ELs to enroll in advanced courses (Estradam 2014; Kanno & Kangas, 2014; Umansky, 2018). Therefore, there is a clear need to systematically investigate why parents are opting out of English language support services, after being notified with the full knowledge of its purpose and benefits (as required by federal guidelines (Office of English Language Acquisition, 2017).

LIMITATIONS AND FUTURE DIRECTIONS

This exploratory study has several limitations and opportunities for future research. First, reading comprehension and math achievement scores had to be standardized due to the change in state-wide assessment program from TCAP to TNReady in 2015. This meant that interpretation of ELs' academic achievement had to be limited to *changes* in academic achievement (i.e., ranks relative to the state average), rather than *growth* in academic achievement (i.e., individual scores that track growth). Given that the Waived EL population has grown since its introduction in the 2010-2011 academic year, future research on the Tennessee EL population should use TNReady scale scores to monitor and compare growth in reading and math achievement by waiver status. Specifically, students who took TNReady in its inaugural year (i.e., in third grade in the 2016-2017 school year) would have been in eighth grade in 2021-2022, which equates to six years of longitudinal TNReady scale scores (minus those from 2019-2020) to monitor ELs' reading comprehension and math growth trajectories by waiver status.

Second, ACCESS for ELLs data only became available in 2015 after Tennessee joined the WIDA consortium. Future analysis should account for ELs' ACCESS for ELLs scores and examine whether initial status or rate of growth in their English language proficiency are different between Waived ELs and Current ELs. Accounting for English language proficiency could reveal valuable information about the language profiles between Waived ELs and Current ELs at school entry, and the achievement levels at which Waived ELs' parents declined English language support services. Based on the higher achievement among Waived ELs in reading and math despite the EL label, it might be that their English language proficiency—indicated by ACCESS for ELLs scores —might be right at the cut off that made them eligible, but very close to the English-proficient threshold to be considered English-proficient.

Lastly, I did not account for school-level or district-level contexts in this study, given that the main goal was to examine two key student-level factors: ELs' waiver status and SPED status. Based on studies that suggest the influence of contextual factors on ELs' academic achievement (e.g., proportion of ELs in schools and districts; availability of bilingual education services; English language development instruction models), future research should account for contextual factors hypothesized to explain variability in ELs' academic achievement.

PAPER 3

RECLASSIFICATION PATTERNS BY WAIVER STATUS

INTRODUCTION

The reauthorization of the Every Student Succeeds Act (ESSA; 2015) increased accountability for states to provide equitable and effective learning supports to ELs, the fastest-growing student population in the U.S. (Callahan & Shifrer, 2016). Within the EL literature, reclassification—or ELs' exit out of English language support services after reaching English proficiency—has been receiving increasing attention, including the length of time it takes for ELs to reclassify and benchmarks and practices for determining ELs' eligibility for reclassification (e.g., Parrish et al., 2006; Slama, 2014; Thompson, 2017; Umansky & Reardon, 2014).

Reclassification Policies

ELs' reclassification is one of the key academic milestones for ELs enrolled in the U.S. school system, and its impact on ELs' academic experience has been a popular topic among policymakers and educational researchers (e.g., Betts et al., 2020; Chin, 2021; Cimpian et al., 2017; Slama, 2017; Suhr et al., 2021). Reclassification is a significant event not only for the individual student, but also for schools and districts, given the federal attention to reclassification under the ESSA requiring all states to establish and implement statewide standardized entrance and exit procedures for ELs (Sec. 3111. [20 U.S.C. 6821] (b)(2)(A)). In Tennessee, EL identification occurs within 30 days of school enrollment, where each student's family takes a Home Language Survey that addresses three topics: (1) the student's first language, (2) the language the student speaks most often at home, and (3) the language that is most often spoken to the student at home (Tennessee State Board of Education, 2021). If parents or guardians list any language other than English to any of the questions on the survey, the student is classified as a non-English language background (NELB) student and takes an English language proficiency screener. For NELB students who have been identified as ELs, they are reclassified once they score a 4.4 or higher on the composite score and 4.2 or higher for literacy on the WIDA ACCESS for ELLs. From there, they become "transitional ELs" and are

monitored for four years for accountability purposes (Tennessee State Board of Education, 2021).

Although each state has guidelines for determining English proficiency, there is no universal consensus on English proficiency assessment practices across states and thus what it means to be sufficiently "English-proficient" to reclassify (Linquanti & Cook, 2013; Wolf et al., 2008). In fact, Wolf and colleagues (2008) found that states used 30 different assessments to measure ELs' English language proficiency, with some using the ACCESS for ELLs screener like Tennessee (e.g., North Carolina, Georgia, Florida). Reviews of reclassification policies report that while some states only determine reclassification based on English language proficiency assessment results(e.g., ACCESS for ELLs) other states also consider additional factors, such as content-area achievement scores (e.g., reading comprehension) or input from school personnel or parents (Wolf et al., 2008; Hill et al., 2014). Studies have also found that in states where reclassification is determined only using English language proficiency scores without content-area achievement (e.g., English language arts), students tend to reclassify more quickly than ELs in states where both English language proficiency and state content-area achievement scores are used to reclassify ELs.

Reclassification Timing

Whether or not ELs receive direct English language support services, they are expected to be reclassified as English-proficient during their K-12 education. In the past two decades, a growing circle of researchers have specifically focused on the question of the length of time to reclassification and factors that relate to reclassification timing (e.g., instructional models and programs, student-level characteristics; Conger, 2010; Grissom, 2004; Parrish et al., 2006; Umansky & Reardon, 2014). Most often-cited finding in the EL literature is that oral English proficiency takes approximately three to five years, while academic English—as often measured by standardized assessments—takes approximately four to seven years (e.g., Hakuta et al., 2000; Takanishi & Le Menestrel, 2017). According to longitudinal reclassification studies on ELs who enter schools in kindergarten, the length of time until reclassification ranges from three years to eight years, with three to four years (i.e., by students' fourth or fifth grade) being most common (e.g., Kieffer & Parker, 2016; Montamedi et al., 2016; Slama, 2014; Umansky &

Reardon, 2014; Warren, 2004). While these studies offer valuable insight into reclassification trends, existing reclassification research mostly comes from traditional EL-serving states, such as California, Massachusetts, and New York.

The most common source of discrepancy in the time of reclassification comes from different standards for reclassification, which could lead to various operationalizations of what it means to be English-proficient across different contexts (Wolf et al., 2008). In fact, studies report that a student who is considered as an EL in one state might be considered English-proficient in another state (e.g., Estrada & Wang, 2018; Hill et al., 2014; Mavrogordato & White, 2017; Wolf et al., 2008). Likewise, the average time for reclassification also varies across contexts due to variations in reclassification policies, practices, and educators' understanding of the policies. For example, Estrada and Wang (2018) discovered that the rate of not reclassifying was up to five times higher in one district than the other in California. The authors attribute this difference to having clearly-defined threshold for reclassification and automated processes that ensure data transparency that minimizes any gaps in knowledge about the student or overburdening of school staff. However, to date, not much is known about reclassification timing (i.e., *when* are ELs most likely to be reclassified?) and the length of time (i.e., *how long* does it take on average for ELs to be reclassified?) in new destination states like Tennessee. Therefore, I aim to address this research gap by analyzing the timing and length of time until reclassification in Tennessee, for not only Current ELs, but also Waived ELs, who are a steadily growing EL subgroup in Tennessee.

Additionally, the grade of school entry relates to the length of time to reclassification, where students who enter school systems in lower grades reach English proficiency more quickly than those who enter later (e.g., Conger, 2009; Kieffer & Parker, 2016). In addition to variations in English language proficiency assessments and grade of school entry, ELs' racial or ethnic backgrounds—and to a lesser extent their home language—relate to reclassification outcomes. Studies commonly find that ELs who are Hispanic (i.e., home language is Spanish) often take longer or are less likely to reclassify than their non-Hispanic peers (Burke et al., 2016; Conger, 2009; Conger et al., 2012; Grissom, 2004; Hill, 2004; Parrish et al., 2006; Slama, 2014; Thompson 2017; Warren, 2004). In addition to Hispanic background, ELs who live in poverty or

are from low-income homes—which is the predominant background of the ELs and especially of Hispanic ELs (Hill et al., 2014)—tend to have lower reclassification rates compared to peers who are not from low-income households (e.g., Slama, 2014; Thompson, 2017).

Intersection of Reclassification and Special Education Status

Research on reclassification of ELs with disabilities remains relatively limited, but has received increasing attention in the recent years with the federal requirement for states to disaggregate ELs' academic achievement into specific subgroups (e.g., CCSSO, 2019; Kangas & Schissel, 2021; U.S. Department of Education, 2016). Recent scholarship on reclassification reports that ELs with disabilities are disproportionately overrepresented in secondary grades in the U.S. (e.g., Burke et al., 2016; Umansky et al., 2017) and that ELs with disabilities are less likely to be reclassified or reclassified later than their peers who were never eligible for SPED services (Burke et al., 2016; Mavrogordato & White, 2017; Thompson, 2015, 2017). For example, in a longitudinal reclassification study in the Los Angeles Unified School District, Thompson (2017) found that ELs who never qualified for SPED services were almost five times more likely to be reclassified compared to their peers eligible for SPED services. In fact, the term "reclassification bottleneck" has become popularized in describing the complex relation between EL and SPED status, where ELs are unable to reach standard reclassification criteria due to their disabilities and become overrepresented in SPED in later grades (e.g., Burho & Thompson, 2021; Kangas & Schissel, 2021; Park et al., 2017; Schissel & Kangas, 2018; Umansky et al., 2017). This phenomenon speaks to the complexity in understanding reclassification trends for students dually-identified for EL and SPED services, raising questions about ways to account for ELs' disabilities in English language proficiency testing and reclassification decisions (e.g., Council of Chief State School Officers, 2019; Kangas & Schissel, 2021; Park et al., 2016; Schissel & Kangas, 2018).

