

Arabic Writing and Curriculum Based Measurement

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Abstract

The primary purpose of this study was to investigate the effects of teaching direct writing instruction on students' achievement in curriculum based measurement of written expression (CBM-W). A total sample of 64 fifth-grade students participated in the study. This paper presents a comparison study of two groups: the first group received writing instruction and the second group received traditional way of teaching written expression in Jordan. The intervention was implemented for 18 weeks. The results indicated that students in the treatment class outperformed students in the comparison class on the CBM-W progress. In addition, the best scoring method of CBM-W was correct writing sequences. The implications of the results, limitations of the study, and directions for future research are discussed.

Keywords: Arabic writing, curriculum based measurement, writing instruction, student with writing difficulties.

Introduction

Writing is a key to successful school experiences and an essential mean of communication that helps students learn how to structure and organize their thoughts. Some students with writing difficulties have learning or language disabilities, whereas other do not. Whatever the underlying reasons for the difficulties, for many students, writing is not easy. In fact, writing is the most complex of all the language tasks, and students of all ages can have difficulty becoming proficient writers (Mather, Wendling, & Roberts, 2009). Writing is an essential skill needed for academic success in all curricular areas, and for this reason, the course grades of weak writers may be negatively affected specifically due to their inability to express themselves in writing (Alber-Morgan, Haussler, & Konrad, 2007; Graham & Harris, 2006). Writing has always been an important part of the school curriculum but has received less attention from researchers than reading and mathematics (National Center for Education Statistics, 2003). The National Commission on Writing (College Board, 2003) reported that American schools are not sufficiently teaching writing and that the skill is not addressed with the same rigor as reading and mathematics. Furthermore, the National Center for Education Statistics (NCES, 2003) reported that only about 28% of fourth graders could write at a proficient level or above, 58% wrote at a basic level, and 14% wrote below the basic level.

According to Venn (2007), "Written language is the expression of ideas and feelings in written form" (p. 422). Written language skills include written expression, spelling, and handwriting (Mather et al., 2009). Poteet (1992) described the components as handwriting, spelling, mechanics, usage, and ideation. Many students acquire written language skills in a fairly predictable sequence. However, there are students who experience significant problems with these skills; for these students, teachers must develop and implement specific intervention strategies and progress monitoring to assist students in developing their written language. According to McMaster and Espin (2007), "Technically sound measures of writing progress are needed to ensure that students are progressing toward writing standards, to identify those who struggle, and to inform instruction aimed at improving students' writing proficiency" (p. 68).

Curriculum Based Measurement

One widely used research-based progress-monitoring system, curriculum-based measurement (CBM), has provided reliable and valid indicators of student progress in basic academic skills (Deno, 1985). CBM's validity and reliability are well established (National Center on Response to Intervention, 2010). CBM was developed by Deno and his colleagues during the early 1980s to provide teachers with an efficient and valid means of assessing educational skills in the areas of reading, spelling, writing, and math (Deno, 1992).

The application of CBM has expanded to help teachers not only evaluate instructional effectiveness but also make subsequent educational decisions, predict student performance, and identify students academically at risk (Deno, 2003). More importantly, the application and integration of CBM into daily academic instructional practices produce substantial improvements in students' performance and achievement (Stecker, Fuchs, & Fuchs, 2005). CBM can be used to monitor growth in written expression. A number of studies demonstrate that CBM of written expression (CBM-W) has strong reliability and validity (e.g., Espin et al., 2000; Gansle, Noell, VanDerHeyden, Naquin, & Slider, 2002). CBM-W has been validated against several standardized measures including the Test of Written Language (TOWL) total score and individual subtests, the Stanford Achievement Test (SAT), Developmental Sentence Scoring, and the SAT Language subtest (see Gansle et al., 2002; & Marston, 1989, for reviews).

In CBM-W, students are asked to write a 3-minutes essay (e.g., the writing prompts may be pictures or narrative starters) about a story. The students take one minute to think about what they are going to write and then spend 3-minutes writing. Educators score the CBM indicators in students' short essays to gauge general writing proficiency. Generally, the CBM-W scoring methods at the elementary level include the total number of words written (TWW), words spelled correctly (WSC), and correct writing sequences (CWS). The CBM-W scoring methods are designed to be general outcomes indicators of student's performance in written expression that can be used frequently (e.g., weekly, monthly) without confounding future data (i.e., practice effect) and are sensitive to change in the student's writing skills (Hosp, Hosp, & Howell, 2007).

