

Article

Using Word Reading Fluency Curriculum-Based Measurements to Monitor Students' Reading Progress in Grade 2

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Abstract: The researchers in this study examined the applicability of using an Arabic version of the curriculum-based measurement of word reading fluency (CBM WRF). A sample of 70 second-grade students, 45 average readers and 25 poor readers from a private school in Al Ain, UAE, were randomly selected to participate in this study. A 12-week trial demonstrated the effectiveness of using Arabic CBM WRF in monitoring the reading progress of second-grade students. In addition, Arabic CBM WRF was a good predictor of grade point average in the native language. Moreover, students who were struggling with reading scored significantly lower on CBM WRF probes than did average readers. Results suggest that the Arabic CBM WRF measure may be useful for evaluating and predicting reading performance in Arabic.

Keywords: curriculum-based measurement; word reading fluency; progress monitoring; grade 2



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1. Introduction

Reading is significant for an individual's development, not only as the foundation for education but also because it is essential for employment, health, and longevity [1,2]. However, reading is a complex process involving many aspects of language, such as word reading fluency, phonetic segmentation, and reading comprehension as well as cognitive skills, such as decoding [3–6]. Therefore, learning the skills of reading is very challenging for many individuals. It has been estimated that approximately 34–69 million school-aged students are struggling with reading worldwide [7].

According to the Individuals with Disabilities Education Improvement Act (2004), Specific Learning Disability (SLD) means a disorder in one or more of the basic psychological processes involved in understanding or in using language, both spoken or written, a disorder which may manifest itself in a low ability to listen, think, speak, write, spell, or perform mathematic operations [8]. Reading is an essential skill that works as the key to accessing other forms of learning, such as learning comprehension and analyzing skills [9]. It is a way of recognizing letters, words, and meanings from the text [10]. Therefore, weak reading skills affect not only students' enjoyment of reading but also their academic achievement in other areas, such as mathematics and science, and it also affects their social adjustment [11]. Moreover, reading disabilities that emerge at an early age reverberate throughout a child's educational career [12]. Reading disability has been given various names and descriptions. Most recent International Classification of Diseases (ICD-11), it is called developmental learning disorder with impairment in reading and is defined by significant and continued difficulties in learning academic skills associated with reading, such as word reading accuracy, reading fluency, and reading comprehension [13]. In addition, reading disability is the most common learning disability among students [14].

Children with weak reading comprehension read fewer words than average children of their age. There is a possibility that those children who have low reading performance are at risk of learning disabilities [15,16]. The terminology “students at risk” refers to those

students whose academic performance is lower than expected [17]. Based on that, reading is the cornerstone of the learning process. Therefore, acquiring reading skills properly at an early age allows a human to develop language, words, and comprehension better [15,18,19]. Without mastering letters, words, and reading comprehension skills, the students cannot understand the knowledge presented to them in written form. Consequently, the student's academic achievement is negatively affected in school life because of poor reading skills [20–22].

Students who could not acquire reading and writing skills at an early age have a high probability of continuing weak reading performance in the future [23]. In addition, their motivation and self-esteem are negatively affected [24]. Therefore, developing fluent reading skills is a crucial educational goal in elementary school education [16]. Screening in elementary schools may help identify students who have difficulties in developing skills of word reading fluency that facilitate the reading process later [22]. Moreover, monitoring students' progress can help identify suspected at-risk students who need a specific strategy or intervention [25].

The development of reading fluency skills is considered important because of its relationship to reading comprehension [26]. It is identified by a quick and accurate word-reading or text-reading rate [27]. Reading fluency is one of the characteristics of good readers. On the other hand, the lack of reading fluency is a common characteristic of poor readers. One of the significant components of skilled reading is automaticity. Automaticity is characterized by speed and accuracy, and it emerges with practice [28]. Therefore, the fluent reader can read quickly and without conscious effort [29]. At the beginning of skill development, word reading is very slow and effortful, but once a child has reached a high level of skill, word and text reading becomes very quick and occurs without intention [16]. In general, reading fluency becomes clear in most students between grades one and three when decoding skills are developed through practice [30]. Therefore, screening and monitoring students' reading progress in primary school is required for early identification of students at risk for reading difficulties. Consequently, appropriate early interventions are provided to students to reduce the risk of learning disabilities in the future.