Despite the timely need for more research on ELs with disabilities, to my knowledge, very few studies have examined the extent to which reclassification patterns differ by ELs' waiver status. In a study on reclassification trends in Texas, Mavrogordato and White (2017) did account for parents' denial ("waiver") of bilingual and English as a second language services in their analyses, but the effect of this variable on reclassification outcomes was not significant,

most likely due to the very small proportion of Waived ELs in their analytic sample (i.e., mean of 0.07 where 1 = denied English language support services and 0 = did not deny English language support services). As a reminder, Waived ELs are still ELs who continue to be monitored in Tennessee via the annual ACCESS for ELLs assessment, until they are deemed English proficient, just like Current ELs. Therefore, studying the Waived EL group not only responds to the national call for more accountability for supporting ELs, but may also reveal insight into the timing and likelihood of reclassification by waiver status and SPED status (i.e., Current ELs not in SPED, Current ELs in SPED, Waived ELs not in SPED, and Waived ELs in SPED).

CURRENT STUDY

This study examined reclassification patterns by ELs' waiver status and the extent to which reclassification timing and time to reclassification varies by waiver status. Additionally, I investigated how reclassification patterns differ by students' ever-SPED status controlling for specific sociodemographic characteristics (i.e., female, Hispanic background, household socioeconomic status (SES)) by waiver status. Two research questions guide this study:

1. To what extent do the Waived ELs and Current ELs differ on the timing and likelihood of reclassification?
2. To what extent do the reclassification patterns between Waived ELs and Current ELs vary by ever-SPED status?

In this paper, the focus is not on the implications of reclassification timing, which is a popular question in the reclassification literature. While I fully acknowledge its importance, the goal in this exploratory paper is to provide an initial evaluation of the timing and likelihood of reclassification by waiver status and whether an EL has ever been identified for SPED services in the Tennessee public school system (i.e., ever-SPED status). Given that Current ELs receive direct and specialized English language support that Waived ELs do not, I hypothesize that Current ELs would be reclassified earlier than Waived ELs, and that the likelihood of reclassification would be lower for Waived ELs compared to their Current EL peers.

METHOD

Data

This study uses Tennessee state-level data (from 2010-2011 to 2020-2021) annually collected by the Tennessee Department of Education, made available through a partnership with the Tennessee Education Research Alliance. The longitudinal dataset for this study includes ELs who entered Tennessee public schools in school years 2010-2011, 2011-2012, and 2012-2013, respectively, as kindergarteners. The 2010-2011 school year is selected as the starting point because the option to waive English language support services was first introduced to parents in that year. Given that the Waived EL group is relatively newer and smaller compared to the Current EL group, I used the intact-cohort analysis approach to maximize sample size by EL subgroup (Clotfelter et al., 2009; Flores & Drake, 2014). In this approach to data organization, I only included students who remained in the Tennessee school system from kindergarten to eighth grade without exiting the system.

Using this approach, I organize students into three cohorts for each EL subgroup (i.e., three cohorts of Waived ELs and three cohorts of Current ELs), based on their EL status at kindergarten entry (see Table 15 for the breakdown of final analytic sample). Additionally, ELs who switched between Waived EL and Current EL status were excluded to focus on ELs who were strictly Waived ELs and Current ELs. By limiting the analytical sample to ELs who *never* received English language support services (i.e., Waived ELs) and ELs who *never* waived English language support services (i.e., Current ELs), this approach ensures stable EL subgroup status and allows consistent monitoring of the implications of programmatic decisions (i.e., waiving or receiving English language support services) on reclassification patterns. The final sample includes 14,059 students who entered the Tennessee public school system in kindergarten as Waived ELs (n = 393) and Current ELs (n = 13,666).

Table 15. Sample Composition by Waiver Status at Kindergarten Entry

	Waived EL			Current EL		
Academic Year	C1	C2	C3	C1	C2	C3
2010-2011	K			K		
2011-2012	1	K		1	K	
2012-2013	2	1	K	2	1	K
2013-2014	3	2	1	3	2	1
2014-2015	4	3	2	4	3	2
2015-2016	5	4	3	5	4	3
2016-2017	6	5	4	6	5	4
2017-2018	7	6	5	7	6	5
2018-2019	8	7	6	8	7	6
2019-2020		8	7		8	7
2020-2021			8			8

Note. EL = English learner. C1/2/3 = Cohort1/2/3. Cohorts 1, 2, and 3 were combined to create one analytical sample.

Variables

Reclassification Status

Reclassification status was a binary variable (1 = reclassified, 0 = not reclassified (i.e., still Current EL or Waived EL)) that was coded at each time point. The "reclassified" variable was coded 0 when a student was classified as either Waived EL or Current EL and coded 1 for the first year in which a student was no longer an EL and reclassified as English-proficient. In Tennessee, this corresponds to the first year of being a transitional EL ("T1"): students in their first year of being reclassified (i.e., no longer a Waived EL nor a Current EL). In Tennessee, ELs are monitored for four years after they are reclassified and classified as a Former EL after their fourth year as a transitional EL.

Disability Status

To explore how ELs' dually-identified status relates to their timing and likelihood of reclassification, SPED status was included as another key predictor of reclassification. Due to the time-varying nature of SPED status (i.e., students may require SPED services in one year but not the other), students were categorized to be either ever-SPED (i.e., ever eligible for SPED services; ever-SPED = 1) or never-SPED (i.e., never eligible for SPED services; Ever-SPED = 0). With this binary indicator of ELs' SPED history, I explored reclassification rates of four

subgroups: (1) ever-SPED Waived ELs, (2) never-SPED Waived ELs, (3) ever-SPED Current ELs, and (4) never-SPED Current ELs. As shown in Table 16, both Waived ELs and Current ELs showed similar composition of ever-SPED students: 13.99% of Waived ELs and 16.21% of Current ELs were ever eligible for SPED services between kindergarten and eighth grade.

Table 16. Student Characteristics by Waiver Status at Kindergarten Entry

Variable	Waived ELs (*n* = 393)	Current ELs (n = 13,666)
Female	206 (52.42%)	6,611 (48.38%)
U.S.-Born	363 (92.37%)	12,702 (92.95%)
Low SES	224 (57.08%)	11,076 (81.05%)
Race/Ethnicity		
Asian	54 (13.74%)	932 (6.82%)
Black	26 (6.62%)	504 (2.95%)
Hispanic	217 (55.22%)	11,186 (81.85%)
Native American/Alaskan Native	0	24 (0.18%)
Pacific Islander	2 (0.51%)	22 (0.16%)
White	94 (23.92%)	1,099 (8.04%)
SPED Status		
Ever-SPED	55 (13.99%)	2,215 (16.21%)
Home Language		
Spanish	222 (56.49%)	11,155 (81.63%)
Arabic	35 (8.90%)	669 (4.90%)
Kurdish	21 (5.34%)	182 (1.33%)
Vietnamese	13 (3.30%)	169 (1.24%)

Note. EL = English learner. SES = Socioeconomic status. SPED = Special education. Ever-SPED = Ever identified for SPED services. Values for Low SES are averaged across the 2010-2011 and 2020-2021 academic years.

Student-Level Background

Student-level sociodemographic variables were also included to account for any individual differences. The student-level covariates included in this study are as follow: gender (1 = female, 0 = male), Hispanic background (1 = Hispanic, 0 = non-Hispanic), household SES (1 = lower SES, 0 = higher SES), and Ever-SPED status (1 = Ever-SPED, 0 = Never-SPED). These four variables were selected based on research that report variability in reclassification timing and likelihood by these factors.

Students' gender was included given that female students tend to be more likely—up to twice as likely in some school systems—to be reclassified than male peers (e.g., Burke et al., 2016; Grissom, 2004; Reyes & Domina, 2019). In the current sample, approximately half of both Waived ELs and Current ELs were female (52.42% and 48.38%, respectively). Students' Hispanic status was also included as a dichotomous indicator of students' racial and ethnic background, given that ELs in the U.S. are predominantly from Spanish-speaking homes (28%) regardless of English language proficiency (National Center for Education Statistics, 2022). Reclassification studies report that Hispanic students took longer than their non-Hispanic peers to acquire English proficiency and reclassify (e.g., Burke et al., 2016; Grissom, 2004; Reyes & Domina, 2019; Slama, 2014; Warren, 2004). As shown in Table 16, more than half of Waived ELs (55.22%) and Current ELs (81.85%) were Hispanic, with Current ELs predominantly made up of Hispanic students. To note, the non-Hispanic group in this sample includes the following racial and ethnic groups: Asian, Black, Native American/Alaskan Native, Native Hawaiian/Pacific Islander, and White.