For example, Gansle et al. (2002) studied the relevance of CBM-W to a 10-minutes writing intervention. Forty-five students at Grades 3 and 4 participated in this study. Before the intervention, a CBM-W narrative prompt was implemented to collect pretest data from students. During the intervention period, the students were grouped and asked to brainstorm about the topic for another CBM-W narrative prompt for 3 minutes. After a short break, each student was asked to complete the essay. The results showed that after the brief intervention, students produced more total WW in post-intervention than in pre-intervention, evidencing the sensitivity of CBM-W to instruction. This study indicated that explicit writing instruction is essential to improve writing skills for students with and without writing problems. In order to assist students in moving through the developmental stages of written expression, teachers will need to be able to implement a variety of evidence based instructional strategies.

Direct Writing Instruction

Effective writing requires many and varied skills, including the rapid and accurate production of letters and words, generation of ideas, word selection, appropriate use of grammar and punctuation, accurate spelling, planning, translation, evaluation, and revision (Torrance & Galbraith, 2006). During Grades 1 through 3, the focus of writing instruction is on developing the skills necessary to produce letters, punctuation, and words on paper. After the mechanics of writing are mastered, the focus of writing instruction shifts to the development of more advanced skills, including producing complex sentences and paragraphs, planning, evaluating, and revising (Gersten & Baker, 2001).

Although students spend a good deal of school time writing (e.g., taking notes and responding on assignments or tests), educators allocate too little time to writing instruction designed to allow students to acquire skills (Mather et al., 2009). Heward, Heron, Gardner, and Prayzer (1996) recommended that writing programs include at least 10 minutes of writing instruction before any writing period. Direct instruction procedures that have been shown to enhance skill acquisition or accuracy include describing, modeling, demonstrating, prompting, and providing corrective feedback (Mather et al., 2009). In this line of research, Gansle and his colleagues (2004) implemented an intervention that consisted of brainstorming ideas, presenting those ideas on a dry-erase board, and writing a complete sentence on paper with writing quality feedback before completing a CBM-W passage. The results indicated that the intervention had a positive effect on total words written. Although the previous documented research supported the psychometric prosperities of CBM-W in English, no research has been conducted to explore CBM-W in Arabic language. In addition, very few research has addressed the issue of writing in Arabic. Because the reader may not be familiar with the Arabic language, the author first briefly describes the main characteristics and challenges of the Arabic orthography.

The Challenges of the Arabic Language

Several orthographic features of the Arabic language create certain difficulties in learning and teaching reading or spelling skills.

According to Abu-Hamour (2013), these features are: "Arabic is an alphabet language with 28 letters, written in a joined fashion from right to left (Abu-Rabia & Siegel, 2002). All letters are consonants except for three long vowels. Another three short vowels (diacritics) do exist in the form of separate diacriticals, but not as independent graphemes. When any of these diacritics appear on the letter, it gives different consonant-vowel combinations; for example, the letter *k* could be /ka/, /ki/, or /ku/. If the same letter *k* comes in a word where it is not followed by a vowel, it will be uttered as it is i.e. /k/. Therefore, when these diacritics or short vowels appear in the script, Arabic shows a high degree of regularity and the students can read by predicting the sound of the letters. However, in most modern and printed Arabic text (grade four and above) diacritic marks are not provided or provided partially, therefore reading relies more on the context rather than spelling and Arabic script becomes more irregular (Abu-Hamour, 2013). Second, Arabic script is written in a cursive fashion while each individual letter has multiple forms (at the beginning, middle, end or basic) according to its position within the word. Many letters, furthermore, have similar graphemes but their phonemes are completely different. The Arabic alphabet consists of twenty letters that have graphic similarity with at least one or two other letters (Brenznitz, 2004). Third, a greater influence of orthographic processing over-and-above phonological processing could be related to diglossia (the existence of a formal literary form of a language along with a colloquial form used by most speakers) in Arabic. Fourth, the glottal stop in Arabic, referred to as the Hamza, although a fully functioning consonant, is treated as a diacritical mark and has many different ways of writing depending on its position in the word resulting in various complex spelling and reading conventions (Elbeheri, Everatt, Mahfoudhi, Abu Al-Diyar, & Taibah, 2011). Fifth, the shaddah, one of the diacritics used with the Arabic alphabet, marks a long consonant. Shaddah is not a vowel but it indicates a place where the writing shows only one consonant, but the reader pronounces two consonants. Normally, this means that the reader has to hold or sustain the sound of that letter for twice as long. Sixth, the Arabic script consists of 17 basic character forms only, with dots placed above or below the various character forms making up the 28 letters of its alphabet. Dots are, therefore, extremely important and differ in their number (one, two or three) and in their position (below or above a character). Finally, word similarities, or the homograph phenomenon, may cause problems in the reading and spelling processes. Arabic is highly homographic in that words look similar orthographically but carry different meanings according to grammatical function or vowelization (Abu-Rabia, 1997)."

