


Quantitative Analysis of Online Teaching and Learning Techniques and the 2019 English Language Proficiency Assessment Levels in a Tri-State Region

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ABSTRACT

The purpose of this quantitative, nonexperimental study was to determine the statistical differences among the delivery methods and among the proficiency levels among elementary schools across a tri-state area. Theories and concepts related to this research were English as a second language, vocabulary study in reading, English immersion, and blended learning and how these were applied in a virtual platform. The researcher applied chi square goodness-of-fit tests to analyze data which was collected from 2019 English proficiency assessments of 46,754 English language learners in 1037 different school districts, and online Qualtrics surveys of 137 English as a second language educators in grades two-five, within the tristate area of Pennsylvania, Ohio, and West Virginia. Future research should determine to what extent there is a relationship between proficiency assessments English language arts scores and suburban elementary English as a second language teachers who use more than 30 minutes of online learning and teaching techniques daily.

KEYWORDS

English as a Second Language, Literacy, Online vs. Face-to-Face Methods, Summative Assessments, Tri-State Area

INTRODUCTION

Using a foreign language for a secret code is a prime example of how important language is and how if one cannot “hear (understand) what is coming,” the future is at stake (Bowie, n.d.; as cited in Kaiser, 2016, para 4). In the early education of Nez, he was forbidden to speak anything but English (Survey Graphic, 1934). The Indian Reorganization Act allowed bilingual conversations in New Mexico schools. Very few Japanese, or Americans, could understand or learn Navajo quickly. In 1942, Nez and 28 other Navajo speaking citizens were recruited by the Marines to help create a code of military commands in Navajo to thwart the Japanese during World War II and help the Americans win.

The education of English Language Learners (ELLs) has progressed over the last century and should continue to change with the needs of the learners in English as a Second Language (ESL) classrooms. Laws and policies emphasized closing the achievement gap of English Language

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proficiency, especially with ELLs, requiring Reading proficiency by three years or third grade, and support and funding of digital content and technology programs (Korte, 2015; National Conference of State Legislatures, 2017; Warner, 2017b). Virtual content and online learning are some resources being considered today for ELLs in Pennsylvania (PA), Ohio (OH), and West Virginia (WV).

The problem to be addressed in this study was that despite federal and state policies demanding digital literacy and English Language Arts (ELA) proficiency within three years of the student's enrollment in school, elementary educators were likely to be using less online techniques to teach elementary ESL and students were not likely to meet proficiency in English on the ELPA/WIDA assessment (National Conference of State Legislatures, 2017; Warner, 2017a; WVDE, n.d.c).

The delivery methods used for teaching and learning English have a direct effect on English proficiency. In addition, ELL students who may become prospective employees must learn how to effectively use virtual content to reach people around the world and expand the students' future enterprises. To this same end goal, teachers must learn how to effectively teach online classes and content or incorporate digital techniques to mold a quality global generation. Some state boards of education, such as West Virginia, and school districts have changed policies to support digital content and writing grants to fund technology programs (National Conference of State Legislatures, 2017).

The purpose of this quantitative, nonexperimental study was to determine the statistical differences among the delivery methods (allotted time teachers use online resources) and among the ELL student proficiency levels on the state 2019 ELPA/WIDA assessment among elementary schools across the tri-state area of PA, OH, and WV (Martin et al., 2019). Investigating the significant differences in the distribution of the frequencies of ELLs' proficiency levels and ESL educators' delivery methods is especially important for second language learners and can affect other subject content such as Math, Science, and Social Studies (Fritz, 2015; New York University (NYU) Steinhardt, 2009). Even in today's virtual global market, some teachers were still reluctant to fully integrate online learning (Inside Higher Ed, 2017). Therefore, educators were expected to be using less online techniques to teach elementary ESL in ELA.

Based on Ohio ELPA results from 2016-2017, in the overall 6.1% decrease of proficiency, it was in all likely hood that English proficiency would continue to decrease (Ohio Department of Education (ODE) & Taube, 2018). Therefore, it was expected that the smallest group of ELL students would be at the proficient level. ELLs will not meet proficiency standards if educators don't address this problem by examining the trends of online teaching and learning delivery methods and ELPA assessment results.

By March 13, 2020, PA, WV, and OH closed face-to-face K-12 schools down during a pandemic of Coronavirus (CoVid-19) (ODE, n.d.; Pennsylvania Department of Education (PDE), 2020; West Virginia Department of Education (WVDE), n.d.b). Nationwide, public school turned to a virtual platform. Educators across the tristate region had to accommodate and modify critical content area work to fit the new "stay-at-home" online education.

