International Journal of Social Sciences and English Literature
Vol. 9, No. 4, 16-22, 2025
ISSN(E) 2576-683X
DOI: 10.55220/2576683x.v9.354

Employing Digraph Approach in Reading Development of Primary Students in Assistance, Inclusion, Mentoring (Aim) Program

Jenny Gabato[1]
Niña Rozanne Delos Reyes[2]
Ann Frances Cabigon[3]
Lilibeth Pinili[4]

[1,2,3,4]*English Modern School, Cebu technological University, Philippines.*
Email: jennygabato@gmail.com
(✉ Corresponding Author)

Abstract

This study investigated the effectiveness of the digraph approach in enhancing the reading development and engagement of primary students enrolled in the Assistance, Inclusion, Mentoring (AIM) program at the English Modern School in Doha, Qatar. Utilizing a quantitative research design, the study involved 20 purposively selected students from Years 4, 5, and 6, all of whom demonstrated below-grade-level reading proficiency. Pre-test and post-test assessments were administered to evaluate students' decoding, comprehension, and recognition of digraphs. The intervention included targeted instruction using validated materials such as worksheets, flashcards, games, and leveled readers during 25-minute pull-out sessions. Results revealed a significant improvement in students' post-test scores, with 95% reaching the advanced proficiency level, supported by a computed t-value of 7.422 and a p-value of 0.000. Engagement data also indicated high levels of motivation and satisfaction with the digraph activities. The findings suggest that the digraph approach is an effective instructional strategy for improving reading outcomes in inclusive settings and can play a critical role in supporting struggling readers' literacy development.

Keywords: Employing Digraph, Inclusion, Mentoring, Reading Development, Students.

1. Introduction

Reading is an important skill that is at the heart of a child's education and is important for everyone who wants to keep learning throughout their lives (National Reading Panel, 2020). Reading well is not only important for doing well in school, but it's also important for getting along with other people (Snow & Matthews, 2021). Unfortunately, a lot of students have trouble

learning to read at first, which can hurt their academic and mental growth in the years to come (Torgesen & Wagner, 2021).

Digraphs, which are two letters that together represent a single sound, play an important role in phonics instruction and developing reading skills (Ehri & Wilce, 2020; Piasta, 2019). Common examples of digraphs include "th," "sh," "ch," and "ph." Mastering these digraphs helps students recognize and decode words, expanding their vocabulary and comprehension skills. As students become better at identifying digraphs, they can understand a wider variety of language patterns and texts, leading to more fluent and nuanced reading experiences (Catts & Petscher, 2021).

Despite the recognized significance of phonics instruction in reading development, recent research specifically examining the impact of the digraph approach on reading outcomes, particularly among upper primary AIM kids, is scarce. Prior research, including that of Tunmer and Gough (1986) and Ehri (2004), has established a foundation for comprehending phonics teaching; nevertheless, it has not thoroughly examined the systematic implementation of digraphs in varied and inclusive educational contexts. The National Reading Panel (2020) emphasized the significance of phonics but did not explicitly examine the precise function of digraphs in reading proficiency. Recent study underscores the significance of comprehensive phonics education while advocating for more targeted research on individual components such as digraphs (Kilpatrick, 2015; Seidenberg, 2017).

The English Modern School (EMS) in Qatar, known for its diverse student body and inclusive education approach, provides an ideal setting for this study. Qatar's bilingual and multicultural environment is conducive to assessing the effectiveness of employing a detailed digraph approach in reading instruction. This approach has been recognized for improving reading proficiency and decoding skills (Piasta, 2019). By focusing on EMS, this study aims to provide valuable insights into teaching reading to a diverse group of students. Moreover, Qatar's National Vision 2030 emphasises the development of a knowledge-based economy and the provision of fair educational opportunities for all students (Qatar National Vision 2030, 2023). Consistent with this goal, inclusive education is essential for delivering high-quality learning experiences to students from varied backgrounds and with differing educational needs. This study advances Qatar's educational goals by evaluating the efficacy of a systematic digraph methodology in inclusive classrooms. This study is consistent with the UNESCO Convention on the Rights of Persons with Disabilities (CRPD) and the Doha Declaration, both of which promote inclusive education and equitable opportunities for all students, including individuals with disabilities (UNESCO, 2021; World Education Forum, 2020). They underscore the necessity for customised educational approaches to address the varied requirements of all students. This study investigates how employing a systematic digraph approach affects the reading development of primary AIM students at the English Modern School in Qatar. By examining the specific impact of this approach, the research aims to enhance literacy instruction and support Qatar's goals for inclusive education and national development as outlined in the National Vision 2030.