Significance of the Study

The study of written expression has begun to receive the attention of researchers, clinicians, and school personnel in the past two decades (Hooper, Knuth, Yerby, & Anderson, & Moore, 2009), but there remains a strong need for evidence-based practices to be consistently implemented in the school setting (Baker, Chard, Ketterlin-Geller, Apichatabutra, & Doabler, 2009). Continued research is needed to develop ways to accurately index students' writing proficiency and to determine which CBM-W measures are most appropriate for each grade.

Teachers in Arab world don't teach students how to write, they usually say "writing is a talent and it can't be taught". Students are asked to write about certain topic and at the end of the lesson they have to submit their writings to the teacher to evaluate it. The evaluation of the writing is mostly depending on grammar, organization, and metaphors of the written paper. In Arab countries very limited research exists that addresses the effective assessment and intervention practices for students who are struggling with writing. The difficulty and complexity of the orthography of Arabic language may explain the need to validate new assessment measures (eg., CBM-W) and writing instruction. This study facilitates the use of CBM-W and Arabic writing instruction to enhance students' writing achievement. The results of this study may be used to help teachers provide better classroom practices for fostering writing skill among students with and without writing difficulties in Arab countries and around the world. To the author's knowledge, no studies have been conducted to investigate the effect of writing instruction in Arabic by using CBM-W. The results of this study can be used to help teachers provide better classroom practices for fostering writing skill among students with and without writing difficulties in Arab countries and around the world.

Purposes of the Study

The purpose of this study was to investigate the effects of teaching direct writing instruction on students' writing achievement. On the other hand, students in the control group were asked to write about certain topic without providing them with writing instruction. Both groups progress were followed by using the CBM-W. The present study was designed to answer the following three research questions:

(a) How do scoring methods of CBM-W relate to Arabic Grade Point Average (Arabic GPA), thus providing evidence for validity in assessing written language? (b) What is the effect of direct writing instruction on the writing performance of students with and without writing difficulties? and (c) Will the CBM-W be applicable assessment tool in Arabic language?

Method

Participants

A total sample of 64 fifth-grade students participated in the study. The researcher and school's principal coordinated to choose two comparable samples that were taught by the same teacher for the purpose of the study. Each one of the two samples was comprised of 31 students with average writing ability. Another two students with writing difficulties participated in the study as well. Dana has an age of 126 months and Aisha has an age of 127 months. The students with writing difficulties were identified and nominated by the resource room teachers to be the participants in this study. In addition, the students with average writing ability must have an Arabic GPA of 67 and above while an Arabic GPA of 66 and below was used as a cutoff point to include students with writing difficulties in the study. These students were enrolled in the second semester of 2012/2013 from a private school in the southern region of Jordan. In the school, curricular goals and objectives, materials, and Arabic instruction methods were similar. All classes were taught in Arabic. Students participated in a forty-minute Arabic language class five times a week. The school followed the standard Jordanian national curriculum. Most of the participants came from a middle socioeconomic status.

Consent forms were sent to parents seeking their permission for participation. Parents who agreed to let their children participate in the study were requested to complete a short questionnaire that addressed the inclusion criteria of this study. The participants were selected from a larger set of students who were assessed to meet the requirements for inclusion in the study: intelligence within the average range, native speakers of Arabic, no noted emotional or behavioral disorders, no noted attention disorders, and no sensory impairments. The data collection was completed by the author, a trained teacher, and her assistant. This teacher has a degree in early childhood education and a diploma in learning disabilities. The sample's characteristics for the two groups or classes with regard to age and gender are presented in Table 1.

Table 1: The sample's characteristics

Group/Variable	Range of Age in Months	Mean Age	Gender	
			Female	Male
Experimental	125-131	127	16	15
Control	124-131	127	15	16

Note. n = 62 fifth-grade students.

Procedures

Children in the first condition or class received direct writing instruction and CBM-W. Children in the second condition received CBM-W and no direct writing instruction. One of the students with writing difficulties was in the experimental group and the other one was in the control group. The average time between first probe and last probe was 18 weeks for each of the groups. The author provided the teacher and her assistant with 22 hours of professional development that focus mainly on the direct writing instruction and CBM-W for the purpose of this study. All testing were conducted by the classroom teacher, her assistant, and the author.

