

Progress of Arizona Kindergartners toward English Proficiency in Grade 3 by English Learner Student Classification

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Progress of Arizona Kindergartners toward English Proficiency in Grade 3 by English Learner Student Classification

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This study was prompted by the Arizona Department of Education’s interest in learning more about the progress of English learner students toward English proficiency in the early grades. The study examined the English language proficiency and English language arts (ELA) proficiency (reading and writing at grade level) of non-native English speaker students in kindergarten and in grade 3. About 11 percent of 2013/14 kindergartners in Arizona were initially classified as English learner students. At the end of that school year, Arizona retested all non-native English speaker kindergartners after setting a higher threshold for English language proficiency. After reassessment, the proportion of kindergartners classified as English learner students rose to 18 percent. Students initially classified as English language proficient and reclassified as English learner students at the end of kindergarten were no more likely to achieve proficiency by the end of grade 3 than were students initially classified at the basic/intermediate (below proficient) level. This finding suggests that students who were reclassified likely needed English learner services at kindergarten entry. One group of students outperformed native English speakers on grade 3 proficiency assessments: non-native English speakers who were proficient when they entered kindergarten and confirmed as proficient when reassessed at the end of the school year. This finding increases confidence that these non-native English speaker students were appropriately classified as not needing English learner services. A small amount of the variation in English language proficiency and ELA proficiency in grade 3 was attributable to school characteristics, but most of the variation in outcomes was attributable to student characteristics. This suggests that practitioners and policymakers might want to investigate how to reduce gaps in achievement within schools in addition to increasing students’ achievement levels overall. Student characteristics associated with lower outcomes in grade 3 included lower English language proficiency level at kindergarten entry, being eligible for special education services, being a racial/ethnic minority student, and being male. Being socioeconomically disadvantaged was associated with a lower probability of achieving ELA proficiency by the end of grade 3 but not with reaching English language proficiency.

Why this study?

This study was prompted by the Arizona Department of Education’s (ADE) interest in learning more about the progress of English learner students toward English proficiency in the early grades (see box 1 for definitions of key terms). The study examined, for the 2013/14 kindergarten cohort in Arizona, the English language proficiency of non-native English speaker students and their English language arts (ELA) proficiency (reading and writing at grade level) by the end of grade 3. ADE wanted to inform its policy and practice to best identify and serve English learner students in the early grades.

In 2010 Arizona was cited by the federal government for underidentifying English learner students and ending services for them prematurely (U.S. Department of Education, 2012; U.S. Department of Justice, 2012). As part of a voluntary resolution agreement, Arizona took two steps to more accurately identify English learner students that are relevant to this study. First, the state revised its assessment for English language proficiency (the Arizona English Language Learner Assessment or AZELLA). Second, the state developed the AZELLA Kindergarten Placement Test

For additional information, including background on the study, methods, and supporting analyses, and other analyses, access the report appendices at <https://go.usa.gov/xfUpX>.

(KPT) to assess English language proficiency at kindergarten entry. ADE requested the current study in its role in the Regional Educational Laboratory (REL) West's Arizona Literacy Partnership. The English language proficiency and ELA proficiency of English learner students are of specific interest to the partnership, whose aim is to examine early literacy interventions and supports to improve English proficiency by grade 3.

Previous REL West research in Arizona that followed three cohorts of students who were classified as English learner students in kindergarten found that a majority achieved English language proficiency by grade 2 and that 90 percent achieved proficiency by grade 5 (Haas et al., 2015). The study also found that students with the lowest English language proficiency level in kindergarten, students who were eligible for special education services, students who were eligible for the national school lunch program, and male students had lower cumulative passing rates on the statewide ELA assessment over five years. However, the research was based on the previous iteration of the English language proficiency assessments, before the AZELLA KPT was introduced. (See appendix A for additional information on how this study compares with previous research.) The current study examined how student characteristics are related to progress in English language proficiency and ELA proficiency in the context of an updated assessment, how school factors are related to English proficiency, and how non-native English speakers, including those confirmed as proficient in kindergarten, progressed in English proficiency by grade 3.

Box 1. Key terms

Arizona English Language Learner Assessment (AZELLA). The AZELLA is the Arizona standards-based assessment that evaluates students' English language proficiency in four domains: reading, writing, listening, and speaking. The AZELLA scale scores for these domains are combined into a total score, which is categorized into levels of English language proficiency. The AZELLA is used to measure students' English language proficiency for both placement into and reassessment of eligibility for English learner services. The AZELLA Kindergarten Placement Test (KPT) is used at entry into kindergarten to assess English language proficiency. The AZELLA Stage I Reassessment is used at the end of kindergarten to reassess English proficiency. At every grade except kindergarten, the proficiency levels are pre-emergent/emergent, basic, intermediate, and proficient. The first three levels are considered below proficient and the fourth as proficient. The AZELLA KPT uses only three levels, combining basic and intermediate.

Non-native English speaker students. On entry to an Arizona public school, students are identified as non-native English speaker students if the responses on the Primary Home Language Other Than English survey indicate that the family speaks a language other than English at home. These students take the AZELLA KPT at kindergarten entry to evaluate their English language proficiency.

English language proficiency. English language proficiency is based on the AZELLA proficiency levels. The English language proficiency of non-native English speaker students in kindergarten was examined in this study using three mutually exclusive levels of English language proficiency derived from the AZELLA KPT and the AZELLA Stage I Reassessment: pre-emergent/emergent (based on the AZELLA KPT), basic/intermediate (based on the AZELLA KPT), and initially classified as English language proficient (based on the AZELLA KPT) and reclassified as an English learner student at the end of kindergarten (scored below proficient on the AZELLA Stage I Reassessment).