In addition, household SES was proxied by using free-or-reduced price lunch status (FRPL; 1 = eligible, 0 = not eligible) for school years 2009-2017 and economically disadvantaged (ED; 1 = ED, 0 = not ED) status for 2017-2019. Beginning in the 2017-2018 school year, Tennessee students were automatically classified as ED based on household participation in public nutrition assistance programs (TDOE, 2021). On average, Waived ELs included a smaller percentage of students from lower SES households (57.08%) when compared to Current ELs (81.05%). Like Hispanic status, lower SES is another significant predictor of lower likelihood of reclassification compared to higher-SES students (e.g., not eligible for national school lunch program; Abedi, 2004, Grissom, 2004). Lastly, Ever-SPED status (1 = ever-SPED, 0 = never-SPED) was included as another key factor based on the growing concerns in the field about delayed or lower odds of reclassification for ELs with disabilities compared to their peers without disabilities disability status (e.g., Burke et al., 2016; Thompson, 2017; Umansky et al., 2017).

Analytic Approach: Discrete-Time Hazard Analysis

I used discrete-time hazard analysis (Singer & Willett, 2003) to identify the likelihood and timing of reclassification between Waived ELs and Current ELs, with reclassification status

(i.e., first year as a transitional student in the system) as the outcome of interest. The start time is specified as the beginning of a student's first year in kindergarten—either as a Waived EL or a Current EL—in Tennessee public schools. To note, given that the focus of this exploratory study is on the student-level factor of English language support service waiver, school fixed effects are included to adjust for systematic differences among students across schools.

Discrete-time hazard models are specified in terms of discrete-time hazards, or probabilities of event occurrence (e.g., reclassification) at a specific time, given that the event has not yet occurred (Rabe-Hesketh & Skrondal, 2002). Hazard modeling is considered appropriate for answering longitudinal questions of event occurrence when the timepoints of interest are discrete (i.e., not continuous), such as academic years or grade levels. In fact, discrete-time hazard analysis is commonly used in reclassification research (also referred to as discrete-time survival analysis or event history analysis; e.g., Cruz & Firestone, 2021; Kieffer & Parker, 2016; Le et al., 2017; Montamedi et al., 2016; Morgan et al., 2015; Thompson, 2017; Umansky & Reardon, 2014; Umansky et al., 2017), given its usefulness in answering longitudinal questions about whether and when reclassification occurs across a period of discrete timepoints (e.g., academic years, semesters).

In discrete-time hazard modeling, students who never experience the event of interest—by leaving a school or a district of analysis or if data collection/observation period ends—are considered *censored* in hazard modeling. In this study, censored students in this dataset are ELs who did not reclassify by the end of eighth grade. Because the dataset was organized to only include students who remained in the Tennessee public school system from kindergarten entry to eighth grade, no student was censored before reaching eighth grade (i.e., did not leave the Tennessee public school system before eighth grade). Instead of removing students who never experience the event during the observation period, discrete-time hazard modeling uses data from all students in the dataset up to the point at which they experience the event or become censored. Using this approach, ELs who were censored still contributed to the reclassification probability estimation until they were censored, instead of being casewise deleted from the analytic sample. To note, common censoring scenarios in other studies—namely ELs leaving schools or districts during the observational period—do not apply because the dataset for this

study only includes students who stayed in the Tennessee public school system from the beginning to the end of the observation period (i.e., kindergarten to eighth grade).

RESULTS

RQ1: Timing and Likelihood of Reclassification Differ by Waiver Status

Table 17 presents the frequencies and percentages of ELs, by waiver status, who reclassified at each grade level. The table begins at first grade, given that ELs would have had to be either Waived ELs or Current ELs in their first year (i.e., kindergarten) to be included in the analytical sample.

Table 17. Distribution of Reclassification Occurrences by Waiver Status

	Waived ELs			Current ELs		
Grade	Beginning Total	Reclassified	Censored	Beginning Total	Reclassified	Censored
1	393	113 (28.8%)	0	13,666	1,232 (9.0%)	0
2	280	86 (30.7%)	0	12,434	2,211 (17.8%)	0
3	194	56 (28.9%)	0	10,223	1,832 (17.9%)	0
4	138	61 (44.2%)	0	8,391	2,397 (28.6%)	0
5	77	22 (28.6%)	0	5,994	1,494 (24.9%)	0
6	55	10 (18.2%)	0	4,500	1,204 (26.8%)	0
7	45	1 (2.2%)	0	3,296	373 (11.3%)	0
8	44	2 (4.5%)	42	2,923	209 (7.2%)	2,714

Note. EL = English learner. Percentage of reclassified students in each grade are in parentheses. In this analytical sample, ELs are censored when they do not reclassify until the end of eighth grade. Grade indicates the year in which a student was reclassified.

Table 17 shows that among the 393 Waived ELs who started kindergarten between academic years 2010-2011 and 2012-2013 (as shown in Table 15), 113 students reclassified in first grade (i.e., in their second year of schooling), and the number of reclassified students steadily decreased towards eighth grade. In slight contrast, the frequency of reclassification among Current ELs slightly fluctuates in the early grades and noticeably dropped in seventh grade: compared to 1,204 out of 4,500 (26.8%) Current ELs reclassified in sixth grade, 373 out of 3,296 (11.3%) reclassified in seventh grade. In the current sample, approximately 8.5% of Waived ELs (42 out of 393) and 19.9% of Current ELs (2,714 out of 13,666) did not reclassify (i.e., were censored) by the end of eighth grade.

Although Table 17 presents a descriptive overview of the number of students who do or do not become reclassified, it does not show exactly how much more or less likely Waived ELs are to be reclassified compared to Current ELs when accounting for student-level covariates. Therefore, Table 3 reports discrete-time hazard modeling results where reclassification was the outcome of interest. Coefficients are reported as odds ratios (ORs) for ease of interpretation. An OR of 1.0 indicates that the group of interest (Waived ELs), has about the same probability of experiencing an event (reclassification) at each time point compared to the reference group (Current ELs). An OR greater or less than 1.0, however, indicates that the group of interest is more or less likely to be reclassified, compared to their reference group. For ORs greater or less than 1.0, the difference between the OR and 1.0 equals the likelihood of experiencing an event compared to the reference group. For example, if a group has an OR of 0.35 compared to its reference group, that means that the students in the target group are 65% less likely to experience a certain outcome (1 - 0.35 = 0.65).

Table 18. Discrete-Time Hazard Modeling Results Predicting Reclassification Likelihood by Waiver Status

	Model 1	**Model 2**
Variable	Odds Ratio (*SE*)	
Waived EL	2.03*** (0.17)	1.86*** (0.16)
Female		1.19*** (0.03)
Hispanic		0.82*** (0.02)
Lower SES		0.63*** (0.02)
Ever-SPED		0.31*** (0.01)
Log Likelihood	56,954	55,079

Note. Standard error (SE) in parentheses. For waiver status, the reference category is Current EL. EL = English learner. SES = Socioeconomic status. SPED = Special education. *p < 0.05. **p < 0.01. ***p <0.001.

Models 1 and 2 in Table 18 present the unadjusted and covariate-adjusted hazard modeling results, respectively. Results indicate that at each time point, without adjusting for any student-level covariates, Waived ELs (compared to Current ELs) were 103% more likely than Current ELs to be reclassified (OR of 2.03). After adjusting for student-level covariates (Model 2), Waived ELs were still more likely (86%) than Current ELs to be reclassified (OR of 1.86) than their similarly-situated Current EL peers (i.e., controlling for student-level covariates). In other

words, ELs whose parents declined direct English language support services at kindergarten entry (i.e., Waived ELs) were more likely to reclassify compared to their EL peers who *did* receive English language support services (i.e., Current ELs). Beyond waiver status, female ELs were 19% more likely than their male peers to be reclassified (OR of 1.19), while students who are Hispanic or from lower SES backgrounds were 18% (OR of 0.82; 1 – 0.82) and 37% (OR of 0.63; 1 – 0.63 less likely, respectively, to be reclassified compared to non-Hispanic and higher-SES household ELs. Most notably, ever-SPED ELs were 69% less likely to reclassify (OR of 0.31; 1 – 0.31) than their peers who never received SPED services (i.e., Never-SPED ELs).

Likelihood of Reclassification at Each Grade Level

Figure 7 displays the covariate-adjusted hazard functions of reclassification at each grade level. This figure complements the Model 2 findings (Table 18) by plotting the likelihood of reclassification at each time point. Hazard functions are useful for visually presenting the probability of experiencing a certain outcome (i.e., reclassification) at each grade level, assuming that a student has not already experienced the outcome. Relatedly, the elevation of the hazard functions indicates the peak time points at which students are most likely to experience an outcome of interest. In Figure 7, the likelihood of reclassification for both Waived ELs and Current ELs steadily increased and peaked in fourth grade, to approximately 48% likelihood for Waived ELs and 30% likelihood for Current ELs (hazards of 0.48 and 0.30, respectively). Additionally, the likelihoods of reclassification for both groups again peak in sixth grade (hazards of 0.49 and 0.31), after which point the likelihood of reclassification noticeably declined. For time-specific values of the hazard functions, see Table C1 in Appendix C.