Direct Writing Instruction (DWI)

The DWI was adapted from the work of Gansle and his colleagues (2004). The DWI sequence began with distribution of a story starter, paper was then distributed to the students and the group then talked and brainstormed about the topic for approximately 3 minutes. The group leader modeled the task by telling students they were going to plan a story together and that all members of the group would have opportunities to offer their suggestions for the story. The group leader suggested the first idea and wrote it on the board. Students were prompted to offer additional ideas, which were written on a dry-erase board. Each student offered at least one idea that was written on the board. Students were instructed to take notes on their papers and were prompted to copy the notes from the board if they did not spontaneously take notes. All students took notes. Following brainstorming, each student was asked to write one complete sentence on the paper that had been distributed using either the ideas on the board or others they had.

The group leader checked and helped students to write a complete sentence as needed. The group leader erased the board and collected the scratch paper. A “stretch break” of 3 minutes was given. The post-instruction story starter was administered and collected according to the CBM-W procedures. Students completed the instructional sequence in 8 groups of four members. The total group time ranged between 22 and 25 minutes. The DWI was implemented twice a week.

Treatment integrity. Treatment integrity checklists were used to measure the extent to which the teacher and her assistant implemented the DWI correctly. These checklists were based on the critical components of the DWI. Each step on the checklist was scored as completed or not completed, and the percentage of steps completed accurately was determined. A total of 30% of the 36 teaching lessons were randomly selected to examine the fidelity of the intervention. While the teacher implemented the DWI, an observer independently and simultaneously conducted treatment integrity assessments. The average interobserver reliability was 96% (range 95%–100%). In addition, the team of this study had weekly updates and discussions to address the crucial points in the delivery of the intervention and provide feedback.

The CBM-W

The researchers used appropriate translation procedures (Brislin, 1986) prior to administer Arabic CBM-W to a sample of Jordanian students. First, two native speakers of Arabic, who were also fluent in English, independently translated the CBM-W instructions into Arabic. Second, a back translation of the Arabic version into English by a bilingual resident of the United States who is fluent in both English and Arabic languages was conducted. Third, all translators reached a reconciliation of the forward-backward translations. Finally, a pre-test was conducted with a convenience sample of 14 fifth-grade students to assess ease of comprehension, possible ambiguities, and alternative administration wording. In terms of the content of the probes, 22 story starters were chosen for the study. Each story starter contained the first part of a sentence, followed by an ellipsis. The content of the incomplete sentences provided to the students was related to school experiences that students in elementary school might commonly have. In terms of the CBM-W scoring methods, TWW is the number of words written regardless of spelling or context. WSC is the number of correctly spelled words, regardless of context. CWS is two adjacent, correctly spelled words that are acceptable within the context of the written phrase to a native speaker of the Arabic language. It takes into account punctuation, syntax, semantics, and spelling. All story starters were administered in a group format, following procedures outlined by Hosp et al., (2007).

Procedural and Inter-rater Reliabilities

To ensure consistency of testing administration across the CBM-W probes, the teacher read from scripts and used timers. The fidelity of testing administration was tested by using a detailed checklist to ensure each probe was administered as it was intended and described in the manuals of the CBM (Hosp et al., 2007). Procedural reliability was obtained during 40% of the testing sessions with an average reliability of 99%. The teacher scored each CBM-W probe and entered the data into an excel sheet. The author checked randomly 50% of the scoring sheets. The average inter-rater reliability of scoring fidelity data was 99% (range 98%-100%). In terms of data entry reliability, all of the excel data (100%) were checked against the paper scores and all discrepancies were resolved by examining the original protocols.

In order to respond to the research questions, all data were entered into the Statistical Package for the Social Sciences (SPSS). In terms of statistical analyses, descriptive statistics, Pearson product moment correlations, and independent *t*-tests were used to answer the study’s questions.

Results

Pearson correlations between the students' Arabic GPA and the CBM-W were performed to determine the best scoring method (TWW, WSC, and CWS). The CWS had the strongest correlation with students' language achievement as measured by the Arabic GPA. In addition, the data set showed a moderate positive correlation between students' Arabic GPA and WSC. On the other hand, there was no significant correlation between students' Arabic GPA and TWW. Based on the previous results, the next statistical analyses are presented in CWS scoring method.

Table 2: Correlation matrix for CBM-W scoring methods and Arabic GPA

	Arabic GPA	TWW	WSC	CWS
Arabic GPA	1.00			
TWW	.140	1.00		
WSC	.534**	.662**	1.00	
CWS	.641**	.533**	.896**	1.00

Note. CBM-W= Curriculum Based Measurement of Writing, GPA= Grade Point Average, TWW= total words written, WSC= words spelled correctly, CWS= correct writing sequences.