English learner students. At entry into kindergarten non-native English speaker students who score below proficient on the AZELLA KPT are classified as English learner students and are eligible for English learner services. Students who score below proficient on the AZELLA Stage I Reassessment at the end of kindergarten are also classified as English learner students. English learner students are reassessed annually until they score at the proficient level and are reclassified as English language proficient.

Confirmed proficient in kindergarten. For the purpose of this study non-native English speaker students initially classified as English language proficient on the AZELLA KPT and confirmed as proficient at the AZELLA Stage I Reassessment at the end of kindergarten are referred to as students confirmed proficient in kindergarten.

Reclassified as English learner students in kindergarten. For the purpose of this study non-native English speaker students initially classified as English language proficient based on the AZELLA KPT but who scored below proficient on the AZELLA Stage I Reassessment at the end of kindergarten and were therefore reclassified as English learner students are referred to as reclassified as English learner students in kindergarten.

Arizona Measurement of Education Readiness to Inform Teaching (AzMERIT). AzMERIT is the statewide achievement test for Arizona students used from Spring 2015 to Spring 2019. Students in grades 3 through 8 took an assessment in English language arts (ELA) and math at their grade level.

English language arts (ELA) proficiency. ELA proficiency in grade 3 is measured by the overall ELA score on AzMERIT. Student performance on grade-level expectations is assessed for both reading and writing. A student's composite score is reported as being in one of four proficiency levels: minimally proficient, partially proficient, proficient, or highly proficient. The first two levels are considered as below proficient and the second two as proficient on or above grade level.

ADE requested this study using updated AZELLA statewide assessments to understand the English language progress of non-native English speaker students from kindergarten through grade 3 and their ELA proficiency by the end of grade 3. ADE wanted this information to inform policy and practice about how best to identify and serve English learner students in the early grades. Further, understanding variation in student achievement at the student and school levels can help ADE target efforts to improve identification of English learner students and assessment of their English language progress in particular types of schools or for students in particular student demographic subgroups.

Research questions

This study examined the English language progress and ELA proficiency by the end of grade 3 of non-native English speaker students in Arizona's 2013/14 kindergarten cohort. This report first describes the English language proficiency of students at kindergarten entry and the identification of English learner students. The report then examines the association between students' level of English language proficiency in kindergarten and their levels of English language proficiency and ELA proficiency by the end of grade 3 and looks at the influence of selected student and school characteristics on achieving proficiency by the end of grade 3.

Specifically, the study addressed three research questions:

1. What percentage of students entering kindergarten in 2013/14 in Arizona were classified as English learner students, and did the percentage change after reassessment at the end of kindergarten?
2. For students classified as English learner students in kindergarten, how did English language proficiency level in grade 3 vary by English language proficiency level in kindergarten and by the characteristics of English learner students and their schools?
3. For all students how did ELA proficiency level in grade 3 vary by English language proficiency level in kindergarten and by the characteristics of students and their schools?

Arizona's process for identifying students as English learner students is explained in box 2.

Box 2. Arizona English Language Learner Assessment for kindergarten students

Students identified as non-native English speaker students at kindergarten entry based on responses to the Primary Home Language Other Than English survey take the Arizona English Language Learner Assessment (AZELLA) Kindergarten Placement Test (KPT) to evaluate their English language proficiency. Those who do not demonstrate proficiency are classified as English learner students and are eligible to receive English learner services.

At the end of the school year the English learner students (and students referred by their teacher) are reassessed for English language proficiency with the AZELLA Stage I Reassessment. English learner students are reassessed annually until they score proficient on an AZELLA Reassessment (achieve fluency in the English language). Reassessments are typically administered at the end of the school year, but students can be reassessed at any time if deemed necessary by their teacher.

The 2013/14 school year was unique in that 95 percent of non-native English speaker students in the kindergarten cohort took the AZELLA Stage I Reassessment at the end of the year, regardless of whether they had been classified as English learner students at the beginning of the year. This wide reassessment was part of a process to review cutscores for the proficiency levels on the AZELLA KPT (Arizona Department of Education, 2014). As a result of this review, higher cutscores were recommended for the AZELLA KPT beginning in 2014/15 since many students in the 2013/14 cohort who had originally been classified as proficient were found not to be proficient on reassessment.

The study also examined student and school characteristics that have been identified in the literature as being associated with the performance outcomes of non-native English speaker students. Data on student characteristics available from ADE included gender, socioeconomic status (as indicated by eligibility for the national school lunch program), eligibility for special education services, and race/ethnicity. Data on school characteristics included percentage of students from families of low socioeconomic status, number of students, and percentage of English learner students. In addition, because Arizona has a high percentage of students enrolled in charter schools (18 percent in 2013/14, according to U.S. Department of Education, 2015), the Arizona Literacy Partnership requested that the analysis include schools' charter status.

The data sources, sample, and methods used in the analysis are in box 3.