Children with poor reading comprehension are slower at reading words and pseudowords than their peers reading at a normal level [31]. The poor readers in primary school will show two types of word-level reading difficulties. First, when they face a word they are not familiar with, they tend to guess the word on the basis of the context of the text [32], which leads to too many mistakes in their reading. The reason is that the phonemic analysis skills of the poor students in the word identification process are impaired [33,34]. Second, the number of words that children with reading difficulties can identify fluently and easily as "sight words" is so limited compared with the average readers [35].

Difficulties in reading may indicate what is known as dyslexia. Dyslexia is a persistent and unexpected difficulty in developing word reading skills that are age- and experience-appropriate [36]. Another study defined dyslexia as a type of specific learning disability that is neurobiological [37]. Dyslexia is characterized by difficulties with accuracy and fluency of word recognition. It is also characterized by a deficit in spelling and decoding abilities. Although the accurate causes of dyslexia remain ambiguous, researchers agree that most students with dyslexia have a phonological deficit that is revealed in phonological awareness and rapid automatized naming tasks [38,39].

One of the instruments used to monitor students' reading progress and to determine students' reading performance is the curriculum-based measurement (CBM). CBM has emerged and spread as a screening and monitoring progress instrument [22]. CBMs are brief assessments used to screen at-risk students who may suffer from academic difficulties in reading, writing, mathematics, and content areas [40]. Previous research found that CBMs provide accurate data about students' academic progress, and those data can be then used for making the appropriate educational decisions, which include: (a) improving teaching methods [41], (b) identifying students who are eligible for special education services [42], and (c) setting objectives for individualized educational plans (IEPs) for a

student [43]. Therefore, CBMs are permitted for use in both general and special education to assess students' responses to intervention models [5].

The Response to Intervention model is a data-based and systematic method for the identification and resolution of students' behavioral and academic issues [44]. Instructional programs based on the RTI have some essential elements, such as universal screening to identify at-risk students, standardized instruction for all students, intervention for failing students, and ongoing progress monitoring [45]. CBM has become "the most likely procedure to be used for Response to Intervention (RTI) evaluations of academic performance" [46] (p. 95). In addition, students can be classified into three tiers based on the RTI models [47–50]: Tier 1 consists of effective teaching of reading in the general classroom and universal screening of all students at the beginning of the academic year to determine at-risk students for early intervention. The students identified as at-risk students have their progress monitored for a short time to confirm or disconfirm the risk status. Students not responding to Tier 1 are moved to Tier 2, which consists of small-group tutoring for 20–40 min daily, 3 to 4 times weekly across 15- to 20-week sessions. Students not responding to Tier 2 are considered low achievers and are eligible to receive special education services. Thus, those students are moved to Tier 3 to receive intensive and individual intervention (45–60 min or up to 1.5 h per day) with a more specialized teacher [48–50].

The core features of CBMs involve standardization, efficiency in administration, ease of interpretation, and demonstration of reliability and evidence of validity for identifying a student's current academic skills [22]. Also, another advantage of CBMs is that they are aligned with the school curriculum because the content of the CBMs is taken from the curriculum that students learn in school [51].

CBMs' administration and scoring require standardized procedures, which means that each examiner must follow the same rules in each session. For example, three 1-minute timed oral readings are used to identify the current level of students' reading performance. CBM also relies on the results of repeated measurements during a period of time to monitor the level of progress. In addition, the obtained data do not need to be converted into percentile or normal-curve equivalents. For example, if a fifth-grade student reads 47 correct words per minute and the criterion is 60 words per minute, this means that the student needs to learn to read 13 more correct words per minute [22]. Further, the CBM data can be summarized efficiently through paper–pencil charts or web-based data management, and those data must be accessible for classroom teachers to benefit from them [22,51].

One of the Reading CBMs is the Word Reading Fluency (WRF) measure. It assesses word reading fluency through reading lists of sight words in one minute. Measures of WRF can be applied to classify students into two types, which are (a) students with reading disabilities and (b) students without reading disabilities [52].