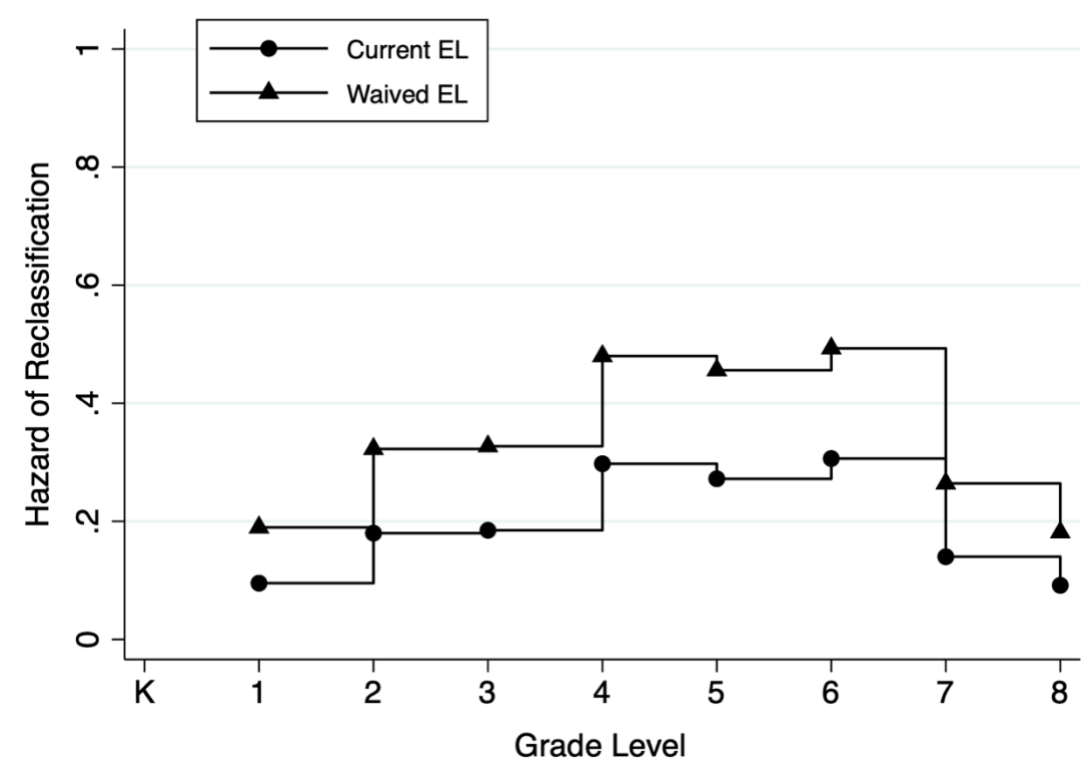


Figure 7. Hazard of reclassification by waiver status for ELs who entered the Tennessee public schools in kindergarten
Note. EL = English learner.

Cumulative Probability of Reclassification by Waiver Status

Figure 8 presents the cumulative likelihoods of reclassification by waiver status, derived from Model 2 in Table 18 (for time-specific values of cumulative hazard functions, see Table C1 in Appendix C). The cumulative hazard functions—or commonly referred to as cumulative probabilities in the literature—slightly differ from hazard functions in Figure 7, in that these plots show the probability that Waived ELs or Current ELs will have been reclassified *by* a certain time point (versus *at* a certain time point, which is what hazard functions show). The cumulative probabilities can be easily interpreted in the following way. For example, if we were to follow 100 Current ELs who entered the Tennessee public school system in kindergarten, a cumulative likelihood of 18% by the end of first grade (i.e., second year in the school system) would mean that 18 Current ELs have been reclassified by the end of their second year in school. Likewise, a 44% cumulative likelihood of reclassification in third grade, for example, would indicate that after four years in the Tennessee public school system, 44 Current ELs out of the original 100

Current ELs who started in kindergarten—including the 18 Current ELs who were reclassified in first grade—will have reclassified.

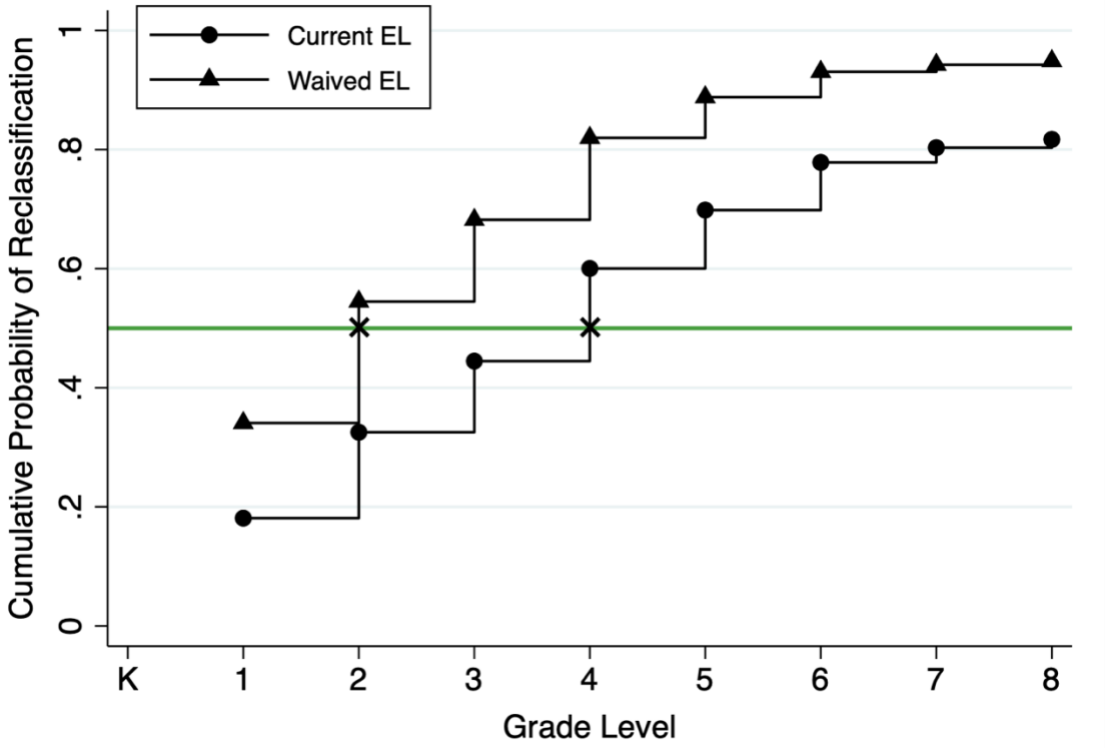


Figure 8. Cumulative probability of reclassification by waiver status
Note. EL = English learner. "X" indicates the median time to reclassification for each subgroup, where the cumulative hazard graphs cross the solid green line indicating the threshold at which 50% of students in each group are reclassified.

In Figure 8, there are steep increases (i.e., taller "steps") in the early years of schooling for both Waived ELs and Current ELs, and the cumulative probabilities of reclassification level off in the middle school years (i.e., shorter steps). Throughout all years, the probability of reclassification steadily increased, indicating that regardless of waiver status, ELs in Tennessee public schools are being reclassified over time. The magnitude of cumulative probability of reclassification did differ between Waived ELs and Current ELs. By eighth grade (i.e., after 9 years in Tennessee public schools), 95% of Waived ELs were reclassified (cumulative hazard probability of 0.95) compared to 82% of Current ELs (cumulative hazard probability of 0.82). While it is important to acknowledge the difference in the sample sizes by waiver group (i.e., 393 Waived ELs versus 13,666 Current ELs), it appears that Waived ELs tend to be reclassified earlier (i.e., steeper steps in early years) and more likely to be reclassified compared to Current

ELs (i.e., consistently higher cumulative probabilities over time).

Median Time to Reclassification by Waiver Status

In Figure 8, I also mark the median time to reclassification of Waived ELs and Current ELs with "X" where their cumulative hazard functions cross the green line that indicates cumulative probability of 0.5. In other words, the point at which each group's line crosses the 0.5 threshold indicates the time point when 50% of students in each group become reclassified. Figure 8 shows that Waived ELs' median time to reclassification occurs earlier than that of Current ELs: half of the Waived ELs in the sample reclassified in second grade (i.e., three years after entering the Tennessee public school system in kindergarten) while half of the Current ELs in this study reclassified in fourth grade (i.e., five years after entering the Tennessee public school system in kindergarten). In other words, the median time to reclassification for Waived ELs was about two years shorter than that of Current ELs.

RQ2: Timing and Likelihood of Reclassification Differs by Ever-SPED Status

In the second research question, I examined reclassification timing and likelihood of Waived ELs and Current ELs by their ever-SPED status, instead of simply controlling for ever-SPED status as I did in the first research question. As a reminder, students' SPED status was conceptualized as *ever*-SPED status, to capture whether or not a student ever qualified for SPED services between kindergarten and eighth grade. Using this categorization, I focused on the likelihood and timing of reclassification among four subgroups of ELs: never-SPED Waived ELs, ever-SPED Waived ELs, never-SPED Current ELs, and ever-SPED Current ELs.