Box 3. Data sources, sample, and methods

Data sources. The data for this study came from four Arizona Department of Education (ADE) sources. Students' demographic characteristics and school enrollment records were collected from the ADE enrollment longitudinal data system. Results of the English language proficiency assessments and the assessment dates were obtained from ADE's Arizona English Language Learner Assessment (AZELLA) database. English language arts (ELA) proficiency levels on the Arizona Measurement of Education Readiness to Inform Teaching (AzMERIT) ELA assessment in grade 3 were retrieved from ADE's AzMERIT database. Charter status for all Arizona schools was available on the public ADE website. All records were linked using unique student identification numbers and school identification numbers provided by ADE.

Population of analysis. The study population for research question 1 (on the percentage of students entering kindergarten in 2013/14 who were classified as English learner students) was the cohort of students who entered an Arizona public kindergarten in 2013/14 (88,857 students). For examining the association between English language proficiency level in kindergarten and English language proficiency and ELA proficiency levels by the end of grade 3, the population of analysis (based on the population of interest to the study's stakeholders) was English learner students (research question 2) or all students (research question 3) who entered an Arizona public kindergarten in 2013/14, made regular grade progress (were not retained or held back), and were still enrolled in the Arizona public school system through grade 3 (2016/17). For research question 2, among the 14,101 students classified as English learner students in kindergarten in 2013/14 who made regular grade progress and were still enrolled in the Arizona public school system in grade 3 in 2016/17, 13,776 students (98 percent) had an AZELLA score available and were included in the analysis. For research question 3, among the 73,476 students who entered an Arizona public kindergarten in 2013/14, made regular grade progress, and were still enrolled in the Arizona public school system in 2016/17, 69,654 students (95 percent) had a score on the AzMERIT in grade 3 and were included in the analysis.

Methodology. Descriptive statistics were calculated to report on the distribution of English language proficiency levels among non-native English speaker students in kindergarten in 2013/14 (research question 1). Descriptive statistics and multilevel modeling were used to examine the association between the cohort's English language proficiency levels in kindergarten and in grade 3 (research question 2). The multilevel model was used to account for the fact that individual (student-level) data are nested within groups (schools). The model calculated the probability of achieving English language proficiency (being reclassified as proficient in English) by the end of grade 3 by English language proficiency level in kindergarten, student characteristics, and school characteristics. The association between English language proficiency level in kindergarten and ELA proficiency level by the end of grade 3 (research question 3) was examined using descriptive statistics and multilevel modeling. The model calculated the probability of

achieving ELA proficiency by the end of grade 3 by English language proficiency level in kindergarten, student characteristics, and school characteristics. The report discusses statistically significant differences in the text; lack of significance is discussed in the text only for key variables of interest to ADE. Differences of less than 5 percentage points in outcomes are not reported or are characterized as small in the text. A more detailed description of the study data sources, sample, and methods is in appendix B.

Findings

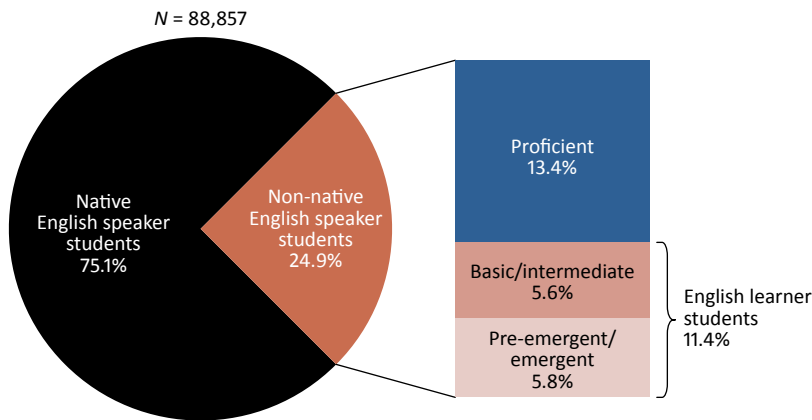
Findings are reported below for the three research questions, beginning with the distribution of English language proficiency levels among students entering kindergarten in 2013/14 (research question 1). Key findings are also reported for English learner students on the association between English language proficiency level in kindergarten and English language proficiency level in grade 3 and the probabilities of achieving English language proficiency by the end of grade 3 by student and school characteristics (research question 2). Finally, key findings are presented for all students on the association between English language proficiency level in kindergarten and ELA proficiency level in grade 3 and the probabilities of achieving ELA proficiency by grade 3 by student and school characteristics (research question 3).

About 11 percent of students entering kindergarten in Arizona in 2013/14 were classified as English learner students; the proportion rose to 18 percent when students were reassessed at the end of kindergarten using a higher threshold for English language proficiency

Nearly half of non-native English speaker students in the cohort—11 percent of all kindergartners—were not proficient in English at entry into kindergarten and were classified as English learner students. Among students entering kindergarten in 2013/14, 25 percent were classified as non-native English speaker students based on ADE’s home language survey (figure 1). Slightly less than half (47 percent) of non-native English speaker students tested below proficient in English, with approximately equal shares of students classified at the basic/intermediate and pre-emergent/emergent levels. This resulted in 11 percent of the total kindergarten cohort being classified as English learner students.