The purpose of the current study is to examine the use of Arabic CBM WRF. Arabic is a transparent orthography. Consonants in Arabic are represented by letters and diacritical marks, positioned under or above the letters that represent the vowels. Two-consonant or three-consonant root morphemes constitute Arabic words [53]. The word root can be connected with suffixes and vowels to convey various meanings and distinguish speech parts. As such, using diacritical marks (Ftaha, Damma, Kasra) helps beginning readers in clarifying the phonological information to assist in understanding the meaning and pronouncing the words.

Second-grade students in UAE schools are supposed to learn all letter sounds and shapes in grade one. Regarding the WRF standards in the grade two UAE curriculum, students are supposed to be able to read fluently approximately 50 correct words per minute and analyze them into syllables in grade 2. In addition, they are supposed to read texts fluently with an understanding of meanings and connotations. Also, they should use their knowledge of the Lunar Lam, the Solar Lam, the Hamza, the Ta' Al-Marbouta, and the three types of Tanween, provided that the words are with complete diacritics. There are three types of Tanween: Tanween Fath (◌َ) which is denoted by double Fathah; Tanween Kasr (◌ِ) which is denoted by double Kasrah; and Tanween Dhamm (◌ُ), which is

denoted by double Dhammah. Tanween is added to the end of Arabic nouns, adjectives, and adverbs, and it has distinct pronunciation [54].

This study facilitates the use of Arabic CBM Word Reading Fluency (WRF) to monitor the student's reading progress in grade 2. In Arab countries, very limited studies have addressed effective assessment practices in reading [55]. In addition, the educational systems in the Arab countries suffer from a deficiency of valid and reliable assessment tools that can be used to identify students who are at risk of having reading difficulties [55,56]. For example, some Arab researchers in Jordan indicated that the educational system in Jordan needs effective and valid assessment tools to identify students with reading difficulties to provide them with appropriate intervention [57–59]. Therefore, the researchers in this study believe that schools in UAE and other Arab countries need an effective reading measure to monitor students' reading progress. The researchers also noticed the availability of the literature regarding English CBMs. However, there is a need for research about the use of CBMs with students who speak Arabic.

In the Arab world, few studies have been conducted about CBM [60–62]. However, no studies, to date, have explored the CBM word reading fluency in the UAE. A possible reason for the lack of research is that few instruments exist in relation to monitoring students' progress in reading. Teachers might focus more on self-developed tests of academic achievement rather than other measures to reach eligibility decisions [59].

For testing, developers at UAEU designed the CBM WRF for the second grade because, according to the [54], word reading fluency skill begins to emerge more starting from the second grade as students have learned sounds, short and long vowels, and diacritics in the first grade and have formed the skill of word reading fluency. In addition to this, the fundamental stages are very important in forming students' literacy skills; that is why it is important to assess and monitor their reading to identify at-risk students and plan for intervention strategies accordingly [6,22,36,60,61].

Monitoring students' reading progress using effective instruments is required and must be conducted throughout the school year in elementary grades by CBM. The results of this study can contribute to helping teachers provide better teaching practices for enhancing reading skills for children with and without reading difficulties in UAE and other Arab countries. In addition, the results of this study may raise teachers' awareness about the field of assessment tools and their role in identifying students' academic problems. Recognizing a child's problems at an early age helps reduce school failure [63]. The purpose of this study is twofold: (1) to examine the effectiveness of Arabic CBM WRF and (2) to investigate the technical accuracy of CBM WRF in classifying students with and without reading difficulties.

2. Research Questions

The following questions guided the study:

1. Is there a relationship between the Arabic subject GPA and CBM word reading fluency?
2. How do students with reading difficulties on the probes compare with average readers?
3. Can the CBM word reading fluency be used to monitor second graders' progress in reading?

3. Method

3.1. Participants

A total of 70 second-grade students (25 poor readers and 45 average readers) participated. Participants consisted of 37 males and 33 females, and they were randomly selected from four classrooms (sections) in one of the private schools in Al Ain City, United Arab Emirates. All participants in the study were native speakers of Arabic. Based on data obtained from parents, it was learned that all students speak their local dialect outside the school and speak only standard Arabic (Fusha) at school. The age range of the students was 7 to 8 years approximately, with an average of 7.4 and standard deviation of 0.30.