There was existing research on just online resources in general elementary education and for tertiary ESL courses, but there was very limited research found for online educational resources for elementary ELLs (Gargano & Throop, 2017). In addition, there had not been a study found on the differences in frequency distributions among classroom delivery methods and the ELA proficiency level results of the ELPA/WIDA in an elementary setting across three states. Theories are what drives curriculum and assessment.

INTRODUCTION TO THEORETICAL FRAMEWORK

The theories that ESL educators believe will affect the way they teach English to elementary ELLs (Krashen, 1982; Vygotsky, 1978). Vygotsky's (1978) and Krashen's (1982) theories of social effects and learning a second language revealed that students may use cooperative learning as a strategy, and must be interested in using the language, have low anxiety, and have high self-esteem. In a social setting,

students learn the aspects of receptive and expressive language related to speaking and listening, which can also affect reading and writing for communication with peers and teachers (Deliberato et al. 2018).

As of 1981, the only requirement of schools is to provide an English as a Second Language (ESL) curriculum that helps students progress towards mastery (Cruze et al., 2019; Warner, 2017a). In the tri-state region of PA, OH, and WV, English Immersion is the predominant program. In March of 2021, some schools initiated blended learning. Blended Learning is best described by this quote from Educational Glossary (n.d.): “Blended learning is where online learning may be a minor component part of a classroom-based course, or video-recorded lectures, live video and text chats, and other digitally enabled learning activities may be a student’s primary instructional interactions with a teacher” (para.2).

English as a Second Language

Four major theories stand out in teaching and learning of a second language: behaviorist, cognitive, metacognitive, and social affective. Vygotsky’s (1934) theory of learning by social interaction gave birth to social constructivism (Learning Theories, n.d.). Vygotsky’s (1978) research in social effects on learning a second language revealed that students may use self-talk and clarifying questions along with cooperative learning as strategies to learn a second language (as cited in Deliberato et al., 2018). Krashen (1982) warns that children must be interested in using the language, have low anxiety, and high self-esteem (as cited in Wink, 2015). Krashen believed that children have an innate nature to learn a language but are affected by the environment and input from others. Educators also have varied theories for vocabulary study within Reading as a whole as well.

Theories of Vocabulary Study in Reading

Vygotsky’s (1978) theory is that students learn better in a social setting and that higher cognition comes from cultural effects of peers and teachers (Deliberato et al., 2018; Moody et al., 2018). Educators who teach Second Language Learners and the curriculum developers of Second Language Acquisition are tied together by the pedagogical theories that are being implemented in classrooms (Moody et al., 2018).

Socio-Cultural Theory supports that effective vocabulary study should focus on awareness of phonology, graphology, and morphology, according to Moody et al. (2018). As the students study and become more aware and familiar with individual sounds and word parts, they can easily decode bigger words. Ultimately, a large arsenal of vocabulary and schema leads to greater reading comprehension. Vygotsky’s (1978) Zone of Proximal Development (ZPD) provides a starting point of the individual practice on the scaffolding scale, which educators use to initiate lecture and direct instruction, incorporate peer and group work, and guide students toward the next individual practice stage.

Another popular theory is Motivation Theory, where teachers take into consideration student interest in topics, which leads to engagement in reading and deeper learning (Moody et al. 2018). Some educators believe in Schema and Psycholinguistic Theory, where students learn better when themes and similar topics are taught together (Moody et al. 2018). Students become experts in subjects when a deep study of topics and themes is explored for weeks. These theories give ESL teachers a background knowledge to align with strategies for effectively teaching English vocabulary in Reading to elementary ELLs. English Language Learners are motivated to learn English in order to fit it.

English Immersion

The push for English Immersion has been an on again off again process. The *No Child Left Behind Act* (NCLB) of 2001 also enforced a requirement of students to become proficient in ELA and in some states that equated to within three years (Henderson & Ambroso, 2018). Therefore, some states choose bilingual programs, while others choose English Immersion. The difference is the acceptance of students using their native tongue (bilingual) as opposed to students only being allowed to use English (English Immersion) in the classroom (Cruze et al., 2019). The assimilating setting in English Immersion classes forces students to learn and understand the language at a quicker pace. In addition, teachers do not have to learn the languages of their students (Henderson & Ambroso).