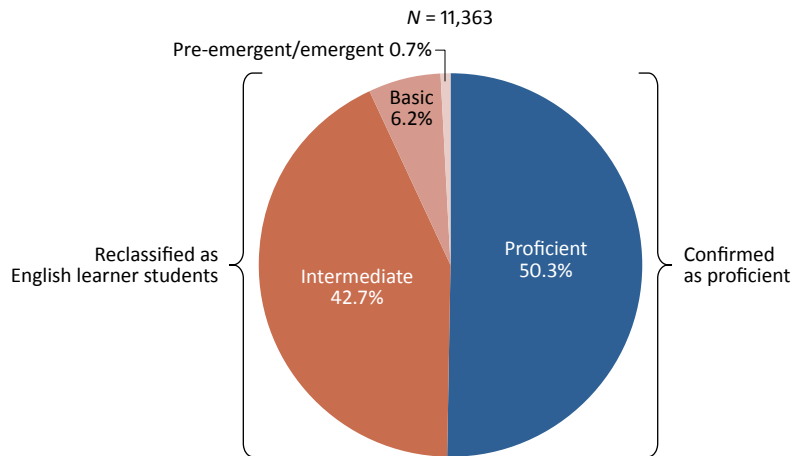
Half the non-native English speaker students classified as proficient at entry to kindergarten were reclassified as English learner students after being reassessed at the end of kindergarten. On the reassessment on the AZELLA Stage I Reassessment at the end of kindergarten in 2013/14, half the students who had been classified as proficient at entry scored below proficient and were reclassified as English learner students (figure 2). Most of the reclassified students scored at the intermediate level of proficiency on the reassessment.

Figure 1. About 11 percent of students entering kindergarten in Arizona in 2013/14 were classified as English learner students



Note: Percentages may not sum to totals because of rounding.
 Source: Authors’ analysis based on Arizona Department of Education data described in appendix B.

Figure 2. Of the non-native English speaker students classified as English language proficient at entry to kindergarten, half were reclassified as English learner students after being reassessed at the end of kindergarten, and half were confirmed as proficient, 2013/14 kindergarten cohort in Arizona

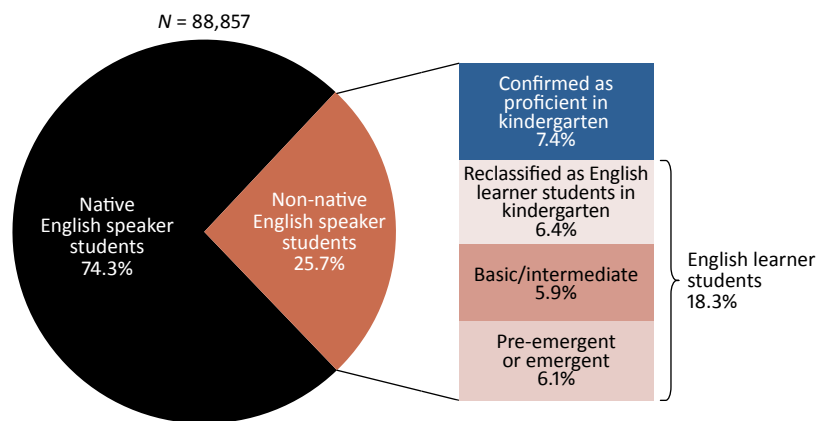


Note: Reassessment proficiency levels were available for 11,363 of 11,940 students who scored proficient at kindergarten entry. Percentages do not sum to 100 because of rounding.

Source: Authors' analysis based on Arizona Department of Education data described in appendix B.

The percentage of kindergarten students in 2013/14 who were classified as English learner students rose from 11 percent to 18 percent after non-native English speaker students were reassessed. After non-native English speaker students were reassessed at the end of kindergarten, the proportion of students classified as English learner students rose from 11 percent (see figure 1) to 18 percent (figure 3). The percentage of non-native English speaker students who were classified as English learner students rose from about half at kindergarten entry to about three-quarters after the reassessment at the end of kindergarten. That larger proportion is the group referred to in the rest of this report as English learner students. The levels pre-emergent/emergent, basic/intermediate, and reclassified as English learner students in kindergarten (for students initially classified as proficient and reclassified

Figure 3. About 18 percent of students entering kindergarten in Arizona in 2013/14 were classified as English learner students after being reassessed at the end of kindergarten



Note: The percentage of native English speaker students in this figure differs from that in figure 1 because 746 native English speaker students who were not initially identified for assessment based on the home language survey at enrollment were referred for assessment of their English language proficiency in kindergarten because their teacher thought that they needed language support. These students were assessed using the Arizona English Language Learner Assessment Stage I Reassessment. Of these 746 students, 450 were reclassified as English learner students and 296 were confirmed as proficient in kindergarten. Percentages may not sum to total because of rounding.

Source: Authors' analysis based on Arizona Department of Education data described in appendix B.

as English learner students at the end of kindergarten) each include about a third of the English learner students in the 2013/14 kindergarten cohort. Students confirmed as proficient in kindergarten (students initially classified as proficient and confirmed as proficient at the end of kindergarten) accounted for 7 percent of the 2013/14 kindergarten cohort (see figure 3).