First, Table 19 presents the distribution of reclassification frequencies by ever-SPED status within each waiver status group. As a reminder, students were censored if they did not reclassify by eighth grade. Approximately 14.9% of Waived ELs (55 out of 393 Waived ELs) qualified for SPED services (i.e., ever-SPED Waived ELs) and 63.6% of them reclassified by the end of eighth grade (35 out of 55 ever-SPED Waived ELs). The majority of Waived ELs were never eligible for SPED services (86%; 338 out of 393 Waived ELs) and almost all (93.5%) of never-SPED Waived ELs reclassified by the end of eighth grade. Similar to Waived ELs, approximately 16.2% of Current ELs qualified for SPED services and approximately half (48.6%; 1,077 out of 2,215 ever-SPED Current ELs) of the ever-SPED Current ELs reclassified by eighth

grade. Additionally, the majority of Current ELs did not qualify for SPED services (83.8%; 11,451 out of 13,666 Current ELs), and 86.2% of the never-SPED Current ELs exited English language support services by eighth grade. In both Waived EL and Current EL groups, ever-SPED students were less likely to reclassify than their never-SPED peers. Although the small sample size of the ever-SPED Waived ELs is much smaller than that of ever-SPED Current ELs (i.e., 55 versus 2,215), it is worth noting that ever-SPED Waived ELs showed a larger percentage of students who reclassified by eighth grade (63.6%) than ever-SPED Current ELs (48.6%).

Table 19. Distribution of Reclassification Occurrences by Waiver Status and Ever-SPED Status

	Waived ELs						Current ELs					
	Ever-SPED			Never-SPED			Ever-SPED			Never-SPED		
Grade	Beginning Total	Reclassified	Censored	Beginning Total	Reclassified	Censored	Beginning Total	Reclassified	Censored	Beginning Total	Reclassified	Censored
1	55	8	0	338	105	0	2,215	83	0	11,451	1,149	0
2	47	10	0	233	76	0	2,132	183	0	10,302	2,028	0
3	37	7	0	157	49	0	1,949	196	0	8,274	1,636	0
4	30	3	0	108	58	0	1,753	174	0	6,638	2,223	0
5	27	1	0	50	21	0	1,579	147	0	4,415	1,347	0
6	26	4	0	29	6	0	1,432	159	0	3,068	1,045	0
7	22	0	0	23	1	0	1,273	82	0	2,023	291	0
8	22	2	20	22	0	22	1,191	53	1,138	1,732	156	1,576

Note. Grade indicates the year in which a student was reclassified. EL = English learner. SPED = Special education. Ever-SPED = Received SPED services for at least a year between kindergarten and eighth grade Percentage of reclassified students in each grade are in parentheses. In this analytical sample, ELs are censored when they do not reclassify until the end of eighth grade.

Next, I examined the timing and likelihood of reclassification by ever-SPED status within Waived EL and Current EL groups (i.e., never-SPED Waived ELs, ever-SPED Waived ELs, never-SPED Current ELs, ever-SPED Current ELs). Table 20 presents the results of discrete-time hazard analyses, where never-SPED Current ELs were used as the reference group.

Table 20. Discrete-Time Hazard Modeling Results Predicting Reclassification Likelihood by Waiver Status and Ever-SPED Status

	Model 1	Model 2
Variable	Odds Ratio (*SE*)	
Dual Status		
Current EL (Ever-SPED)	0.31*** (0.01)	0.31*** (0.01)
Waived EL (Ever-SPED)	0.57* (0.13)	0.52** (0.11)
Waived EL (Never-SPED)	2.16*** (0.19)	1.90*** (0.18)
Female		1.19*** (0.03)
Hispanic		0.82*** (0.02)
Lower SES		0.63*** (0.02)
Log Likelihood	55,465	54,719

Note. Standard error in parentheses. EL = English learner. SPED = Special education. SES = Socioeconomic status. Never-SPED Current ELs used as a reference group for dual status (waiver and ever-SPED). School fixed-effects included in all models, but not reported. *p < 0.05. **p < 0.01. ***p <0.001.

Model 1 shows that prior to covariate adjustments, ever-SPED Current ELs were approximately 69% (OR of 0.31; 1 - 0.31) less likely than never-SPED Current ELs to reclassify. Similarly, ever-SPED Waived ELs were less likely to reclassify, by 43% (OR of 0.57; 1 - 0.57), compared to never-SPED Current ELs. Additionally, compared to never-SPED Current ELs, never-SPED Waived ELs were 116% more likely (OR of 2.16; 2.16 - 1) to be reclassified. After adjusting for covariates (Model 2 in Table 20), the likelihoods of reclassification for all three groups change minimally, most notably slight never-SPED Waived ELs' OR (covariate-adjusted OR of 1.90 versus unadjusted OR of 2.16). Model 2 also shows that factors other than ELs' waiver status or ever-SPED status were associated with their likelihood of reclassification: female students were 19% more likely (OR of 1.19; 1.19 - 1) than their male peers to reclassify; Hispanic ELs were approximately 18% less likely (OR of 0.82; 1 - 0.82) than their non-Hispanic peers to be reclassified, and ELs from lower-SES households were approximately 37% less likely to reclassify

(OR of 0.37; 1 - 0.63) than their peers from higher-SES homes.

Likelihood of Reclassification at Each Grade Level

Figure 9 displays the covariate-adjusted hazard functions for reclassification for: (1) never-SPED Waived ELs, (2) ever-SPED Waived ELs, (3) never-SPED Current ELs, and (4) ever-SPED Current ELs. Similar to RQ1 findings, the likelihood of reclassification spikes in fourth grade for all groups and reaches peaks in sixth grade, regardless of ever-SPED status. Waived ELs and Current ELs who were never eligible for SPED services showed the first and second highest likelihoods of reclassification, respectively (dashed lines). Although ever-SPED Waived ELs and ever-SPED Current ELs both showed the lowest cumulative hazards of reclassification (see Table C2 in Appendix C for time-specific values of the hazard functions), the ever-SPED Waived ELs showed slightly higher likelihoods of reclassification. Lastly, the ever-SPED Current ELs showed noticeably low likelihoods of reclassification, compared to not only never-SPED Current ELs, but also all Waived ELs regardless of ever-SPED status.

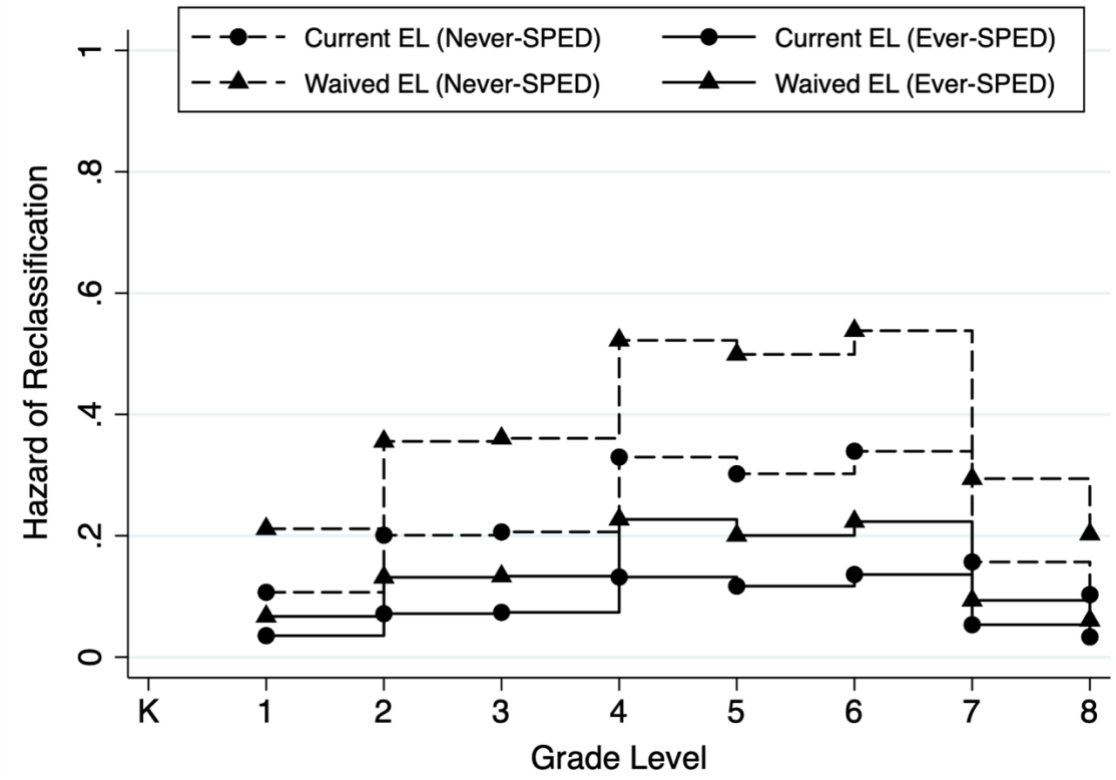


Figure 9. Hazard of reclassification by waiver status and ever-SPED status
Hazard of reclassification by waiver status and ever-SPED status for kindergarten entrants.
Note. EL = English learner.

Cumulative Probability of Reclassification by Waiver and Ever-SPED Status

Figure 10 presents the cumulative probabilities of reclassification derived from Model 2 in Table 20 (for time-specific values of the cumulative probabilities, see Table C2 in Appendix C). Overall, the cumulative hazard plots generally showed steep increases during elementary grades and steadily increased—although in small increments—until eighth grade. In other words, regardless of waiver and ever-SPED status, ELs continued to make progress towards English proficiency and reclassification. However, the cumulative probabilities of reclassification varied across the four groups. By eighth grade (i.e., after 9 years in the Tennessee public school system), 72% of ever-SPED Waived ELs were reclassified (cumulative hazard of 0.72), while 98% of never-SPED Waived ELs were reclassified (cumulative hazard of 0.98). Likewise, 51% of ever-SPED Current ELs have reclassified (cumulative hazard of 0.51), compared to 88% of never-SPED Current ELs (cumulative hazard of 0.88). While these patterns should be interpreted accounting for the small sample size of ever-SPED Waived ELs (*n* = 55), Waived ELs—both ever-SPED and never-SPED—consistently showed higher cumulative probabilities of reclassification compared to their never-SPED and ever-SPED Current EL peers.