Some teachers of English Immersion programs perceive one drawback: that ELLs are often pulled out of general education grade-level courses (Cruze et al., 2019). Social stereotyping and separation also occur as students are earmarked for low-level courses and create bonds among their own subgroups. Students could lose their cultural identity as they change their behavior to fit the American way (Henderson & Ambroso, 2018).

Delivery methods are different among ESL teachers. Some educators are providing more online resources to support their face-to-face instruction, while others are relying more on textbooks. The lack of using digital resources is due to teachers feeling unprepared to instruct culturally diverse classrooms, and therefore they tend to resort to material that is comfortable for them, despite the growing demand for digital literacy (Henderson & Ambroso, 2018). The concept of blended learning was meant to combine the best of both worlds (digital and face-to-face).

Blended Learning

Digital literacy is defined as the ability to operate and navigate virtual platforms such as apps, websites, online documents, and instructional programs; it is also a growing standard in today's educational world (Budiman et al., 2018; Warner, 2017b). The social construct of a digital world is prevalent in today's global environment and more interesting to students. The same strategies used in the social interaction among ELL students and with regular education students still exist in distance learning, as each student learns differently (auditory, visual, and kinesthetic learners) (Altay & Altay, 2019). Making accommodations and modifications for English Language Learners is just finding the strategies that work for that particular subgroup of diverse students. After reviewing previous literature concerning cross curriculum strategies for ELLs, strategies for Reading, accommodations in a virtual world, and effectiveness of online learning, some interesting facts were revealed.

LITERATURE REVIEW

Over 10% of the total school population were ELLs, making them the fastest-growing student population in the nation (Artigliere, 2019; National Center for Education Statistics, 2017). Olsen (2010) demonstrated that a new subgroup of ELLs had emerged, called Long-Term ELLs (LTELs) because they still lacked in proficient English skills after five years. Skills in reading, writing, listening, and speaking include receptive and productive modalities, such as decoding, encoding, reading comprehension, vocabulary comprehension, phonological awareness, determining meaning of words and sentences, and fluency (Philips (2018) as quoted in ELPA21, 2008). This research helped to add to the literature review done on previous research. Seminal research and relevant articles supported the theoretical and conceptual framework and background information of ESL. A research methodology of collecting and analyzing the data from this research was explored.

RESEARCH METHODOLOGY AND DESIGN

The best fit design with outcome possibilities for this research may have been quantitative, nonexperimental design with descriptive statistics analysis, specifically a Chi square Goodness-of-Fit test (Trochim, 2020). The problem of this study was that the differences in frequencies of categories had expected counts relevant to delivery methods and proficiency levels; a quantitative method calculated the significant differences in frequencies of the numerical data. Students could not be randomly grouped into classrooms. ESL students are purposively grouped by a placement test; educators are required to use the curriculum adopted by the school district, which may not include a digital component.

Theories already existed in this research called the hypotheses, that all the frequencies of the categories would be significantly unequal, backed by statistical calculations. Frequency tables generated help researchers to look at a huge amount of data in one simple table (Gibson, 2013). The

two questions of this research focused on: statistical, significant differences and distributions in “observed” frequencies compared to expected frequencies of delivery methods and proficiency levels across a tri-state region. These two questions were answered by the goodness of fit of data in a Chi square test and the visual representations of frequency tables created by running a Chi square Goodness-of-Fit test in SPSS.

The Chi square Goodness-of-fit test has three key assumptions: that the variable is categorical with at least two classes, there is no relationship between the cases, and there must be an expected frequency of at least 5 in a cell (Laerd, n.d.b). Delivery Method was on a nominal scale and consisted of two categories. Proficiency Level was an ordinal scale of three categories. There was no relationship between the categories of, or presumed correlation between, the variables and there was an expected frequency of at least 5 in each category. Once the methodology was determined, questions for conducting research were then created.

Research Questions/Hypotheses

RQ1. What significant difference was there in the “observed” (reported) frequencies of delivery methods (*more than 30 minutes* or *30 minutes or less* of online teaching and learning techniques daily) of elementary ESL educators across a tri-state region compared to the expected counts of higher frequencies in the *30 minutes or less* category?

H1_o. There was no significant difference in the “observed” frequencies of delivery methods of elementary ESL educators across a tri-state region compared to the expected counts of higher frequencies in the *30 minutes or less* category.

H1_a. There was a significant difference in the “observed” frequencies of delivery methods of elementary ESL educators across a tri-state region compared to the expected counts of higher frequencies in the *30 minutes or less* category.