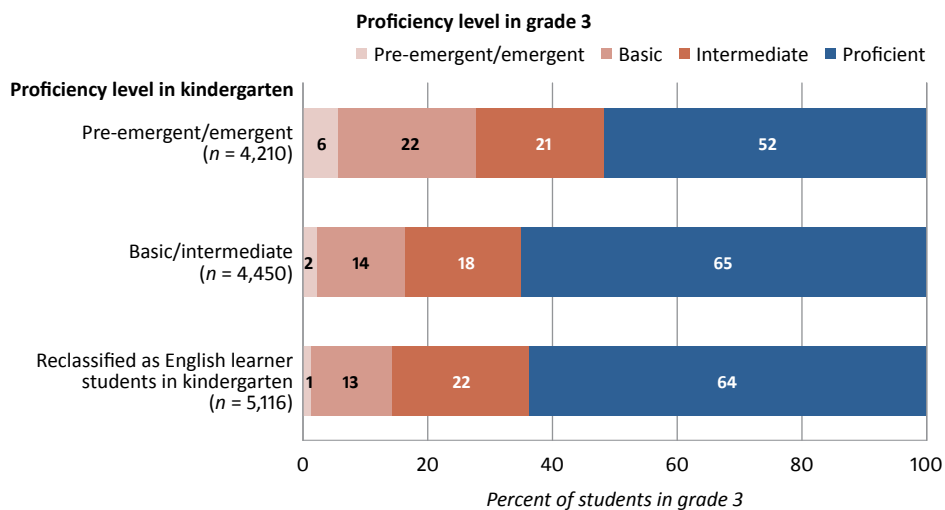
For students classified as English learner students in kindergarten, English language proficiency level by the end of grade 3 varied by proficiency level in kindergarten, gender, eligibility for special education services, race/ethnicity, and school size

Overall, about 61 percent of English learner students were classified as English language proficient in grade 3 based on the AZELLA, but the rate varied considerably by students’ proficiency level in kindergarten and by some student and school characteristics.

Students reclassified as English learner students in kindergarten were no more likely to achieve proficiency than students classified at the basic/intermediate level in kindergarten. Students’ English language proficiency level in kindergarten was significantly associated with their likelihood of achieving English language proficiency by the end of grade 3 (see appendix B for more detail). Students classified at a higher English language proficiency level in kindergarten made better progress in proficiency through grade 3. About 52 percent of English learner students classified at the pre-emergent/emergent proficiency level (the lowest level) in kindergarten achieved proficiency by the end of grade 3 (figure 4). The percentage achieving proficiency by the end of grade 3 was higher for English learner students classified at the basic/intermediate level in kindergarten (65 percent) and for students reclassified as English learner in kindergarten (64 percent).

Among students classified at the lowest English language proficiency level in kindergarten, close to 30 percent remained in the lowest two proficiency levels by the end of grade 3. Among students classified at the pre-emergent/emergent level of English language proficiency in kindergarten, nearly 6 percent remained at that level in grade 3, while 22 percent moved up to the basic level (see figure 4). In other words, nearly 30 percent

Figure 4. Students reclassified as English learner students in kindergarten were no more likely to achieve English language proficiency on the Arizona English Language Learner Assessment by the end of grade 3 than students classified at the basic/intermediate level of proficiency in kindergarten, 2013/14 kindergarten cohort in Arizona



Note: Percentages may not sum to 100 because of rounding. See tables C4 and C5 in appendix C for detailed frequencies and percentages.

Source: Authors’ analysis based on Arizona Department of Education data described in appendix B.

of students classified at the lowest proficiency level when they entered kindergarten stayed at the lowest two proficiency levels in grade 3. Among students classified at the basic/intermediate level in kindergarten and students reclassified as English learner students in kindergarten, about 15 percent were classified at the basic level or below in grade 3.

Most of the variation in English language proficiency by the end of grade 3 was attributable to student differences rather than to school differences. Variations in English language proficiency level in grade 3 were statistically significant among students in different schools, but those variations accounted for only about 7 percent of the overall variation in students' proficiency (see table C6 in appendix C). A much larger part of the variation (about 93 percent) in students' proficiency in grade 3 was among students in the same schools, highlighting large gaps in achievement between English learner students within schools.

Along with English language proficiency level in kindergarten, students' gender, eligibility for special education services, and race/ethnicity were significantly associated with achieving English language proficiency by the end of grade 3. After other differences in student and school characteristics were accounted for, kindergartners reclassified as English learner students at the end of the school year were no more likely to achieve English language proficiency by the end of grade 3 than students originally classified at the basic/intermediate level. The predicted probability of achieving English language proficiency by the end of grade 3 was 66 percent for both groups (table 1). For average students¹ other than their being classified at the pre-emergent/emergent level, the predicted probability was lower, at 51 percent.

The predicted probability of achieving English language proficiency by the end of grade 3 was higher for girls (65 percent) than for boys (59 percent). The probability was lower for students who were eligible for special education services (41 percent) than for students who were not (64 percent). Students who were eligible for special education services had one of the lowest predicted probabilities of any group. Students' race/ethnicity was also statistically significantly associated with the probability of achieving proficiency by the end of grade 3. Among English learner students, American Indian/Alaska Native students had the lowest predicted probability (39 percent), while Asian and White students had the highest (more than 70 percent). Student socioeconomic status was not significantly associated with achieving proficiency by the end of grade 3.

School size was the only school characteristic significantly associated with achieving English language proficiency by the end of grade 3. Being in a school with 20 more students than average in the cohort corresponded to a 1 percentage point increase in the predicted probability of achieving English language proficiency.

1. Each predictor was centered on its grand mean—the average proportion of each demographic characteristic in the analytic sample. Therefore, the average student probability for a given characteristic corresponds to the probability of an average student—a student with average demographic characteristics at an average school—achieving English language proficiency.