Descriptive statistics of the Arabic CBM-W in CWS scores are reported in Table 3 for the two groups of the study. The descriptive results indicated that the achievement of the experimental group was greater than that of the control group by the end of the intervention.

Table 3. Descriptive information of CBM-W performance by the end of the second semester in CWS in three minutes for the two study's groups.

Group	Range	M	SD	Percentile	
Experimental Group	18-63	38.71	5.66	90%	52
				75%	45
				50%	39
				25%	32
				10%	22
Control Group	10-51	29.15	6.93	90%	40
				75%	33
				50%	28
				25%	21
				10%	14

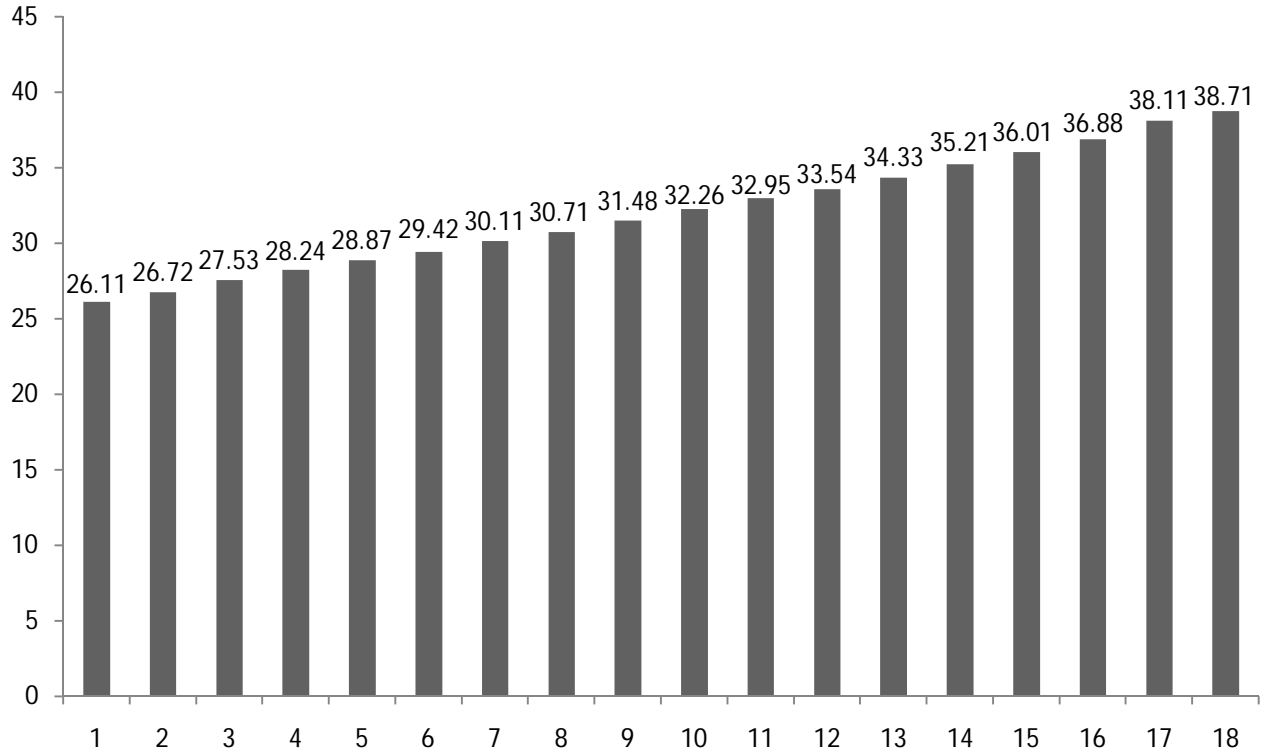
Note. n = 31 for each group, CBM-W = Curriculum Based Measurement of Writing, CWS = Correct Writing Sequences, M=Mean, SD=Standard Deviation.