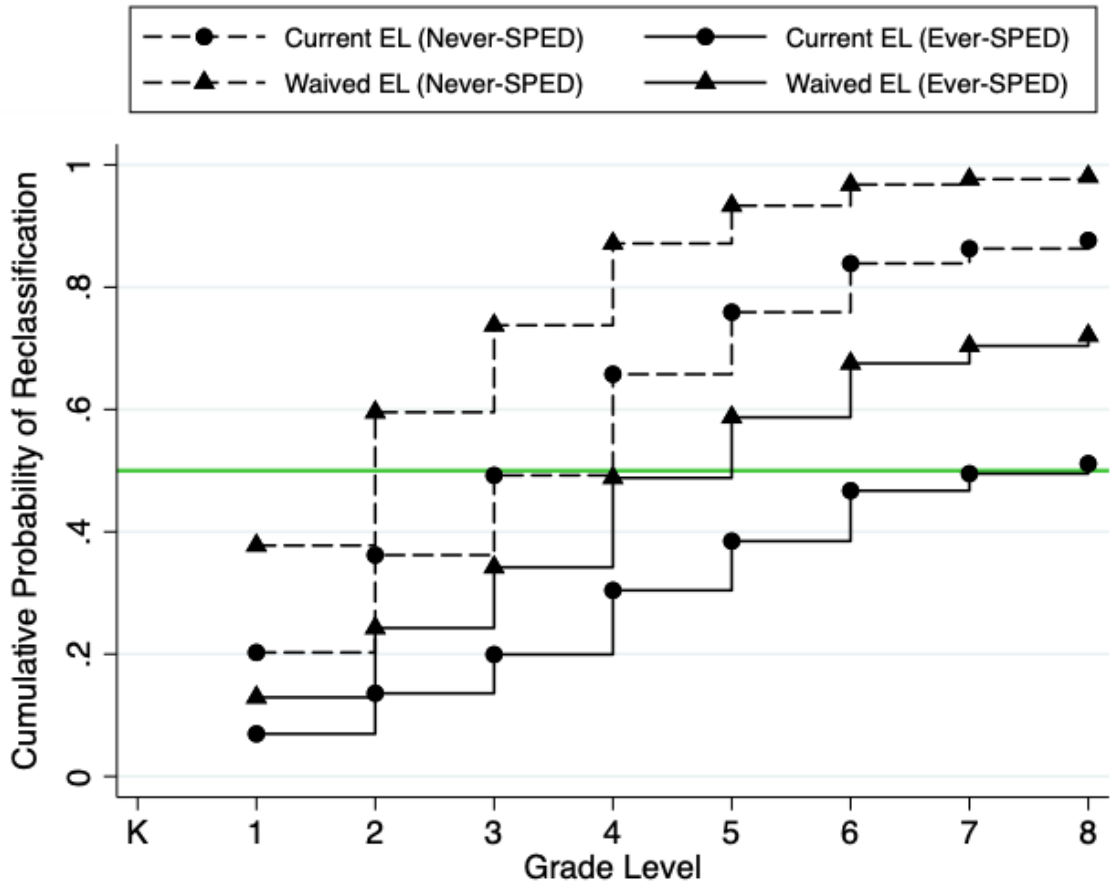


Figure 10. Cumulative probability of reclassification by waiver and ever-SPED status
Note. EL = English learner. SPED = Special education.

Median Time to Reclassification

The solid green line on Figure 10 indicates the threshold for identifying median time to reclassification. The figure shows that the median time to reclassification for never-SPED Waived ELs was three years (i.e., second grade). This timing is about two years earlier than that of ever-SPED Waived ELs, whose median time to reclassification was about five years (i.e., fourth grade). For never-SPED Current ELs, their median time to reclassification was about four years (i.e., third grade), which was four years faster than ever-SPED Current ELs' median time to reclassification of eight years (i.e., seventh grade). In total, approximately half of ever-SPED Waived ELs, never-SPED Waived ELs, and never-SPED Current ELs reclassified within their first six years (i.e., in elementary school, or before sixth grade) while half of ever-SPED Current ELs in the sample were reclassified in middle school (i.e., starting sixth grade as a reclassified student (T1) indicates that half of ever-SPED Current ELs tested out of English language support services

in fifth grade).

DISCUSSION

Contributors to the Timing and Likelihood of Reclassification

First, being Hispanic and from low-SES households were associated with lower likelihood of reclassification. This pattern is consistent with previous reclassification research, where ELs from low-income households and are Hispanic (i.e., reported Spanish as home language) tend to be less likely than their higher-SES and non-Hispanic peers to be reclassified (e.g., Thompson, 2017). Thompson (2017) found that students who were FRPL-eligible (i.e., used to proxy low-SES) were approximately 20% less likely than their non-FRPL peers to be reclassified. Indeed, household SES has been reported as a significant predictor of ELs' English language acquisition, where lower-SES is associated with school quality, opportunities to learn, and access to qualified EL and bilingual teachers (Darling-Hammond, 2004). Additionally, Hispanic ELs tend to meet English proficiency standards slower than their peers from other home language backgrounds (e.g., Parrish et al., 2006; Slama, 2014). Many hypothesize that this may be due to the confounded nature between Hispanic background and greater vulnerability to educational disadvantage (e.g., under-resourced and linguistically isolated schools), especially among NELB learners and specifically ELs in the U.S. (Grissom, 2004; Suárez-Orozco et al., 2008). In addition to income status, female students were more likely to reclassify compared to their male peers (20% more likely). This is also consistent with previous research that report female students to develop English proficiency faster than their male peers (e.g., Conger, 2009; Grissom, 2004; Le et al., 2018; Slama et al., 2017).

Reclassification Timing and Time to Reclassification by Waiver Status

First, covariate-adjusted hazard functions showed that ELs in Tennessee—both Waived ELs and Current ELs—are most likely to be reclassified in upper elementary grades, between fourth grade and sixth grade. The longitudinal findings in this study indicate that regardless of ELs' waiver status, the majority of reclassification occurred in upper elementary grades and early in middle grades, with a slightly higher reclassification likelihood in sixth grade (i.e., starting sixth grade as a reclassified student indicates that they tested out of English language support services in fifth grade). This finding also aligns with longitudinal research on

reclassification trends (e.g., Le et al., 2018; Slama, 2015; Thompson, 2017; Umansky & Reardon, 2014), whether there appears to be a general peak in reclassification rates in upper elementary grades, but the likelihoods significantly drop thereafter. In fact, although there are noticeable peaks at fourth grade and sixth grade (see Figure 9), the likelihood of reclassification remains elevated between the two peaks, indicating that both Waived ELs and Current ELs who have not yet been reclassified previously (between first and third grade) were reclassified before transitioning into middle school. This trend aligns with studies that have observed a "reclassification window" in upper elementary years (Thompson, 2017) when ELs are most likely to be reclassified, and ELs not reclassified by the end of this window are become less likely to ever be reclassified (e.g., Umansky & Reardon, 2014).

Although Waived ELs' median time to reclassification in other states or regions are currently unknown, the median time to reclassification for Current ELs in this study falls within the general range of time for kindergarten entrants: 3.8 years in Washington state public schools (Motamedi et al., 2016); 3-4 years in New York City Public Schools (Conger, 2009; Kieffer & Parker, 2016); 5-6 years in the Los Angeles Unified School District (Le et al., 2018; Thompson, 2012)). Additionally, after 9 years in the Tennessee public school system since kindergarten entry, the likelihood of cumulative reclassification was 95% for Waived ELs and 82% for Current ELs. The cumulative probability of 82% for Current ELs in the current study is generally higher than rates reported in the literature (e.g., 62-74% in the Los Angeles Unified School District (Thompson, 2017; Umansky & Rearson, 2014), but should be noted that cutoff scores and assessments for reclassification vary among different states.

Overall, Waived ELs and Current ELs are similar in *when* they are typically reclassified (i.e., upper elementary grades) but differ in *how long* it takes for each group to reclassify. Waived ELs were not only more likely to be reclassified, but also took less time to reclassify compared to Current ELs. While the findings should be interpreted carefully given the relatively smaller sample size of Waived ELs, the difference in median time to reclassification between Waived ELs (i.e., three years *without* English language support services) and Current ELs (i.e., five years *with* English language support services) was surprising. Based on studies that have questioned English language assessment cutoffs to be blunt and arbitrary indicators of EL

identification and reclassification (e.g., Abedi, 2008; Bailey & Caroll, 2015; García Bedolla & Rodriguez, 2011; Umansky et al., 2015), it is possible that the Waived ELs in this study (i.e., students whose parents waived English language support services in kindergarten) mostly include English-proficient NELB learners who may have scored very close to, but did not exceed, the cut-off point on the standardized screener for English language proficiency. In fact, Carroll and Bailey (2016) found that depending on how English language proficiency is determined in states, even non-ELs in English-only instructional settings (i.e., the "known-to-be-proficient" comparison group in their study) could be identified as non-proficient in English because they were unable to meet the English-proficient criterion—which makes this scenario even more plausible. Although the English language proficiency assessment data were unavailable for this study (this sample entered kindergarten prior to Tennessee joined the WIDA Consortium and began using the ACCESS for ELLs screener, and data from the Tennessee English Language Placement Assessment (TELPA) were not available through the TERA database), it seems possible, based on the consistently higher rates of reclassification among Waived ELs regardless of ever-SPED status, that ELs' waiver status signals parents' intentional choice, perhaps under the assumption that their child simply needs more exposure to English in a formal school setting based on the child's near-proficient screener results.