RQ2. What significant difference was there in the “observed” (reported) frequencies of proficiency levels (proficient, progressing, emerging) of elementary ELLs across a tri-state region compared to the expected counts of lower frequencies in proficient category?

H2_o. There was no significant difference in the “observed” frequencies of proficiency levels of elementary ELLs across a tri-state region compared to the expected counts of lower frequencies in proficient category.

H2_a. There was a significant difference in the “observed” frequencies of proficiency levels of elementary ELLs across a tri-state region compared to the expected counts of lower frequencies in proficient category.

After the research questions were created, a sample of the intended population was narrowed down. A researcher looks at the entire population, then determines a reasonable sample. This sample must still be strong enough to make predictions for the whole population.

Population and Sample

The whole population from which the sample was taken for this research, and affected, was all the students in ESL classrooms across any tri-state region who took the ELPA/WIDA, containing students in grades Kindergarten through 12th, with proficiency Level One through Level Five. Over 100,000 students could have been helped by determining the statistical, significant differences and distributions of ESL learning and teaching techniques and ELPA/WIDA proficiency scores (ODE, 2020a; PDE, 2020; WVDE ZoomWV, 2020).

The target population sample was OH, PA, and WV elementary school, grades 2-5, ELL students that were taught and learned ELA with either dichotomous delivery method, and were administered the 2019 ELPA/WIDA assessment. According to the analysis priori test, the sample population for ELPA proficiency levels should have been n=108, and for delivery methods n=88. A post hoc analysis for the sample population for ELPA proficiency levels revealed there was a 99.99% chance of detecting an existing effect, and for delivery methods a 93.96% chance. The researcher then targeted the most appropriate instruments and materials for the sample population to answer the questions.

Instrumentation and Materials

The proficiency levels were derived from the 2019 ELPA/WIDA. The delivery methods were collected from a Qualtrics survey. The ELPA/WIDA proficiency levels were reliable because they were derived from a criterion valid and reliable assessment analyzed by the entities that created the assessments, either the ELPA21 or WIDA Consortiums and were based on the performance of the ELA composite (ELPA21, 2018; WIDA, 2012). The Qualtrics survey was reliable because multiple items consistently measured the same variables: time allotted to teaching and learning techniques for ELLs in ESL classrooms across a tri-state region in elementary grades. These instruments were directly related to Reading, Writing, Listening, and Speaking skills and included receptive and productive modalities necessary for English proficiency. A professional procedure was set up to avoid any errors.

STUDY PROCEDURES

No data was collected until IRB approval was granted with the submission of an application for research to school districts, if required. An email was sent with the research proposal seeking permission from school districts in OH, PA, and WV, in anticipation that the highest amount of data may have been collected to satisfy the G*Power sample size. After cooperation and Letters of Intent to Collaborate had been given from each school district and IRB approval was established, a recruitment letter was sent to ESL coordinators in OH, PA, and WV. Educators were also recruited by ESL Facebook and Twitter groups. A Qualtrics survey link was included in the recruitment letter, and the ESL coordinators then distributed the letter to each educator who met the criteria.

Data requests, set up by and specific to each state, were sent to the administrators of each state department of education for the 2019 ELPA proficiency level results. To account for 20% non-participation and to ensure that at least 130 proficiency levels and 106 delivery method data points were sought to be collected, the study included three states, multiple school districts, and across four grade levels. A reminder to complete the survey, in the form of a second email, was sent. After the survey was closed, no more data was collected, and the researcher started to analyze the results and findings.

DATA ANALYSIS

Data was collected remotely by emails and the Qualtrics survey. Frequency bar charts, double bar charts, pie graphs, and funnel charts provided visual representations of demographic data. A Chi square Goodness-of-Fit test in SPSS provided frequency tables with statistical differences among categories. The numbers of teachers who used each delivery method and the number of students who were at each proficiency level described the “observed” (reported) frequencies and were then compared to what were called expected frequencies. For an unequal distribution, the delivery method would have to had more than 50% in one category and the proficiency level would have to had more than 33.33% in one category.

The Chi square test produced the Pearson’s Chi square X^2 value and significance of the distribution residuals, or differences, among delivery method categories and among the proficiency level categories (Grande, 2017). If the Chi square Goodness-of-Fit test demonstrated a statistical significance of residuals across the three states; $p < .05$, the frequencies were not distributed equally, one or more categories would have probably occurred more often than the others, and the data does not support the null. To validate and ensure reliability of the methodology and data collection and analyzation, assumptions, limitations, and delimitations were addressed.