Groups' Comparisons

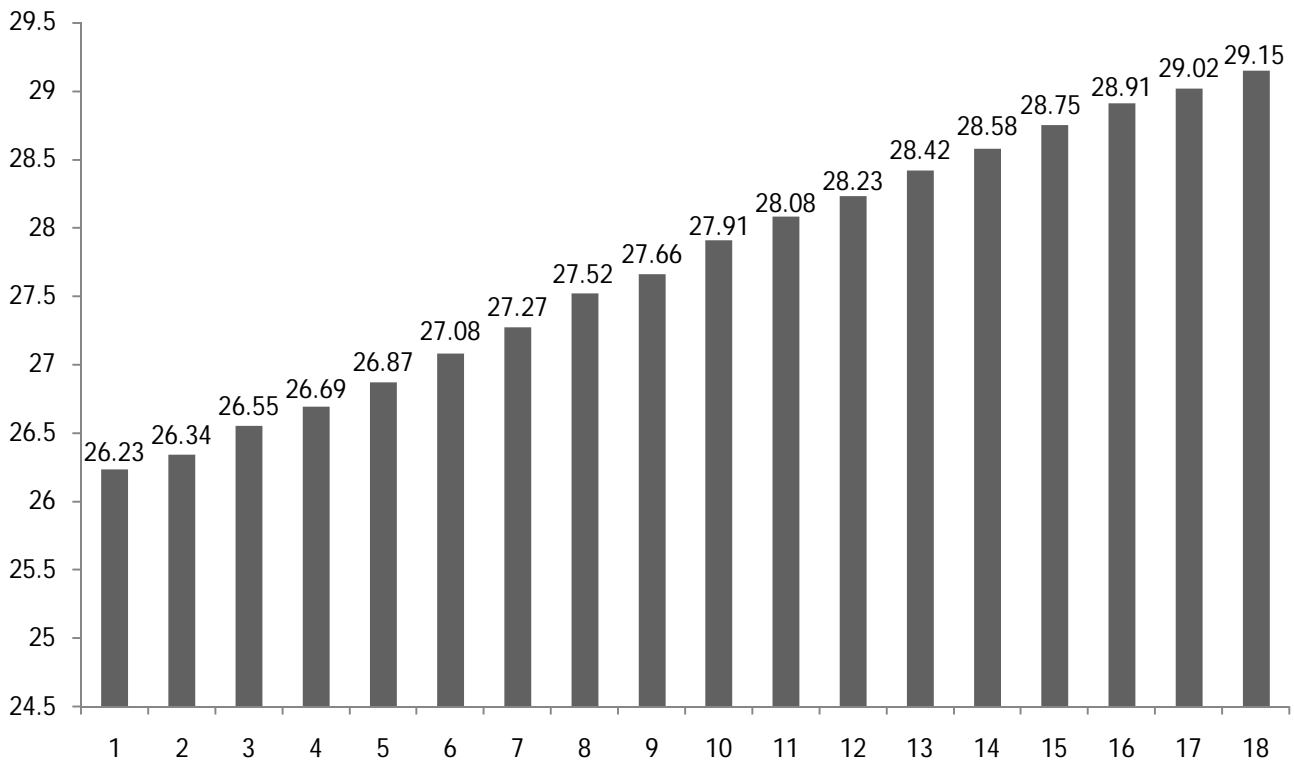
Identical CBM-W probes were administered to the students in the beginning of the semester to determine their writing skill and investigate the groups' differences. To assure that there were no violations of assumptions in independent *t*-tests, a Levene's test was administered to the median baseline CBM-W scores for the two groups. No violations of normality and homogeneity of variance were detected. The variances were equal for the experimental group and the control group, $F(1, 60) = .061$, $p = 0.806$, which is greater than 0.05. On the average, students in the control group had slightly higher scores ($M = 26.23$, $SD = 4.72$) than students in the experimental group ($M = 26.11$, $SD = 4.61$). However, this difference was not significant $t(60) = .136$, $p = 0.892$, which is greater than 0.05. To explore the group differences after applying the intervention, another independent *t*-test was executed. All assumptions of performing independent *t*-tests were examined. No violations of normality and homogeneity of variance were detected. The variances were equal for the experimental group and the control group, $F(1, 60) = .839$, $p = 0.363$, which is greater than 0.05. On average, students in the experimental group achieved higher scores in CBM-W ($M = 38.71$, $SD = 5.66$) than students in the control group ($M = 29.15$, $SD = 6.93$). This difference was significant $t(60) = -5.936$, $p < 0.001$, which is less than 0.05, and it represented a medium-sized effect $r = .36$.

The CBM-W Performance and Growth Rate

Descriptive statistics allowed providing visual graphs that facilitated more convenient presentation of the data. Graphs 1 and 2 display the average weekly performance of the two study's groups. Students who received writing instruction progressed from 26.11 CWS on the first probe to 38.71 CWS by the last week of the semester. The estimated growth rate was .70 CWS per week. Students who received no intervention or just the traditional way of teaching writing progressed from 26.23 CWS on the first probe to 29.15 CWS by the last week of the semester. The estimated growth rate was .16 CWS per week.