3.2. Instrument

3.2.1. Curriculum-Based Measurement of Word Reading Fluency

CBM WRF consists of 12 equivalent word lists or probes. The WRF probes were developed by specialists in Arabic language and special education at UAE University through the following steps: (a) considering the WRF standards in the grade two UAE curriculum [54] and (b) preparing lists of the most common words (sight words) in kindergarten, first-, and second-grade curricula. The 12 probes had the same difficulty and the same content. Also, they consisted of one-, two-, and three-syllable words.

In the first form, each version of the three versions (1, 2, and 3) consists of 40 common words and another set of 60 words. The first 40 common words begin with 10 one-syllable words, followed by 20 two-syllable words, then 10 three-syllable words. The other 60 words consist of 30 words chosen from the first-grade curriculum and 30 words derived from the first-semester second-grade curriculum. Also, in the second form, each version of the three versions (1, 2, and 3) consists of 40 common words and another set of 60 words. Examples of one-syllable Arabic words include قَفْ (stop), مِنْ (from), and هُمْ (they). Examples of two-syllable Arabic words include بَيْتٌ (home), كُوبٌ (cup), and نُورٌ (light). Examples of three-syllable Arabic words include ذَهَبَ (went), جَلَسَ (sat), and قَفَزَ (jumped).

In addition, the test developers adapted the CBM Administration and Scoring Guide of the University of Oregon, 2021 [64]. A group of native speakers of Arabic who are also fluent in English translated the English CBM WRF instructions adapted from the Administration and Scoring Guide [64], into Arabic. However, there were some modifications because of the differences between Arabic and English. Moreover, CBM WRF probes were reviewed by the Curriculum Team at the Ministry of Education in the UAE in 2021, and they validated that the probes conform to reading standards of the second grade.

Concurrent validity was determined by the Pearson correlation coefficient between the students' performance in the CBM WRF probes and students' GPA in Arabic, $r = 0.98$ ($p = 0.001$). In addition, a group of Arabic teachers and university professors judged the appropriateness of the Arabic CBM WRF for the study. They approved the Arabic CBM WRF measures as being appropriate. Therefore, the Arabic CBM WRF has content validity. The fidelity of CBM WRF administration was tested, using a checklist to ensure each probe was administered as it was intended and described in the Administration and Scoring Guide [64]. In addition, the researchers (first and second authors) estimated parallel-forms reliability by calculating a Pearson correlation coefficient between the equivalent forms of the probes, and the Pearson correlation coefficient ranged from 0.98 to 0.99 ($p = 0.001$). Procedural reliability was obtained during all testing sessions. In terms of the inter-rater reliability, the correlation between raters was 0.99 for total correctly read words.

3.2.2. Arabic Language Grade Point Average

The Arabic GPA for grade two in UAE schools reflects a student's ability in four basic Arabic skills. The four basic skills are reading (word reading and reading comprehension), writing (spelling and expressive writing), speaking (fluency and pronunciation), and listening. GPA for an Arabic language subject is a numerical average of all points that a student achieved in the Arabic language skills for a school semester. The total score for the Arabic language subject is 100 and is as follows: 10 points for oral reading, 10 points for orthography, 10 points for expressive writing, 10 points for activities and homework, 10 points for listening and speaking, 20 points for the midterm test, and 30 points for the final test. In the UAE educational system, the purpose of GPA is to provide a measure of overall academic performance. GPA represents a criterion that helps educators compare and rank students. As such, students are given a numerical rank in comparison with their classmates. The grading starts from 0 to 100. The student with the highest GPA receives 100, while the student with the lowest GPA receives 0. The cut-off score of the average and poor readers was set based on the grading system of the school participating in the study. The cut-off score of the average and poor readers' GPA is 70. Students with GPAs

of 70 and above are considered average readers, while students with GPAs of 69 and below are considered poor readers. During data collection, the mean Arabic GPA of the average readers in the sample was 85.13 ($SD = 9.77$), with a range of 28 (70–98). For the students with reading difficulties, the mean was 59.96 ($SD = 5.96$), with a range of 18 (51–69).