ASSUMPTIONS, LIMITATIONS, AND DELIMITATIONS

One main assumption of this research was that educators recorded and answered survey questions honestly and recalled information with accuracy. Another assumption of this study was regarding the

administration of the 2019 ELPA/WIDA ELA composite assessment. The assumption was said to be met when the administrators of the tests all had an instruction manual for each subtest and consistent conditions. Additionally, it was assumed that the students took the test seriously and attempted tasks to the best of their abilities. Finally, it was assumed that the educators provided the accurate separate Reading, Writing, Listening, and Speaking scores of the 2019 ELPA/WIDA which was then automatically calculated into the ELA composite assessment.

Weaknesses of this study included sampling, causation, and generalization. One other weakness and limitation might have been due to the lack of participation from educators during a time of uncertainty due to a nationwide pandemic. An association of the delivery methods to the proficiency levels was not possible because of the lack of staff to devote to the research. The strongest aspect of this study was the use of Chi square Goodness-of-Fit test, which provided a statistical demonstration of the differences among categories and the distribution of the data for the variables. A nonrandom purposive expert referral sampling was used in this study. To ensure a wide net for sample size, it was necessary to employ criterion directed specifically toward ESL program coordinators and teachers when recruiting participants. In addition, social media was taken into consideration. Participation was on a volunteer basis and therefore may not have been a complete representation of the intended sample population and generalizable to the whole population. PA, OH, and WV were used as the tristate region in this study and therefore results could not be generalized to all tristate regions and ultimately ELLs across the US. However, the results from the Chi square Goodness-of-Fit test of the distribution of delivery methods and the proficiency levels were still relevant to migrant ELLs and applicable to teaching and learning techniques used in ELA for similar tri-state regions.

Participation was delimited to ELL students in grades 2-5; because ELA is a main focus in elementary grades. Participants attended schools in a tri-state region of the United States. Experimental treatments were not warranted. School districts choose the ESL programs, states employed placement testing, and some of these regions were small districts that only had one or two classrooms per grade level. Therefore, it was not possible to randomly place students in particular classrooms. However, it was possible to purposively choose a representation of diverse classrooms with both categories of delivery method and three categories of proficiency level. The same counterpart state departments of education administrators who provided the proficiency levels, create the policies for curriculum and delivery methods to students at the district level. Finally, the last step in the actual research is to state the ethical protections of the study.

ETHICAL ASSURANCES

Embedded within the online survey, the Consent Form was presented before the survey questions. Anyone who had not agreed to the survey was sent to the exit page without asking any data collection questions. All data was reported as accurately as possible, stating only the facts from the survey, and double checked in the data entry of numerical values in SPSS. Names of participants, school districts, buildings, and students were not included in the analysis of the data. No question on the online survey asked for names of teachers nor students and the collection of IP addresses was turned off for the survey link. Any data collected was kept in a file on a password protected personal computer, for which only the researcher had access, and will be retained for three years, then destroyed.

There was no personal relationship with any of the direct participants, therefore there was no bias for or against any one educator. One bias that may have been part of the background of this study was the use of online teaching and learning techniques. As an online teacher, the benefits and uses of teaching and learning with students of diverse backgrounds had been personally experienced. However, to prevent bias and those experiences from influencing the analysis or findings, only the statistical facts, accurately reported and analyzed, were used to support or not support the null hypothesis and the conclusions. Quantitative data cannot change itself; it was fact-based and supported by the survey, demographic information, and 2019 ELPA/WIDA composite assessment results which were provided by the educators and administrators and not the researcher. Following are the results of the study.

FINDINGS/RESULTS

Elementary educators were likely to be using less online techniques to teach elementary ESL and students were not likely to meet proficiency in English on the 2018 ELPA/WIDA assessment (National Conference of State Legislatures, 2017; Warner, 2017a ;WVDE, n.d.c). The demographic data and statistical Goodness-of-Fit test results and distribution of categories among variables are presented below. The data use for these results was from the Proficiency Levels and Delivery Methods that were collected from 1,037 different school districts across three states. The demographic data that was relative to the study (state of employment, school district, and grade levels taught) was counted for representation of the sample population. The data used for statistical analysis was from the ESL educators who taught grades two-five in those school districts and states took the online Qualtrics survey and the same state departments of education provided the 2019 ELPA/WIDA proficiency levels. A more descriptive break down of the participants are as follows.