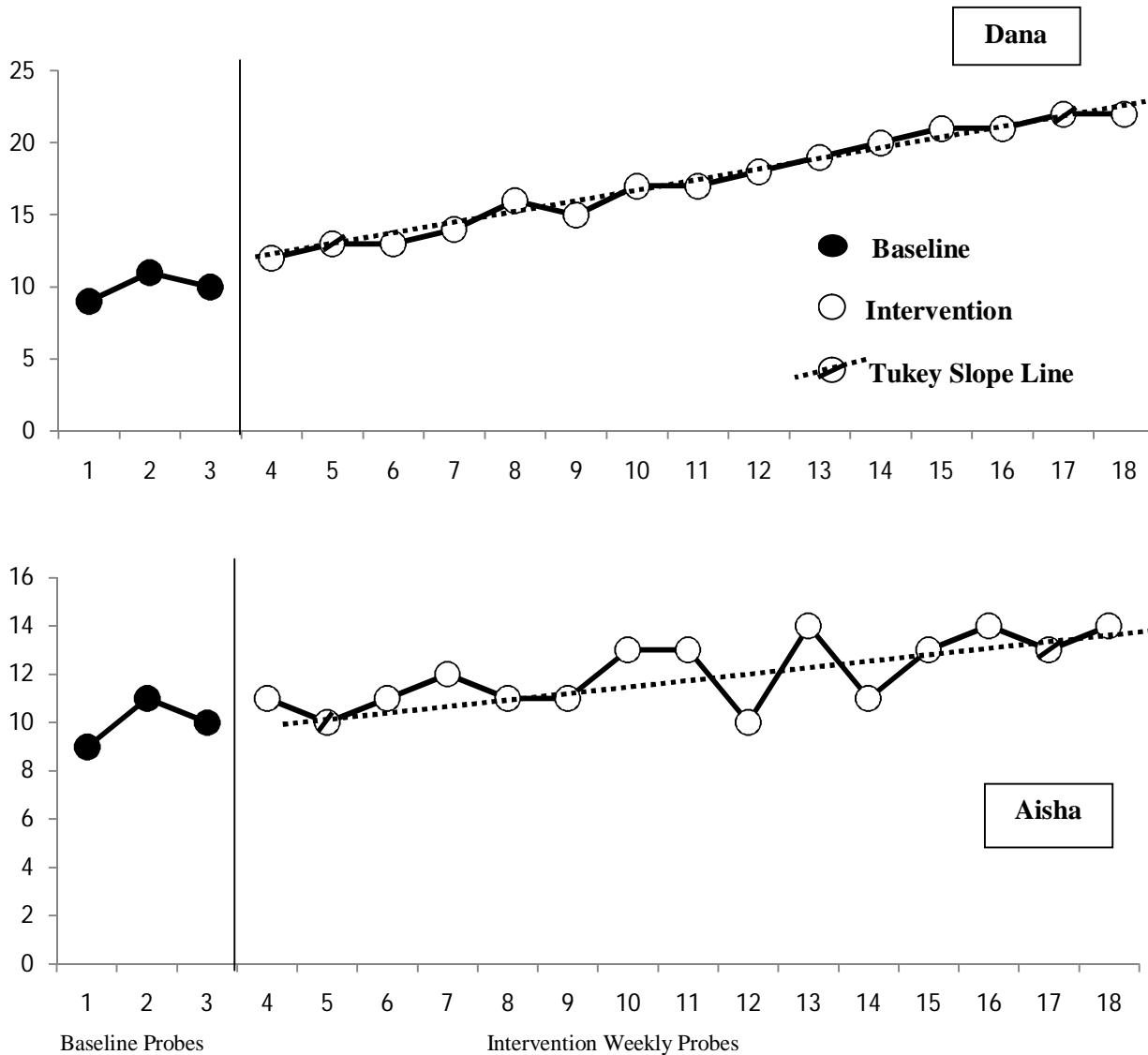
Graph 1: Graphic display of the weekly mean performance of CBM-W reported in Correct Writing Sequences for the experimental group.



Graph 2: Graphic display of the weekly mean performance of CBM-W reported in Correct Writing Sequences for the control group.

The Growth Rate of Students with Writing Difficulties

The two students with writing difficulties progressed differently on their CBM-W scores. Dana who received writing intervention progressed from 10 CWS on the base line probes to 22 CWS by the last week of the semester. On the other hand, Aisha who received just the traditional way of teaching writing progressed from 10 CWS on the base line probes to 14 CWS by the last week of the semester. In general, Aisha had fluctuated performance. Graph 3 illustrates the students’ weekly CBM-W progress.