3.3. Procedure

CBM WRF was a part of a large-scale internal grant funded by the UAEU research office, and the grant was granted ethical approval on February 2020 from the UAEU Social Sciences Research Ethics Committee. Based on that, the researchers contacted one of the private schools in Al Ain (main language of instruction is English). The chosen school followed the Ministry of Education curriculum in some subjects, which are the Arabic language, Islamic studies, and social studies. On the other hand, the school followed the American curriculum in subjects of science, mathematics, moral education, art, physical education, and the library. Thus, three subjects were taught in Arabic, and six subjects were taught in English each week during the academic semester.

Due to the COVID-19 pandemic and school lockdowns, data collection started in February 2022. The researcher (first author) sent an official letter from UAEU to the school via email explaining the topic and scope of the study. Official approval from the school was obtained to conduct the research in February 2022. A sample of 80 male and female students was randomly selected from the second grade. Then, consent forms were sent to the parents of students seeking their permission. Parents of 70 children agreed to let their children participate in the study. Thus, the consent forms for participating in the study were obtained from 70 parents. The students' Arabic GPAs for the previous semester (Fall 2021) were provided to the researcher (first author) by the classroom teacher. Before administering the CBM WRF probes, the students were classified into average and poor readers based on a cut-off score of 70 on GPA. The data collection was completed by the researcher (first author) and trained Arabic teachers in Spring 2022.

The researcher (first author) received the CBM WRF probes from the test developers, who comprised a group of Arabic and Special Education professors at UAEU. Then, a group of Arabic teachers and university professors confirmed that the developed Arabic CBM WRF probes were appropriate for this study. Accordingly, the researcher (first author) coordinated with the school, and it was agreed that students would have 12 probes (sessions) within 12 weeks. The researcher (first author) received training from one of the test's developers at UAEU, and, in turn, she trained two Arabic teachers to administer the CBM WRF probes to condense the timeframe due to COVID-19 conditions.

The researcher (first author) observed that the trained Arabic teacher administered the probes correctly and followed all the instructions. The instructions of the Arabic CBM WRF were as follows: (a) The examiner writes slash (\) beside each word read incorrectly; (b) if the students corrects themselves within 3 s, the response is considered correct; (c) if the student reads the word by analyzing its phonemic syllables without incorporating them, the response would be incorrect; (d) if the student reads the words in the wrong order, this would be considered incorrect; (e) if the student skips the word, this would be considered an incorrect response; and (f) if a student does not get any words correct in the first line (5 words), the examiner must stop the test, and the student gets zero. The students with reading difficulties were receiving academic support in the Arabic language subject through an intervention plan prepared by the classroom teacher. However, those students did not have any behavioral, emotional, or attention disorders according to the data obtained from the special educational needs coordinator (SENCO) in the school. The students attended a 55 min Arabic language class five times a week with the same teacher who performed the same assessments for the students during the semester.

The Arabic CBM WRF administration started in February and was completed in April 2022. The probes were administered individually. Each student was asked to read one probe every week for one minute. According to the manual given by the test developers, the student's score was calculated by counting the number of correct words read in one

minute in each probe. The tools used in the administration were the student's copy of the words list, the examiner's copy of the words list, a pen for scoring, and a stopwatch.

4. Results

All data were analyzed using IBM SPSS Statistics, Version 28 [65] predictive analytics software. Descriptive statistics including (mean, mode, standard deviation, range, minimum, maximum, and percentile ranks) among average readers and students with reading difficulties for their performance in the CBM WRF probes by the end of the administration period are provided in Table 1. As shown in Table 1, average readers achieved significantly higher scores than the students with reading difficulties. The mean of correct words read per minute in the group of average reader students is higher than the mean in the group of students with reading difficulties.

Table 1. Descriptive Information of Average Word Reading Fluency Performance in Correct Words per Minute for Both Groups.

Group	Average Reader Students	Students with Reading Difficulties
Number of students	45	25
Mean	36.72	6.95
Mode	43	8
Standard deviation	8.14	1.82
Range	32	7
Minimum	17	4
Maximum	49	11
Percentile (%)		
25	31	5
50	38	7
75	44	8

The Estimated Growth Rate of Reading Ability

The normative approach of establishing growth standards assumes that a typical growth rate is desirable. However, one may assume that typical growth rates are lower than ideal in the case of students with learning disabilities. The resulting scores provide information regarding the expected growth of regular students and students with disabilities as they acquire the benefits of the provided teaching in their school [66].