Demographic Data Delivery Methods

Demographics were taken from the 137 educators and the 46,754 elementary grades 2-5 ELL students across 1037 school districts in OH, PA, and WV. Of the 137 educators, more educators were employed in OH than in PA or WV. In the study, there were 67 educators employed in OH, 56 PA, and 14 WV. Of the 253 four-grade levels, more teachers taught second grade than any other level. In the study, there were 79 second-grade, 67 third-grade, 58 fourth-grade, and 49 fifth-grade educators.

Of the 519 school districts in OH and 482 school districts in PA, more public schools were attended by ELLs. In OH, there were 358 public, 98 charter, 50 diocese, 11 nonpublic, and two special schools. In PA, there were 380 public, 97 charter, and four intermediate unit schools. West Virginia uses county lines for school districts and the school districts share the same name as the counties. Of the 36 school districts in WV, there were only public schools that reported the ELPA results. The research questions are then answered according to the data.

Research Question/Hypothesis 1

Of the 137 grades 2-5 ESL educators, 54.1% of educators used 30 minutes or less of online teaching and learning techniques daily and 45.9% used more than 30 minutes (Table 1). The Chi square Goodness-of-Fit test indicated that the number of delivery methods was not statistically significant $X^2(1) = 0.883, p = .347, p > .005$ (Table 2). Data supported the null hypothesis. In the study, 63 teachers used *more than 30 minutes* and 74 teachers used *30 minutes or less* of online teaching and learning techniques daily. A Chi square Goodness-of-Fit test was conducted to determine a significant difference in whether teachers used less online teaching and learning techniques daily.

There was not a significant statistical probability, across OH, PA, and WV, that delivery methods will not be equally distributed, if no other factors change. The study of previous research and trends had predicted that the expected frequency would indicate that more teachers would spend less time using digital resources. Statistically, one can see that there were not more educators using more or less time with digital resources, which was not what the trend predicted (fig.1).

Research Question/Hypothesis 2

Of the 46,754 grades 2-5 ELL ELPA composite proficiency levels in OH, PA, and WV, 14.3% of students were in the *proficient* category, 65.5% in *progressing*, and 20% in *emerging* (Table 3). The Chi square Goodness-of-Fit test indicated that the number of proficiency levels was statistically significant, $X^2(2) = 22052.864, p < .001$ (Table 4). The data did not support the null. In the study 6,730 students were reported at the *proficient*, 30,644 *progressing*, and 9,380 *emerging* level for ELA proficiency.

There was a significant statistical moderate probability, across OH, PA, and WV, that proficiency levels will not be equally distributed, if no other factors change. The study of previous research and trends had predicted that the expected frequency of students would indicate that there would be fewer

Figure 1. Visual Comparison of Observed Frequencies of Overall Delivery Methods

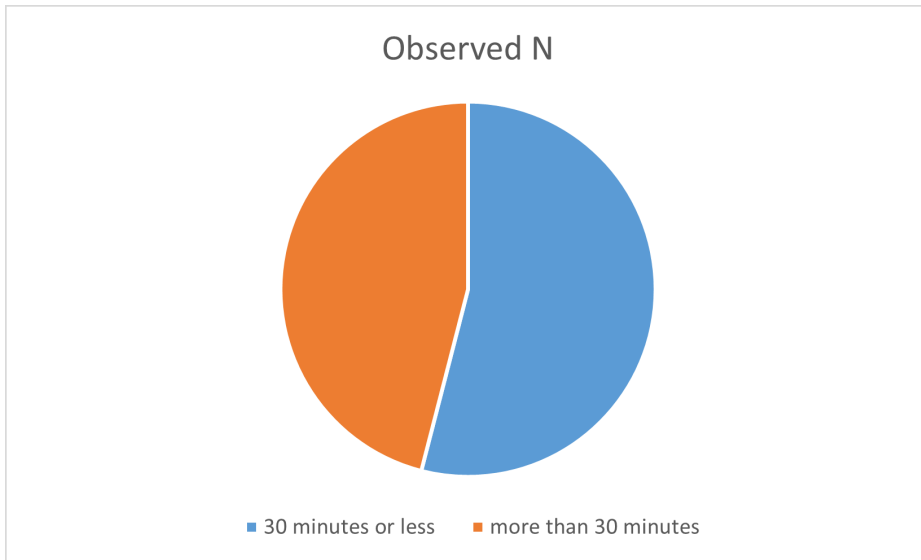


Table 1. Expected versus Observed Frequencies of Overall Delivery Methods Across OH, PA, and WV

	Observed N	Expected N	Residual N
30 minutes or less	74	68.5	5.5
more than 30 minutes	63	68.5	-5.5
Total	137		

Note. This sample consisted of $N = 137$. Table 1 shows the expected and observed frequencies of delivery methods created by a Chi square Goodness-of-Fit test. For delivery methods, proportions of *30 minutes or less* and *more than 30 minutes* are equally distributed. There were 5.5 fewer educators at *more than 30 minutes* and 5.5 more at *30 minutes or less* than expected. There were slightly more educators at *30 minutes or less* rather than *more than 30 minutes*, but not significantly.