Although speculative, this possible scenario raises questions about how the option to opt-in and opt-out out of EL support services are communicated to the parents of ELs in Tennessee (e.g., are parents' decision to receive or waive English language influenced by how the options are communicated?), and how the knowledge and beliefs about EL programs might vary between the parents of Waived ELs and Current ELs (e.g., do parents of Waived ELs have preconceived notions about English language support services in schools? If so, where did they hear them?). More qualitative and mixed-methods research is needed in this area.

Reclassification Timing and Likelihood Vary by Ever-SPED Status

The difference in median time to reclassification by ever-SPED status consistently revealed that ever-SPED students were less likely to reclassify than their never-SPED peers and take longer to reclassify regardless of waiver status. This trend is consistent with recent scholarship on reclassification that ELs with disabilities are disproportionately overrepresented

in secondary grades in the U.S. (e.g., Burke et al., 2016; Umansky et al., 2017), which lowers and delays reclassification likelihood for ELs with disabilities compared to their peers who are never eligible for SPED services (Burke et al., 2016; Mavrogordato & White, 2017; Slama et al., 2017; Thompson, 2015, 2017). For example, Le and colleagues (2018) found that ever-SPED students were approximately three times less likely to be reclassified than never-SPED peers in the Los Angeles Unified School District. This difference in reclassification likelihood between ever-SPED and never-SPED students is consistent with my findings. Results for the first research question showed that in general, ever-SPED ELs were approximately 69% less likely (OR of 0.31 with never-SPED ELs as the reference group), or approximately three times less likely, to reclassify (1/0.31 = 3.23) than never-SPED ELs. Likewise, findings for the second research question confirmed that within each waiver group, ever-SPED Waived ELs were generally reclassified a year later than never-SPED Waived ELs and ever-SPED Current ELs generally reclassified in middle school, three years later than never-SPED Current ELs.

The median time to reclassification for ever-SPED Current ELs is eight years, or when students are half-way through middle school (i.e., students were ELs since kindergarten). This is double the median time to reclassification of never-SPED Current EL peers (four years). This gap in reclassification timing by ever-SPED status is consistent with recent research on the delayed likelihood of reclassification for dually-identified ELs (i.e., also known as the reclassification bottleneck phenomenon), where ever-SPED ELs are less likely or take longer than their never-SPED peers to reclassify (e.g., Slama et al., 2017; Umansky et al., 2017). The low probability that ever-SPED Current ELs will reach English proficiency in the Tennessee public school system by the end of middle school warrants more research into the curriculum, instruction, and types of instructional support that dually-identified ELs need and receive in schools.

Implications for Policy and Practice

These findings have implications for policy and practice. First, variability in time to reclassification by waiver status and ever-SPED status warrants district-level and state-level efforts to examine the efficacy of both English language support services and the types of SPED services dually-identified ELs receive in schools. It is important for stakeholders of ELs' reclassification to ensure that ELs have the appropriate support and learning opportunities that

they do need for English language acquisition. A persistent question in the reclassification literature is the implications of different reclassification criteria employed across local education agencies. In addition to empirical evidence on reclassification trends and contributors to reclassification, there is a pressing need for local education agencies to examine their current reclassification practices (e.g., teacher practices and beliefs, assessments other than state English language profiency measures, school personnel involved in reclassification decisions) and reclassification trends to inform their expectations for ELs' academic progress. Last but not least, teachers play a critical role in ELs' English language acquisition and reclassification; hence, it is also important for policymakers to work closely with EL experts, SPED experts, and school administrators to systematically evaluate variations in reclassification practices, validity of assessment practices, reclassification policy implementation (e.g., teachers' interpretation of policies), and programmatic variables (e.g., levels of support provided to Waived/Current ELs with disabilities) to enhance school-, district-, and state-level capacity to correctly identify and serve ELs.

LIMITATIONS AND FUTURE RESEARCH

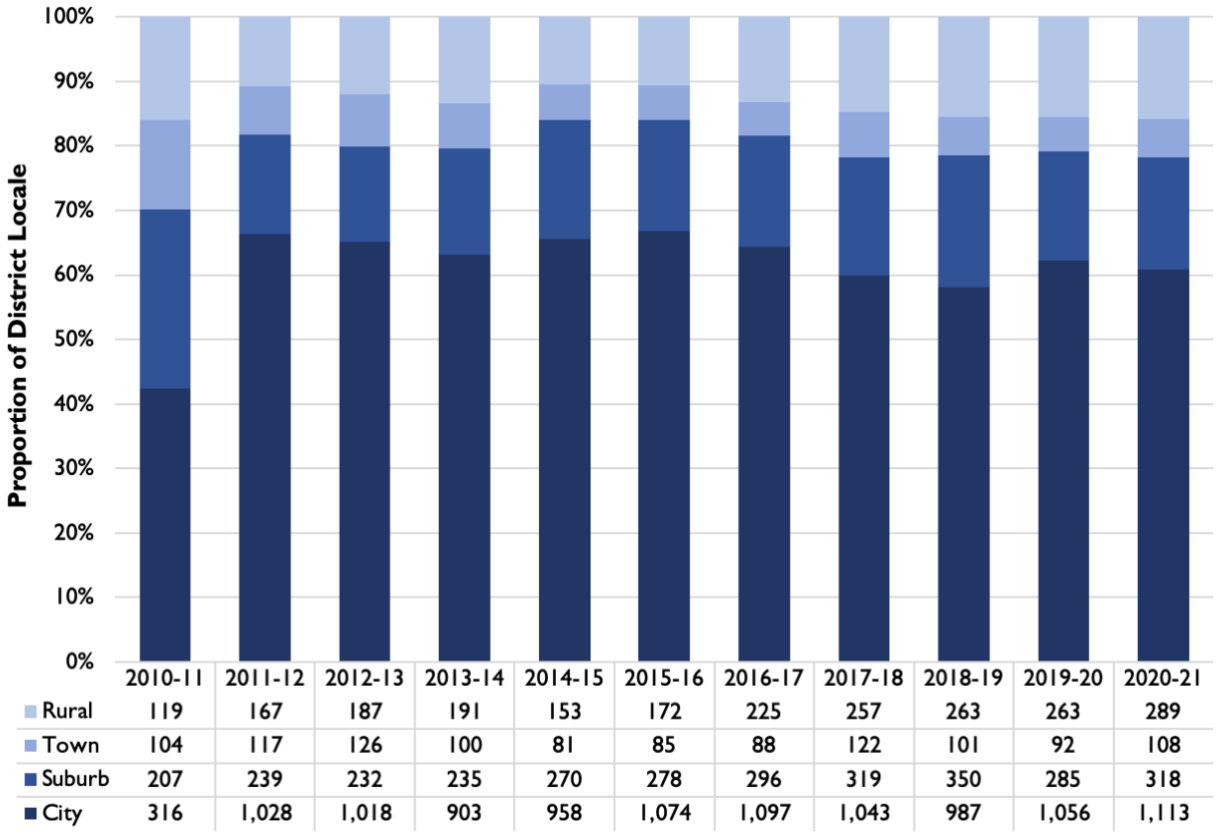
To my knowledge, this exploratory study is the first to longitudinally compare reclassification rates by ELs' waiver status. However, this study only attended to student-level factors (i.e., gender, Hispanic background, household SES, and ever-SPED status) and did not account for school-level and district-level variables. Research does suggest that reclassification timing can vary depending on types of assessments and practices (Slama, 2014) or instructional models (e.g., English immersion, pull-out, dual language, co-teaching; Motamedi et al., 2019; Umansky & Reardon, 2014). Therefore, future research, especially those in Tennessee, should account for contextual variability (e.g., proportion of ELs in a school or a district, reclassification practices in schools, English language development instructional models) to examine reclassification trends more comprehensively.

The analytic sample for this study only included students who entered the Tennessee public schools as ELs in kindergarten; therefore, the results should not be generalized to all ELs, who may enter Tennessee schools at different time points of entry. In fact, grade of school entry has been reported to predict length of time until reclassification, where ELs who enter

schools in earlier grades acquire English proficiency faster than those who enter in later grades (e.g., Conger, 2009; Kieffer & Parker, 2016). In addition, given that ELs' English language proficiency achievement data (ACCESS for ELLs) only became available in 2015 and that TELPA scores (i.e., used prior to ACCESS for ELLs) were unavailable in the state database, I was not able to account for ELs' initial English proficiency, as was done in previous studies. Given that ELs who start with higher levels of English language proficiency typically have greater odds of reclassification (Le et al., 2018), future longitudinal studies should account for English language proficiency scores when investigating reclassification trends between Waived ELs and Current ELs.