2. Literature Review

Research has shown that teaching early readers using phonics, which includes using digraphs, makes them much better at reading and more interested in it. In a study of phonics instruction in kindergarten and second grade classrooms, Brackemyer et al. discovered that students who were in active, phonics-based learning environments were more interested in reading and improved their reading skills. This was especially true when instruction was personalised and hands-on (Brackemyer et al., 2001). Similarly, a phonics game based on the Jolly Phonics method that used augmented reality helped basic ESL students learn phonics better and feel better about reading (Limsukhawat et al., 2016). These results show how

important fun tools and organised phonics methods, like the digraph approach, are for building basic reading and writing skills.

Reading growth also depends a lot on how engaged the reader is. Guthrie's research on Concept-Oriented Reading Instruction (CORI) found that students do much better in comprehension and strategy use when they are personally driven to read and use reading strategies (Guthrie, 1996). Literacy outcomes were strongly linked to student engagement, especially when lessons were connected to students' hobbies and experiences in the real world. Rogers and Wolf (2014) also said that silent reading and teacher-student conferences together increased both desire and reading levels, especially in students who weren't interested in reading at first. All of these studies back up the AIM program's focus on getting kids interested in reading and using targeted phonics techniques like digraphs to help them do better.

3. Methodology

This study utilized a quantitative research design to assess the impact of the digraph approach on the reading development of twenty purposively selected AIM students from Years 4, 5, and 6 at the English Modern School (EMS) in Doha, Qatar. These students, all performing below grade level, participated in a structured intervention involving 25-minute pull-out sessions focused on individualized digraph-based activities using validated materials such as worksheets, flashcards, games, and leveled readers. Data collection included pre- and post-tests, along with demographic information, to evaluate improvements in decoding, comprehension, and recognition of digraphs. Each test had three sections: a 20-word digraph reading task, 10 comprehension questions, and 10 picture-to-digraph matching items, with each correct response earning one point, making 40 the highest possible score. Based on total scores, students were categorized into proficiency levels—Advanced (33–40), Proficient (25–32), Approaching Proficiency (17–24), Developing (9–16), and Beginning (0–8). Instrument reliability was confirmed using Cronbach's alpha, and validity was ensured through expert review. Statistical analysis, including paired t-tests and chi-square tests, was employed to determine significant differences between pre- and post-test scores and explore relationships between categorical variables, providing empirical evidence on the digraph approach's effectiveness in an inclusive learning setting.

4. Results

Table 1. Age of the Respondents.

Age (in years)	F	%
12	1	5.00
11	10	50.00
10	3	15.00
9	4	20.00
8	2	10.00
Total	20	100.00

Table 1 presents the age distribution of the respondents in the AIM program. The majority of participants were 11 years old, comprising 50% (10 out of 20) of the total sample. This was followed by students aged 9 years (20%) and 10 years (15%). A smaller proportion of the respondents were 8 years old (10%) and 12 years old (5%). The data indicates that the sample primarily consisted of upper primary students, aligning with the study's focus on Years 4, 5, and 6, and providing a suitable age range for assessing the effectiveness of the digraph approach in reading development.

Table 2. Gender of the Respondents.

Gender	f	%
Male	8	40.00
Female	12	60.00
Total	20	100.00

Table 2 shows the gender distribution of the respondents in the AIM program. Out of the 20 participants, 12 were female, making up 60% of the total sample, while 8 were male, accounting for the remaining 40%. This indicates a slightly higher participation of female students in the study, but both genders were adequately represented, allowing for a balanced evaluation of the digraph approach's impact on reading development across gender lines.

Table 3. Year Level of the Respondents.

Year Level	f	%
6	9	45.00
5	7	35.00
4	4	20.00
Total	20	100.00

Table 3 presents the year level distribution of the respondents in the AIM program. The majority of participants were from Year 6, comprising 45% (9 students) of the total sample. This was followed by 35% (7 students) from Year 5, and 20% (4 students) from Year 4. The data reflects a greater representation of upper primary students, particularly those nearing the transition to secondary education, which is a critical stage for developing foundational reading skills. This distribution supports the study's focus on assessing the effectiveness of the digraph approach in enhancing reading proficiency among students with diverse academic support needs across multiple grade levels.

Table 4. Level of reading engagement of the respondents in the AIM program.