Table 1. Predicted probability of achieving English language proficiency on the Arizona English Language Learner Assessment by the end of grade 3 among English learner students, by English language proficiency level in kindergarten and student and school characteristics, 2013/14 kindergarten cohort in Arizona

Characteristic	Predicted probability (percent)
Average student ^a	61.8
Student characteristic	
English language proficiency level in kindergarten	
Pre-emergent/emergent	50.9**
Reclassified as English learner student in kindergarten	66.3
Basic/intermediate ^b	66.3
Gender	
Female	64.6**
Male ^b	59.0
Eligible for special education services	
Yes	40.5**
No ^b	63.6
Economically disadvantaged status	
Yes	61.7
No ^b	61.8
Race/ethnicity	
American Indian/Alaska Native	38.7**
Asian	76.7**
Black/African American	66.4
White	73.1**
Other	67.8
Hispanic/Latino ^b	61.1
School characteristic^c	
Percentage English learner students	
Higher than average by 10 percentage points	61.6
Number of students	
Higher than average by 20 students	62.8**
Percentage economically disadvantaged students	
Higher than average by 10 percentage points	61.6
Charter school status	
Yes	61.7
No ^b	61.8

** Significant at $p = .01$. For variables with a reference category, indicates significantly different from the reference category at $p = .01$.

Note: No additional characteristics were significant at $p = .05$, and no characteristics were significant at $p = .001$. See table C7 in appendix C for estimated coefficients, significance levels, and odds ratios.

a. The average student probability corresponds to the probability of an average student at an average school achieving English language proficiency.

b. Reference category for the categorical predictors.

c. School characteristic variables are computed for the cohort of analysis. Number of students in a school is approximated by the number of students in the cohort. See appendix B for more detail.

Source: Authors' analysis based on Arizona Department of Education data described in appendix B.

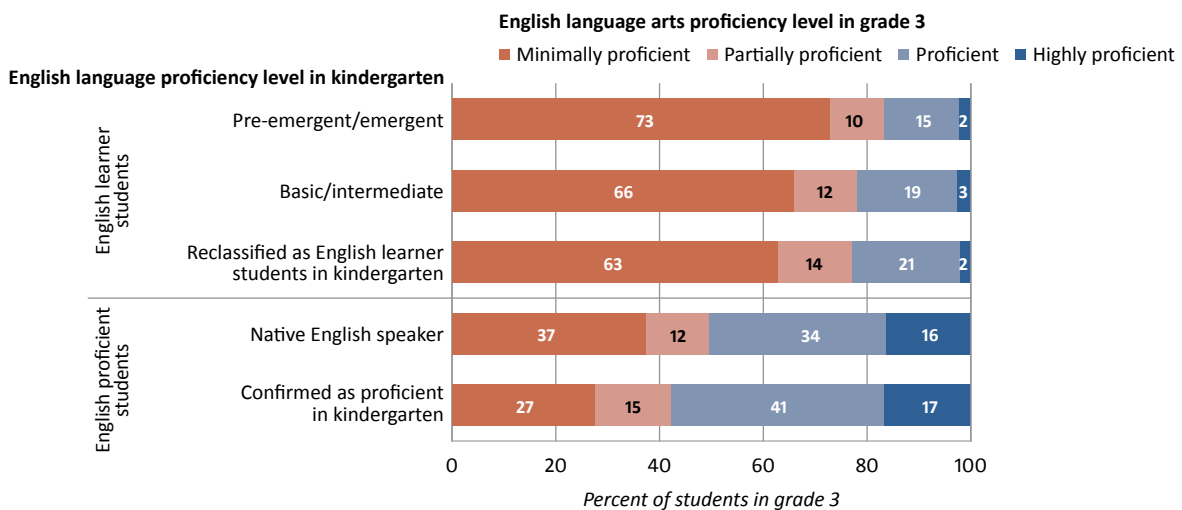
Grade 3 English language arts proficiency varied by English language proficiency level in kindergarten, gender, eligibility for special education services, socioeconomic status, race/ethnicity, and the school concentration of English learner students and socioeconomically disadvantaged students

About 45 percent of all students achieved ELA proficiency by the end of grade 3, but the percentage achieving ELA proficiency varied considerably by English language proficiency level in kindergarten and by some student and school characteristics.

Less than a quarter of students classified by the AZELLA as English learner students achieved ELA proficiency on the AzMERIT in grade 3. There was a statistically significant association between students’ English language proficiency level in kindergarten and their ELA proficiency level in grade 3 (see details in appendix B). The achievement gap in ELA proficiency in grade 3 was primarily between English learner students and other students. Among students who were native English speakers and students confirmed as proficient at the end of kindergarten, a majority achieved ELA proficiency by the end of grade 3 (figure 5). However, among English learner students, less than a quarter at each level of English language proficiency in kindergarten achieved ELA proficiency by the end of grade 3.

Among English learner students, students classified at the basic/intermediate proficiency level or reclassified as English learner students in kindergarten were more likely than other students classified as English learner students in kindergarten to achieve ELA proficiency by the end of grade 3. About 73 percent of English learner students classified at the lowest English language proficiency level (pre-emergent/emergent) in kindergarten scored at the lowest ELA proficiency level (minimally proficient) in grade 3, while 66 percent of students classified at the basic/intermediate level of English language proficiency scored at the lowest ELA proficiency level. The distribution of ELA proficiency levels in grade 3 among students reclassified as English learner students in kindergarten was similar to that among English learner students classified at the basic/intermediate level of English language proficiency in kindergarten.

Figure 5. English learner students, including those reclassified as English learner students in kindergarten, were less likely than native English speaker students to achieve English language arts proficiency by the end of grade 3, 2013/14 kindergarten cohort in Arizona



Note: A total of 69,654 students entered kindergarten in 2013/14 in Arizona, made regular grade progress, were still enrolled in the Arizona public school system in 2016/17, and had a score on the Arizona Measurement of Education Readiness to Inform Teaching English language arts assessment in grade 3. Percentages may not sum to 100 because of rounding. See tables C8 and C9 in appendix C for detailed frequencies and percentages.