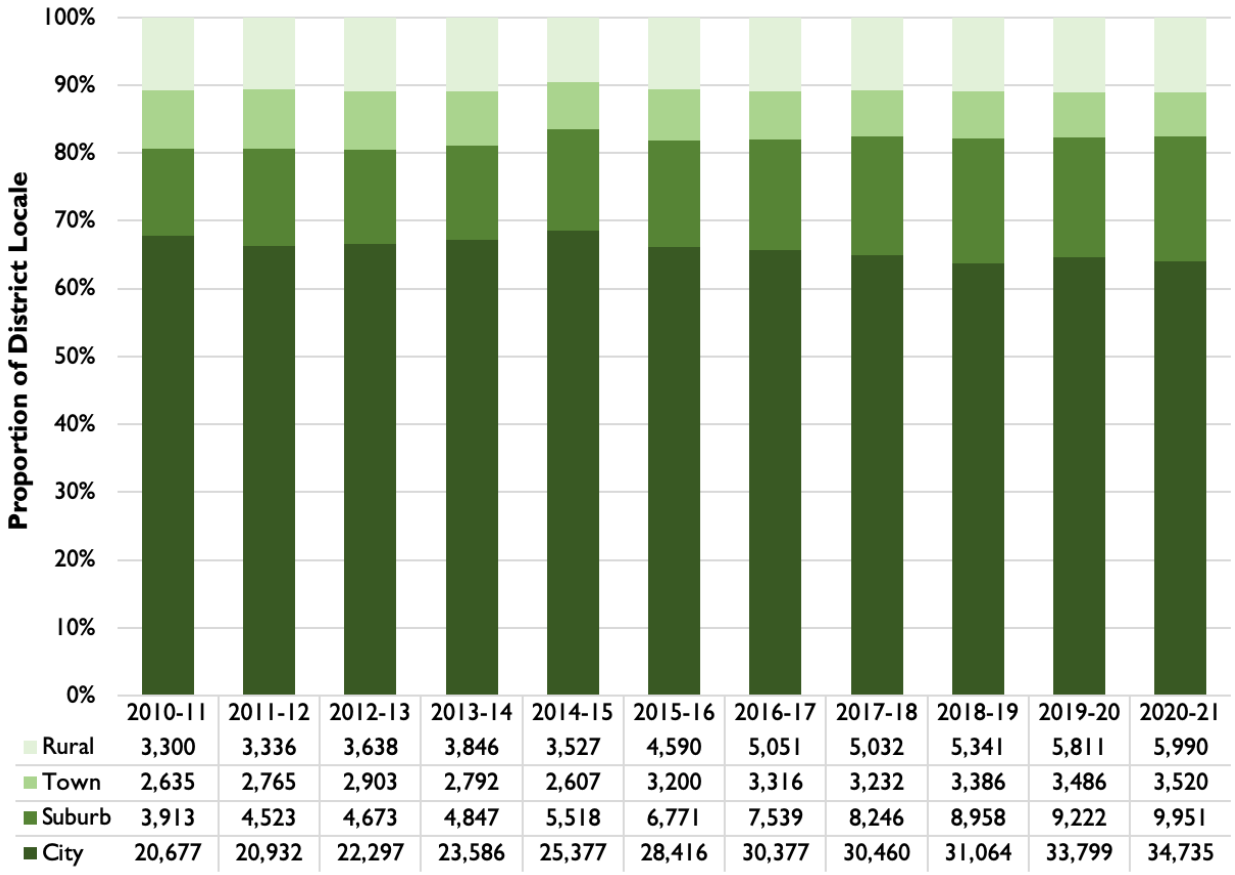
APPENDIX A

DISTRIBUTION OF ENGLISH LEARNERS
BY WAIVER STATUS AND DISTRICT LOCALE



	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
Rural	119	167	187	191	153	172	225	257	263	263	289
Town	104	117	126	100	81	85	88	122	101	92	108
Suburb	207	239	232	235	270	278	296	319	350	285	318
City	316	1,028	1,018	903	958	1,074	1,097	1,043	987	1,056	1,113

Figure A1. Annual population of Waived ELs by District Locale



	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
Rural	3,300	3,336	3,638	3,846	3,527	4,590	5,051	5,032	5,341	5,811	5,990
Town	2,635	2,765	2,903	2,792	2,607	3,200	3,316	3,232	3,386	3,486	3,520
Suburb	3,913	4,523	4,673	4,847	5,518	6,771	7,539	8,246	8,958	9,222	9,951
City	20,677	20,932	22,297	23,586	25,377	28,416	30,377	30,460	31,064	33,799	34,735

Figure A2. Annual population of Current ELs by District Locale

APPENDIX B

DISCRETE-TIME HAZARD ANALYSIS RESULTS
FOR SPECIAL EDUCATION PLACEMENT BY TIME POINT

Table B1. Hazard and Cumulative Hazard of SPED Placement by Grade and Waiver Status

	Hazard		Cumulative Hazard	
Grade	Ever-Waived EL	Never-Waived EL	Ever-Waived EL	Never-Waived EL
K	0.034	0.026	0.034	0.026
1	0.033	0.025	0.066	0.050
2	0.031	0.024	0.095	0.073
3	0.036	0.028	0.127	0.098
4	0.029	0.022	0.152	0.118
5	0.018	0.014	0.167	0.130
6	0.005	0.004	0.172	0.133
7	0.004	0.003	0.175	0.136
8	0.003	0.002	0.178	0.138

Note. SPED = Special education. K = Kindergarten. EL = English learner.
N = 14,612 students (949 Ever-Waived ELs; 13,666 Never-Waived ELs).

Table B2. Hazard and Cumulative Hazard of SLD Placement by Grade and Waiver Status

	Hazard		Cumulative Hazard	
Grade	Ever-Waived EL	Never-Waived EL	Ever-Waived EL	Never-Waived EL
K	0.008	0.005	0.008	0.005
1	0.008	0.005	0.016	0.010
2	0.018	0.011	0.033	0.021
3	0.024	0.015	0.057	0.036
4	0.022	0.014	0.078	0.050
5	0.017	0.011	0.093	0.060
6	0.007	0.004	0.099	0.064
7	0.004	0.003	0.103	0.067
8	0.004	0.002	0.106	0.069

Note. SLD = Specific learning disability. K = Kindergarten. EL = English learner.
N = 14,612 students (949 Ever-Waived ELs; 13,666 Never-Waived ELs).

Table B3. Hazard and Cumulative Hazard of SLI Placement by Grade and Waiver Status

	Hazard		Cumulative Hazard	
Grade	Ever-Waived EL	Never-Waived EL	Ever-Waived EL	Never-Waived EL
K	0.025	0.019	0.025	0.019
1	0.025	0.019	0.049	0.037
2	0.018	0.014	0.067	0.051
3	0.015	0.011	0.080	0.061
4	0.009	0.007	0.089	0.068
5	0.005	0.003	0.093	0.071
6	0.001	0.001	0.094	0.072
7	0.001	0.001	0.095	0.073
8	0.000	0.000	0.095	0.073

Note. SLI = Speech-language impairment. K = Kindergarten. EL = English learner.
N = 14,612 students (949 Ever-Waived ELs; 13,666 Never-Waived ELs).

APPENDIX C

DISCRETE-TIME HAZARD ANALYSIS RESULTS
FOR RECLASSIFICATION BY TIME POINT

Table C1. Hazard Probability and Cumulative Hazard Probability of Reclassification at Each Time Point (Grade) by Waiver Status.

	Hazard Function		Cumulative Hazard Function	
Grade	Waived EL	Current EL	Waived EL	Current EL
K	0	0	0	0
1	0.19	0.10	0.34	0.18
2	0.32	0.18	0.54	0.33
3	0.33	0.18	0.68	0.44
4	0.48	0.30	0.82	0.60
5	0.46	0.27	0.89	0.70
6	0.49	0.31	0.93	0.78
7	0.26	0.14	0.94	0.80
8	0.18	0.09	0.95	0.82

Note. K = Kindergarten. *N* = 14,059 (393 Waived ELs; 13,666 Current ELs).

Table C2. Hazard Probability and Cumulative Hazard Probability of Reclassification at Each Time Point (Grade) by Waiver Status and Ever-SPED Status.

	Hazard Function				Cumulative Hazard Function			
	Waived EL		Current EL		Waived EL		Current EL	
Grade	Ever SPED	Never SPED	Ever SPED	Never SPED	Ever SPED	Never SPED	Ever SPED	Never SPED
K	0	0	0	0	0	0	0	0
1	0.07	0.21	0.04	0.11	0.13	0.38	0.07	0.20
2	0.13	0.36	0.07	0.20	0.24	0.60	0.14	0.36
3	0.13	0.36	0.07	0.21	0.34	0.74	0.20	0.49
4	0.23	0.52	0.13	0.33	0.49	0.87	0.30	0.66
5	0.20	0.50	0.12	0.30	0.59	0.93	0.38	0.76
6	0.22	0.54	0.14	0.34	0.68	0.97	0.47	0.84
7	0.09	0.29	0.05	0.16	0.70	0.98	0.50	0.86
8	0.06	0.20	0.03	0.10	0.72	0.98	0.51	0.88

Note. K = Kindergarten. *N* = 14,059 students (55 Ever-SPED Waived ELs; 338 Never-SPED Waived ELs; 2,215 Ever-SPED Current ELs; 11,451 Never-SPED Current ELs).

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