In this study, the growth rate of reading was computed for each student by subtracting the average scores of the initial three probes from the average score of the final three probes and then dividing the result by 12 (number of weeks of instruction). The estimated growth rate of average readers per week was 0.46, SD = 0.12, while it was 0.16, SD = 0.10 for students with reading difficulties. Figure 1 shows the average performance of WRF probes for students with reading difficulties and average readers. It can be said that average readers were capable of reading more correct words than students with reading difficulties. The independent-samples *t*-test showed that average readers received higher scores than students with reading difficulties on the probes, $t(68) = 24.72$, $p = 0.001$.

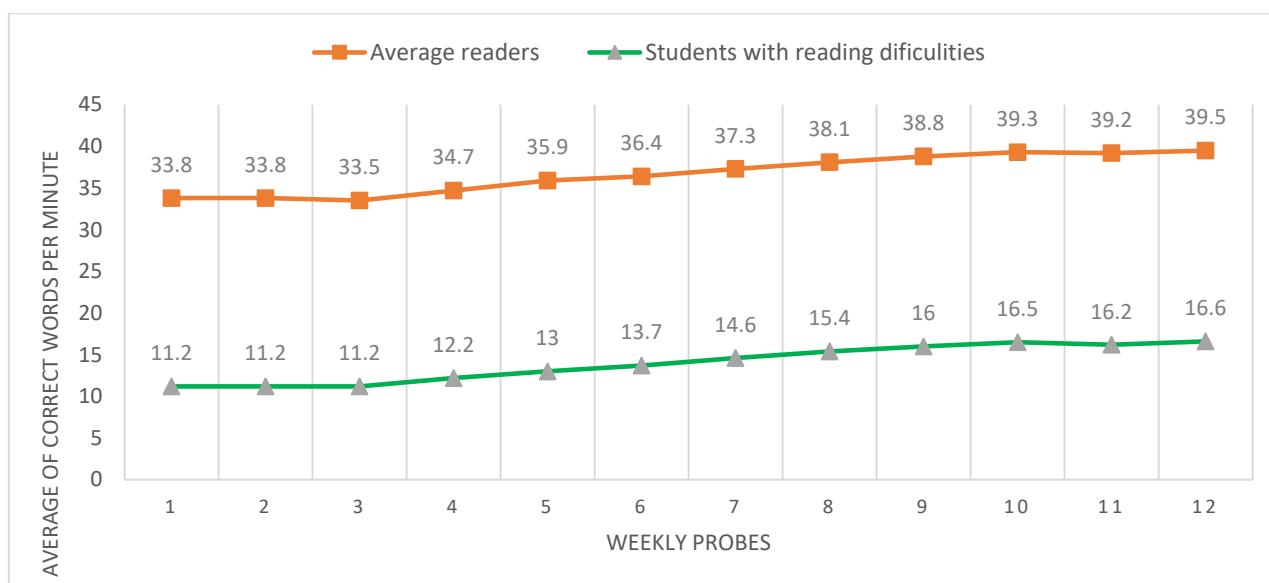


Figure 1. Mean Performance on Curriculum-Based Measurement of Word Reading Fluency Measure for Average Readers and Poor Readers Reported in Correct Words per Minute.

5. Discussion

The purpose of this study was to examine the Arabic CBM WRF for a sample of second graders whose first language is Arabic. The researchers developed the CBM WRF probes to monitor students' progress in word reading fluency. The results of the study showed that the CBM WRF was sensitive to differences in reading progress among poor and good readers.

Also, there was a clear relationship between the students' performance in the Arabic CBM WRF and their GPAs in Arabic. The GPAs of students with high reading performance in the CBM WRF probes were higher than those with low reading performance. Based on that, we can say that the Arabic CBM WRF was a significant predictor of Arabic GPA. This result is consistent with the result of [1] study, which found a correlation between students' reading performance in CBM and their GPAs.