Table 2. Chi Square Goodness of Fit Test Statistics of Overall Delivery Methods Distribution Across OH, PA, and WV

Chi-Square	0.883 ^a
df	1
Asymp. Sig.	.347

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 68.5.

Note. Table 2 demonstrates the Chi square value and the significance of the Goodness-of-Fit test for delivery methods. $\chi^2 (1, N = 137) = 0.883, p = .347, p > .005$. Effect Size $< .001$, The effect size of .01, small, indicates that the observed frequencies (Observed N on the output) deviate slightly from the expected frequencies (Expected N).

students at the *proficient* level. Statistically, one can see that there were fewer students at the *proficient* level across PA, OH, and WV, which was what the trend predicted (fig.2).

Figure 2. Visual Comparison of Observed Frequencies of Overall Proficiency Levels

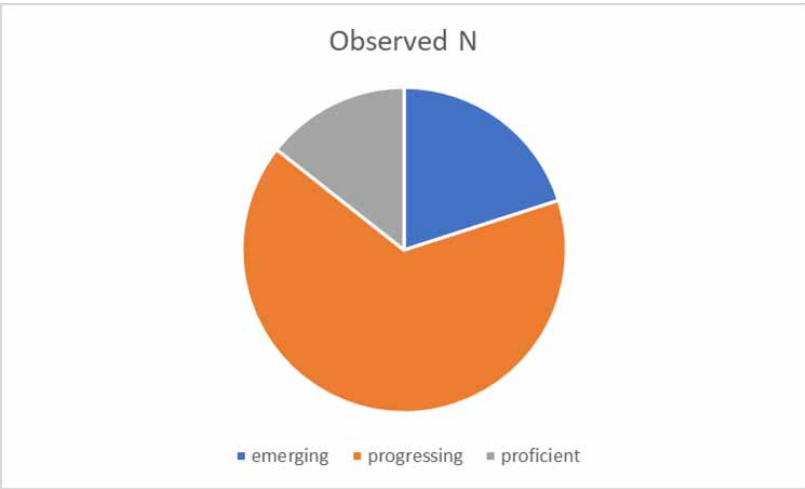


Table 3. Expected versus Observed Frequencies of Overall Proficiency Levels Across OH, PA, and WV

	Observed N	Expected N	Residual
emerging	9380	15584.7	-6204.7
progressing	30644	15584.7	15059.3
proficient	6730	15584.7	-8854.7
Total	46754		

Note. This sample consisted of $N = 46,754$. Table 3 shows the expected and observed frequencies of proficiency levels created by a Chi square Goodness-of-Fit test. For proficiency levels, proportions of *emerging*, *progressing*, and *proficient* are not equally distributed. There were 6204 fewer students at *emerging*, 15059 more at *progressing*, and 8854 fewer at *proficient* level than expected. There were fewer students at *proficient* rather than *emerging* or *progressing*.

Table 4. Chi Square Goodness of Fit Test Statistics of Proficiency Levels Distribution Across OH, PA, and WV

Chi-Square	22052.864 ^a
df	2
Asymp. Sig.	.000

a. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 15584.7.

Note. Table 4 demonstrates the Chi square value and the significance of the Goodness of fit test for proficiency levels. $\chi^2 (2, N = 46,754) = 22052.864$, $p < .001$. Effect Size=.24. The effect size of .3, medium, indicates that the observed frequencies (Observed N on the output) deviate moderately from the expected frequencies (Expected N).

IMPLICATIONS AND RECOMMENDATIONS

The demographic results demonstrated that public schools were the most attended type of schools for elementary ELLs in OH and PA. When considering policies, standards, curriculum, and materials for ELLs, public schools are guided and restricted by federal, state, and school district policies and funding, which affect delivery methods. This may also be a factor in the overall results of standardized testing such as the ELPA.