S/N	Indicators	WM	Verbal Description
1	I enjoy reading books.	3.00	High
2	I read books regularly outside of school hours.	2.20	Low
3	I understand what digraphs are (e.g., "sh", "ch", "th").	3.60	Very High
4	Digraph practice activities help me learn new words.	3.40	Very High
5	I feel that practicing digraphs has improved my reading skills.	3.20	High
6	I find digraph activities interesting and fun.	3.20	High
7	My teacher helps me understand digraphs.	3.80	Very High
8	I feel confident when reading in class.	3.05	High
9	I enjoy participating in reading activities.	3.30	Very High
10	Overall, I am satisfied with the reading and digraph activities in class.	3.00	High
Aggregate Weighted Mean		3.18	High

Table 4 presents the level of reading engagement among AIM program respondents, as measured through various indicators. The overall aggregate weighted mean (WM) of 3.18 indicates a high level of engagement in reading activities. Notably, the highest-rated indicators were students' understanding of digraphs (WM = 3.60), the helpfulness of teachers in explaining digraphs (WM = 3.80), and the enjoyment of participating in reading activities (WM = 3.30), all of which received a verbal description of "Very High." This suggests that students not only grasp the concept of digraphs but also benefit significantly from teacher support and find reading tasks enjoyable. Additionally, students reported feeling that digraph practice improved their reading skills (WM = 3.20) and found such activities fun and engaging (WM = 3.20), both rated as "High." However, reading outside school hours scored the lowest (WM = 2.20), indicating a need to further encourage reading habits beyond the classroom. Overall, the

data suggests that while in-school engagement with digraph and reading activities is strong, efforts may be needed to extend this motivation to students' independent reading practices outside school.

Table 5. Level of performance of the participants in reading development under the AIM program when employing the digraph approach as to pre-test

Level	Range of Scores	f	%
Advanced	33-40	5	25.00
Proficient	25-32	11	55.00
Approaching Proficiency	17-24	3	15.00
Developing	9-16	1	5.00
Beginning	0-8	0	0.00
Total		20	100.00
Average		28.15	
St. Dev.		6.00	

Table 5 shows the pre-test performance levels of the participants in reading development under the AIM program using the digraph approach. The majority of students (55%) scored within the Proficient range (25–32), indicating a good understanding of digraphs prior to the intervention. Additionally, 25% of the participants achieved an Advanced level (33–40), demonstrating excellent comprehension and application of digraph skills. A smaller proportion of students fell within the Approaching Proficiency level (17–24), accounting for 15%, while only one student (5%) was in the Developing category (9–16), showing limited understanding. Notably, no participants scored in the Beginning range (0–8), suggesting that all students had at least a basic grasp of digraph concepts before the intervention. The average score was 28.15, falling within the Proficient level, with a standard deviation of 6.00, indicating moderate variability in student performance. These results reflect a generally solid foundation in digraph knowledge among the participants before the implementation of the full experimental treatment.

Table 6. Level of performance of the participants in reading development under the AIM program when employing the digraph approach as to post-test

Level	Range of Scores	f	%
Advanced	33-40	19	95.00
Proficient	25-32	1	5.00
Approaching Proficiency	17-24	0	0.00
Developing	9-16	0	0.00
Beginning	0-8	0	0.00
Total		20	100.00
Average		36.85	
St. Dev.		2.52	

Table 6 presents the post-test results of the AIM program participants' reading development after employing the digraph approach. A remarkable improvement is evident, with 95% (19 out of 20) of the students reaching the Advanced level (33–40), indicating excellent understanding and mastery of digraph-related reading skills. Only one student (5%) remained at the Proficient level (25–32), while no participants fell into the lower performance categories (Approaching Proficiency, Developing, or Beginning). The average score rose significantly to 36.85 well within the Advanced range compared to the pre-test average of 28.15. The standard deviation decreased to 2.52, suggesting a more consistent performance across all participants. These results strongly indicate that the digraph approach had a highly positive effect on

students' reading proficiency, demonstrating its effectiveness in enhancing the reading development of AIM learners.

Table 7. Test of difference performance of the participants in reading development under the AIM program when employing the digraph approach as to pre-test and post-test

Source of Difference	Mean	Standard Deviation	Mean Difference	Computed t- value	p-value	Decision	Remarks
Posttest	36.85	2.52	8.70	7.422*	0.000	Reject Ho	Significant
Pretest	28.15	6.00					

Note: *Significant at $p < 0.05$ (two-tailed); df=19.