Source: Authors’ analysis based on Arizona Department of Education data described in appendix B.

Non-native English speaker students confirmed as proficient at the end of kindergarten outperformed native English speaker students in ELA proficiency by the end of grade 3. Non-native English speaker students who were confirmed as proficient in kindergarten outperformed native English speaker students on the ELA assessment in grade 3 (see figure 5). They were also more likely to score proficient or highly proficient (58 percent) in grade 3 than native English speaker students (51 percent) and less likely to score minimally proficient (27 percent) than native English speakers (37 percent).

As with English language proficiency, most of the variation in achieving ELA proficiency by the end of grade 3 was associated with differences among students in the same school rather than differences between schools. Differences among students in the same school accounted for about 84 percent of the variation in ELA proficiency in grade 3, while variations among students in different schools accounted for about 16 percent (see table C10 in appendix C). Although school differences accounted for more variation in ELA proficiency than in English language proficiency, overall variation in student ELA proficiency was still attributable mainly to gaps in achievement between students within the same schools.

English learner students, including students reclassified as English learner students in kindergarten, were less likely than native English speaker students to achieve ELA proficiency by the end of grade 3. English learner students at all three levels of proficiency (pre-emergent/emergent, basic/intermediate, and reclassified as English learner students in kindergarten) had lower predicted probabilities of achieving ELA proficiency by the end of grade 3 than did native English speaker students (table 2). Students classified at the pre-emergent/emergent level of English language proficiency in kindergarten had one of the lowest probabilities (24 percent). The probability was also low (around 30 percent) for students classified at the basic/intermediate level of English language proficiency and for students reclassified as English learner students in kindergarten. Non-native English speaker students confirmed as proficient in kindergarten had the highest predicted probability of achieving ELA proficiency by the end of grade 3 (64 percent), higher even than native English speaker students (46 percent).

Students' gender, eligibility for special education services, socioeconomic status, and race/ethnicity were significantly associated with achieving ELA proficiency by the end of grade 3. Girls were more likely to achieve ELA proficiency by the end of grade 3 than boys (see table 2). Students eligible for special education services and economically disadvantaged students were less likely to achieve ELA proficiency by the end of grade 3 than their peers. Compared with Hispanic students, Asian, White, and students with race/ethnicity classified as "other" had higher probabilities of achieving ELA proficiency by the end of grade 3, while American Indian/Alaska Native and Black students had lower probabilities. The predicted probability of achieving ELA proficiency was lowest for students eligible for special education services (26 percent) and for American Indian/Alaska Native students (23 percent).

Two school characteristics were statistically significantly associated with achieving ELA proficiency by the end of grade 3, but they made only a small difference in predicted probabilities. The school concentrations of English learner students and of economically disadvantaged students were statistically significantly and negatively associated with achieving ELA proficiency by the end of grade 3 (see table 2). Yet, these school characteristics accounted for little of the variation in ELA proficiency outcomes in grade 3. For an average student, a 10 percentage point increase in the proportion of English learner students in a school corresponded to a 3 percentage point decrease in the predicted probability of achieving ELA proficiency by the end of grade 3 (from 44 percent to 41 percent). A 10 percentage point increase in the percentage of economically disadvantaged students in a school corresponded to an approximately 1 percentage point decrease (from 44 percent to 43 percent). Neither school size nor charter status was significantly associated with achieving ELA proficiency by the end of grade 3.

Table 2. Predicted probability of achieving English language arts proficiency by the end of grade 3 among all students, by English language proficiency level in kindergarten and student and school characteristics, 2013/14 kindergarten cohort in Arizona

Characteristic	Predicted probability (percent)
Average student ^a	44.0
Student characteristic	
<i>English language proficiency level in kindergarten</i>	
<i>English learner students</i>	
Pre-emergent/emergent	24.3**
Basic/intermediate	30.6**
Reclassified as English learner student in kindergarten	30.3**
<i>Students proficient in English</i>	
Confirmed as proficient in kindergarten	64.0**
Native English speaker students ^b	46.1
Gender	
Female	46.8**
Male ^b	41.1
Eligible for special education services	
Yes	25.6**
No ^b	45.7
Economically disadvantaged status	
Yes	37.4**
No ^b	50.2
Race/ethnicity	
American Indian/Alaska Native	22.8**
Asian	62.4**
Black/African American	35.7**
White	51.7**
Other	46.8**
Hispanic/Latino ^b	39.9
School characteristic^c	
Percentage English learner students	
Higher than average by 10 percentage points	41.3**
Number of students	
Higher than average by 20 students	44.1
Percentage economically disadvantaged students	
Higher than average by 10 percentage points	43.1**
Charter school status	
Yes	44.0
No ^b	44.0

** Significant at $p = .01$. For variables with a reference category, indicates significantly different from the reference category at $p = .01$.

Note: No additional characteristics were significant at $p = .05$, and no characteristics were significant at $p = .001$. See table C11 in appendix C for estimated coefficients, significance levels, and odds ratios.

a. The average student probability corresponds to the probability of an average student at an average school achieving English language proficiency.

b. Reference category for the categorical predictors.

c. School characteristic variables are computed for the cohort of analysis. Number of students in school is approximated by the number of students in the cohort. See appendix B for more detail.