In line with previous studies results [51,61,62], this study found that students with reading difficulties read fewer correct words than average readers in one minute. Such data allow teachers to plan for the appropriate interventions and monitor students' performance across the academic year and help them establish broad long-term goals. In addition, as the researchers in this study expected, students with reading difficulties achieved a lower weekly growth rate in Word Reading Fluency probes than average readers. This result is consistent with the study of [66], which found that struggling students achieved growth rates of less than half that of their regular colleagues in primary school. The researchers believe that direct comparisons between average readers and students with reading difficulties may be helpful to guide interventions and reading theory, which suggests a direction for future research.

Based on the results, it can be said that Arabic CBM WRF may be an applicable instrument for distinguishing between students with and without reading difficulties. The final performance of average students in the Arabic CBM WRF probes was as expected by the researchers. The average of words read correctly by average students in the last week of the administration was approximately 40 correct words. This finding was close to the benchmark set by the [54] which was 50 correct words per minute. Therefore, the researchers expect that average students achieve the goal at the end of the school year, as they have had a fast growth rate.

On the other hand, the average of correctly read words for students with reading difficulties in the last week of administration was approximately 17, which is much lower than the benchmark set by the [54]. This may be an indicator that these poor readers are

at risk of having reading disorders. This idea is consistent with the results of the study conducted by [62], which revealed that college students with dyslexia were substantially slower readers in the CBM probes compared with students without dyslexia.

Although the students with reading difficulties already received academic support in the Arabic language through intervention plans prepared by the Arabic language teacher, their reading progress was slow in the Arabic CBM WRF probes. The intervention consisted of extra support classes given by the teacher to the struggling students in which she provided small group lessons and used some activities to improve students' reading. However, during the conversation with the teacher, she explained that the support classes she provided to the students did not contain research-based strategies. Therefore, the researchers (first and second authors) believe that the intervention plans need to be more intensive and subject to the supervision of a specialist in special education and not only the supervision of the Arabic language teacher to ensure that it suits students based on their individual condition. Based on that, the researchers (first and second authors) in this study claim that the Arabic CBM WRF measure is an effective instrument used to monitor reading progress. In addition, the Arabic CBM WRF measure can be used to assess response to the provided intervention and the effectiveness of that intervention. According to [67], the Response to Intervention (RTI) approach is screening students using curriculum-based measurements (CBMs), commonly a single word reading measure administered individually at the beginning of the school year.

The researchers believe that some other challenges contributed to the slow reading progress of students with reading difficulties in addition to the inappropriate intervention plan. For example, the various forms of the Arabic letters and the similarity in graphemes represent a challenge for reading [53,67–69]. Another interpretation of the slow reading progress of students with reading difficulties is the diglossia phenomenon, which refers to an academic format of the language as well as a colloquial format used by many individuals. The differences between the dialects of preschool children and the standard Arabic (Fusha) used in schools affect the construction of Arabic phonological representations [58]. Another interpretation of the slow reading progress rate of students with learning difficulties is the language diacritical features, which is, according to [5] that learning to read using diacritical marks poses a challenge for beginning readers, as minor mistakes can lead to inaccurate decoding through misperception of the diacritic marks below and above the letters.

6. Conclusions

The results of this study have important implications for screening and monitoring reading progress in the second grade for both average and poor readers who may be at risk for reading disabilities in Arabic in UAE schools. In addition, the results of this study have important implications for improving teaching methods and special education services in UAE schools.

The study suggests using Arabic CBM WRF as a universal screening instrument in UAE elementary schools because elementary schools need quick and technically adequate screening instruments. This suggestion is consistent with the results of prior studies, which found that reading CBMs can be used as a screener [25,30,34]. Thus, students encountering academic difficulties can receive intervention instantly. Our results also suggest using the Arabic CBM WRF measure in monitoring students' progress in grade 2, as it is an effective instrument in classifying poor and good readers. In addition, this research recommends applying this test with a larger sample of students and in other schools, and training teachers on Response to Intervention Models in UAE schools so that the teacher is aware of the appropriate type of intervention for poor readers. This study is preliminary and provides a framework for future research.

7. Limitations

The data collected in this study reflects the performance of only the second-grade students in the CBM WRF probes. Consequently, the generalizability of findings to other

grades is limited. Therefore, the researchers in this study recommend using Arabic CBM WRF probes in future research with the remainder of the elementary grades. Another limitation is that the students were given the same assessments by the same teacher, so there is no other measure by which to compare students' academic level with their reading performance in the CBM WRF.

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