Table 7 displays the results of the test of difference between the pre-test and post-test reading performance of AIM program participants using the digraph approach. The post-test mean score (36.85) was significantly higher than the pre-test means (28.15), with a mean difference of 8.70. The computed t-value of 7.422, with a p-value of 0.000, is statistically significant at $p < 0.05$, leading to the rejection of the null hypothesis. This indicates that there was a significant improvement in the students' reading performance following the intervention. The results confirm the effectiveness of the digraph approach in enhancing the reading development of primary students within the AIM program, as the observed gains are unlikely due to chance.

5. Conclusion

The findings of this study demonstrate that the digraph approach is an effective strategy for improving reading development among primary students in the AIM program. The significant increase in post-test scores, supported by statistical analysis, indicates that targeted, engaging instruction focusing on digraphs can substantially enhance students' decoding, comprehension, and overall reading proficiency. The high level of reading engagement observed among the participants further suggests that students responded positively to the intervention, benefiting from individualized support and interactive learning materials. These results affirm the value of incorporating structured phonics-based methods, such as the digraph approach, within inclusive education programs to meet the diverse learning needs of students performing below grade level.

References

Brackemyer, J., Fuca, D., & Suarez, K. (2001). Improving reading skills through phonics instruction in the primary grades. Saint Xavier University.

Catts, H. W., & Petscher, Y. (2021). The early identification of reading disabilities. Topics in Language Disorders, 41(1), 69–83. https://doi.org/10.1097/TLD.0000000000000227

Creswell, J. W. (2014). Research design: Qualitative, quantitative, and mixed methods approaches (4th ed.). SAGE Publications.

Ehri, L. C. (2004). Teaching phonemic awareness and phonics: An explanation of the National Reading Panel meta-analyses. Reading Research Quarterly, 39(3), 250–263. https://doi.org/10.1598/RRQ.39.3.1

Ehri, L. C., & Wilce, L. S. (2020). The influence of orthography on readers' conceptualization of the phonemic structure of words. Applied Psycholinguistics, 1(4), 371–385. https://doi.org/10.1017/S0142716400000514

Guthrie, J. T. (1996). Growth of literacy engagement: Changes in motivation and strategies during Concept-Oriented Reading Instruction (CORI). University of Maryland.

Johnson, B., & Christensen, L. (2017). Educational research: Quantitative, qualitative, and mixed approaches (6th ed.). SAGE Publications.

Kilpatrick, D. A. (2015). Essentials of assessing, preventing, and overcoming reading difficulties. Wiley.

Limsukhawat, S., Kaewyoun, S., Wongwatkit, C., & Wongta, J. (2016). A development of augmented reality-supported mobile game application based on Jolly Phonics approach to enhancing English phonics learning performance of ESL learners. International Conference on Computers in Education.

Messick, S. (1989). Validity. In R. L. Linn (Ed.), Educational measurement (3rd ed., pp. 13–103). American Council on Education.

National Reading Panel. (2020). Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction. National Institute of Child Health and Human Development.

Piasta, S. B. (2019). Current understandings of alphabet learning: Contributions of letter naming, letter-sound knowledge, and phonological awareness. The Reading Teacher, 72(5), 551–560. https://doi.org/10.1002/trtr.1776

Qatar National Vision 2030. (2023). Qatar national development strategy. General Secretariat for Development Planning. Retrieved from https://www.gco.gov.qa/en/about-qatar/national-vision2030

Rogers, B. S., & Wolf, K. (2014). Motivating students to become engaged lifelong readers. Dominican University of California.

Seidenberg, M. (2017). Language at the speed of sight: How we read, why so many can't, and what can be done about it. Basic Books.

Snow, C. E., & Matthews, T. J. (2021). Reading and the development of social understanding: Implications for the literacy and social brain. Trends in Neuroscience and Education, 22, 100152. https://doi.org/10.1016/j.tine.2021.100152

Tavakol, M., & Dennick, R. (2021). Making sense of Cronbach's alpha. International Journal of Medical Education, 2, 53–55. https://doi.org/10.5116/ijme.53a6.d9e4

Torgesen, J. K., & Wagner, R. K. (2021). Preventing reading failure in young children: What do we know and what can we do? Child Development Perspectives, 15(2), 123–130. https://doi.org/10.1111/cdep.12378

Tunmer, W. E., & Gough, P. B. (1986). Phonemic awareness and reading acquisition. In Reading acquisition (pp. 199–220). Lawrence Erlbaum Associates.

UNESCO. (2021). The right to education: Guidelines for inclusion and equity in education. United Nations Educational, Scientific and Cultural Organization.

World Education Forum. (2020). The Doha Declaration on education for all and inclusive development. UNESCO.