Source: Authors' analysis based on Arizona Department of Education data described in appendix B.

Limitations

The study analyses are descriptive and correlational. They describe statistical associations rather than causal relationships between English language proficiency in kindergarten and English language proficiency in grade 3, ELA proficiency in grade 3, and student and school characteristics. Thus, no causal connections should be drawn about how student and school characteristics affect student performance.

This study examined one cohort of students in one state. The associations described for the cohort of students entering kindergarten in the Arizona public school system in 2013/14 may differ from those for a broader English learner student population. Further, due to changes in cutscores on Arizona's AZELLA and AZELLA KPT since 2013/14, results may differ for more recent kindergarten cohorts. There may also be variations over time and across states and contexts that generate different patterns from those reported here. Not only does each state identify English learner students using different assessments and score cutoffs, but state assessments vary in content and measured skills.

Further, the kindergarten cohort in this study does not include students who moved out of state or left the Arizona public school system. Moreover, some students, even if still enrolled in the Arizona public school system, might not have taken the AzMERIT ELA assessment in grade 3 because they were not promoted, they opted out of the assessment, or they missed the testing window. To the extent that students who made regular grade progress might have had better outcomes than those who did not, the results do not fully reflect the 2013/14 kindergarten cohort's English language proficiency and ELA proficiency in grade 3, and actual proficiency for the full cohort might be lower.

In addition, Arizona's AZELLA and AZELLA KPT define student *eligibility* for English learner services. Data on English learner services received were not available for this study.

Finally, the school characteristics for which data were available for this study were mainly compositional factors that could be derived from the aggregation of student characteristics. Examining more malleable characteristics, such as school support and programmatic variables for English learner services (for example, instructional models, service delivery, and staffing models), might result in different outcomes. Data on those characteristics were not available for this study but might be available for future studies. Having this information would enable ADE to study the effect of English learner services and supports on student outcomes.

Implications

To ensure that all students in need of English learner services are identified at kindergarten entry and have the potential to benefit from services throughout kindergarten, state and local education agencies might want to examine how well the cutscores on English language proficiency assessments accurately identify kindergarten students who need support. ADE did this in 2013/14 by reassessing the English language proficiency of all non-native English speakers at the end of kindergarten. This reassessment resulted in an increase in the percentage of English learner students from about 11 percent to 18 percent, or from 46 percent to 72 percent of the non-native English speaker population. Non-native English speaker students who were reclassified as English learner students based on a different assessment for English proficiency at the end of kindergarten achieved English language proficiency at nearly the same rate as students classified at the basic/intermediate level at kindergarten entry. This finding suggests that students who were reclassified likely needed English learner services at kindergarten entry, despite being classified as proficient on the initial assessment.

This study also highlights that the subgroup of non-native English speaker students initially classified as English language proficient at kindergarten entry and confirmed as proficient at the end of kindergarten outperformed

native English speaker students on the ELA assessment in grade 3. This finding increases confidence that these non-native English speaker students were appropriately classified as not needing English learner services. ADE might want to further examine this group to identify what might have contributed to their high performance, including their characteristics, education experiences, and any supports that they might have received in the general education classroom (such as tiered interventions and curricular resources).

ADE might want to examine the effectiveness of services for helping English learner students achieve ELA proficiency. Less than a quarter of students classified as English learner students in kindergarten achieved ELA proficiency by the end of grade 3. This outcome suggests that Arizona's current English learner services and supports are not sufficient to help a majority of students achieve ELA proficiency by the end of grade 3. ADE might want to consider implementation of research-based service models to improve the progress of English learner students. Further, Arizona stakeholders might want to examine preschool English learner services for non-native English speaker students and their association with English language proficiency at kindergarten entry.

ADE might also consider assessing the services provided to the student subgroups with the lowest ELA proficiency levels in grade 3: students eligible for special education services, racial/ethnic minority students, male students, and socioeconomically disadvantaged students. Further, ADE might want to look at the characteristics and education experiences, along with any supports received, of students who started with low levels of English language proficiency in kindergarten but who achieved ELA proficiency by the end of grade 3 and who also achieved English language proficiency faster than other English learner students who started at the same level of English language proficiency in kindergarten. ADE might want to investigate whether any characteristics of these students (such as their native language, socioeconomic status, and education experiences) differed from those of students who started at same level of English language proficiency in kindergarten but who did not achieve English language proficiency or ELA proficiency by the end of grade 3.

Most of the variation in achieving English language proficiency and ELA proficiency by the end of grade 3 was associated with differences among students within schools rather than differences between schools. This means that practitioners and policymakers might want to consider both how to increase students' achievement levels overall and how to reduce achievement gaps between students within a school. Future research could examine the factors that contribute to within-school differences. For example, do students in the same school receive different services? What service delivery models could best address within-school differences?

While some school characteristics (number of students, percentage of English learner students, and percentage of economically disadvantaged students) were statistically significantly associated with achieving English language proficiency or ELA proficiency by the end of grade 3, they had only a small effect on the likelihood of achieving proficiency. Future studies could examine other school characteristics, such as the English learner services received (for example, instructional models, service delivery, and staffing models). A better understanding of these services might also be useful in addressing the slower progress in English language proficiency among English learner students initially classified at the lowest levels of English language proficiency. Accordingly, Arizona stakeholders might consider examining the nature and quality of English learner services available to students at the lowest English language proficiency levels in kindergarten.

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