During the height of the CoVid19 pandemic, the OELP was modified to include remote and hybrid testing sites, flexible dates for testing administration, and the delay of a Writing pilot assessment until

the following academic year (ODE, 2020b; ODE, 2021). The West Virginia state assessment ceased in 2019 and was reinstated in 2020 with less than 95% of students participating in the assessment (WVDE ZoomWV, 2023). The results of the 2022 PSSA assessment demonstrated that only 30-41% of all students achieved proficiency in English Language Arts (PDE, 2023). Therefore, it is plain to see that the CoVid19 pandemic had a lasting effect on language proficiency across the tristate area.

Implications

RQ1. Less than fifty percent of educators in 2017 believed that online learning was just as effective as face-to-face (Inside Higher Ed, 2017). It was expected that more educators would spend less time using digital resources. The results of the Chi square Goodness-of-Fit test indicated that the data did support the null and did not follow the predicted trend. The results from this study could be used to demonstrate the support of sustaining digital and online resources among a tri-state region's ESL educators in elementary schools, since state policies require digital literacy in schools.

RQ2. According to the Ohio Department of Education and Taube (2018), there was a 6.1% decrease in overall composite ELA English Language Proficiency between 2016 and 2017, and ELLs were not making enough progress in achieving state goals of education reform (Warner, 2017a; WVDE, n.d.). It was expected that fewer students would be in the proficient category as opposed to emerging or progressing. The results of the Chi square Goodness-of-Fit test indicated that the data did not support the null and did follow the predicted trend. The results from this study could be used to demonstrate the need for improvement of achievement in ELA proficiency among a tri-state region's ELLs in elementary schools, since federal policies call for closing the gap in ELA achievement in schools.

Recommendations for Practice

English as a Second Language classrooms often have a diverse group of students with different levels of English proficiency and different styles of learning. It is imperative to study the current trends of the educators' choices in delivery methods and the ELPA/WIDA ELA composite outcomes of proficiency levels of ELLs. Based on the delivery methods results of this study, more school districts should sustain digital literacy for the future of global marketing. One way to improve achievement in ELA proficiency may be to utilize more online techniques that can be individualized to the needs of the ELLs and give the educators more time for interactive student practice, cooperative learning, and topic extension in the classroom. Previous research has demonstrated effectiveness of online learning for other groups of students (Altay & Altay, 2019; Bouilheres et al., 2020). The findings of this study can be applied to a tri-state region ESL program and the choice of delivery methods for improving ELA proficiency levels.

Based on the proficiency level results, another important factor is that educators and administrators should carefully monitor the progress of students and employ intervention and differentiated teaching and learning techniques as quickly as possible to help students in ELA (Reading, Writing, Listening, Speaking). As educators discover techniques that aid in improvement of skills, cooperative learning among teachers in the form of professional development sessions should also be employed. Implementing student intervention and educator support and training will help students reach proficiency quicker.

Recommendations for Future Research

Future research should focus on the statistical significance of an association of delivery methods and proficiency levels or a grounded theory of delivery methods and effects on proficiency levels. Associations can provide a better picture of the impact of online learning and teaching techniques in ESL classrooms, in elementary schools in a tri-state region and its relationship to ELPA/WIDA ELA composite proficiency levels. In addition, if proficiency scores can also be accessed and examined, administrators can see the exact progress towards meeting the standards for English language proficiency. The grounded theory method tries to explain why a course of action, such as choosing a delivery method, evolved the way it did, for example to increase proficiency levels (Creswell, 2015).

A comparison can then be made among school district to determine best practices for the tri-state region. Tracking techniques used for teaching and learning of skills for ELA can positively help struggling students to reach achievement levels within the guidelines of school district, state, and federal policies on English language learning. This is essential since Reading has a direct effect on learning even fine arts subjects, such as Art, Music, and Physical Education.

CONCLUSION

Academic achievement of ELLs, especially in elementary ESL programs, is dependent upon the delivery methods chosen by the educators (Ohio Department of Education & Taube, 2018). When school districts can identify best practices for increasing progress, improving instruction and learning, and close the gap of English proficiency, students can become productive members of this global market society. In a tri-state region, where it is easy to travel from one state to another, it is important for school districts to identify strategies of their neighbors to understand how to focus on missing skills and achieve their own state standards. There will always be a need for English language learning as immigrants move across the world, and a need for digital literacy as the online presence of humans increases. Starting at the elementary level gives students a head-start on learning important life-long skills to obtain careers in the United States and “hear” what is coming in the future.

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