Graph 3: Results of students with writing difficulties reported in Correct Writing Sequences.

Social Validity

The participants completed a five-item questionnaire in a yes/no format following the completion of the study. Specifically, the students were asked if they felt their writing skill improved during the CBM-W period and whether they enjoyed the instructional program. The teacher read to the participants each item on the student questionnaire and asked them to color in a happy face for “yes” or a frowning face for “no.” Results indicated that students involved in this study were satisfied with the assessment process and the tutoring procedures. 96% of the students believed that their writing skill improved because of the writing intervention and the use of CBM-W. Many of the students and the teacher reported the writing intervention was beneficial. The teacher noted that *the CBM-W and the writing intervention were easy to implement, they were acceptable for improving writing skill, and they were appropriate for a variety of students.*

Discussion

The purposes of this study were to investigate the best CBM-W scoring method for the fifth-grade students in Jordan who speak Arabic, the effects of teaching direct writing instruction on students writing achievement, and the applicability of CBM-W in following up the progress of students with and without writing difficulties. Arabic CBM-W reliability was investigated by procedural and inter-rater reliabilities. The resulting coefficients were very high. These findings mirror reliability coefficients for CBM-W presented in previous research (e.g., Espin, De La Paz, Scierka, & Roelofs, 2005; Gansle et al., 2004). This in turn led to the conclusion that the Arabic CBM-W method is explicit and clear for scorers to apply. This reduces the rater's measurement error and increases the opportunity of observed variance close to the true variance. The following sections of this discussion address: (a) the CBM-W scoring methods; (b) the effects of direct writing intervention on students' CBM-W achievement and the applicability of CBM-W to monitor the progress of students with and without writing difficulties; and (d) the limitations, implications, and future research for this study.

The CBM-W Scoring Methods

One of the most interesting findings of this study is that TWW, the current hallmark measure of CBM in writing, did not correlate with students' language achievement as measured by the Arabic GPA. On the other hand, the relationships between CBM-W scoring methods and Arabic GPA indicated that the CWS was the best scoring method of CBM-W followed by WSC. Perhaps these more complex scoring procedures better reflect writing quality. Specifically, CWS takes into account punctuation, syntax, semantics, and spelling in Arabic language. Although CWS requires more effort and time to score, it is worthwhile due to the additional information it provides about the quality of the student's writing. The other CBM-W scoring methods evaluate primarily fluency and spelling, providing a more limited view of the student's writing. It is important to note that an extensive body of research exists validating CWS scoring methods as a robust indicator of performance and general outcomes in written expression with students in special and general education at the elementary and secondary levels (e.g., Espin et al., 2008; Gansle et al., 2002; Malecki & Jewell, 2003). We have obtained the same results for students who speak Arabic, revealing that the CWS scoring method may be the robust index of students' general writing proficiency.

Direct Writing Instruction and Students' CBM-W

The results indicated that students in the treatment class outperformed students in the comparison class on the CBM-W progress and final achievement by the end of the academic semester. Improvements in the quality and quantity of writing emerged after students had received the writing instruction. We interpret the findings from this study as suggestive that writing instruction is a feasible and effective practice that can be readily integrated into reading and language arts instruction with positive impact. This study confirmed previous studies that explicit and strategy instructional methods successfully improved students' written expression (Gansle et al., 2004; Graham & Harris, 2000; Troia & Graham, 2002; Walker, Shippen, Alberto, Houchins, & Cihak, 2005). Specifically, students who struggle with writing require intensive and systematic writing programs and valid assessment tools to monitor their progress. In terms of the progression rate of CBM-W, students with and without writing difficulties showed similar patterns of improvement when the writing intervention was implemented. Students in the experimental group presented better progress on CBM-W than students in the control group. The results of this study suggested that Arabic CBM-W, CWS scoring method, has adequate validity, reliability, and sensitivity to writing intervention.

Limitations, Implications, and Future Research

As is the case with any research study, the conclusions drawn must be viewed within the context of the study's limitations. Foremost of the limitations was external validity. All students who participated in this study were from one grade level in a private school in Jordan. Thus, generalizations beyond this sample might be limited. Replication of this study with students from different grade levels and from different regions of the country would allow for a more constructive examination of the research question raised in this study. Specifically, future research needs to explore grade level trends to further delineate which CBM-W scoring methods are most appropriate to be used with different grade levels. In addition, future research should investigate the CBM-W to drive IEPs and instruction in written expression in general and special education. Moreover, future researchers may wish to investigate other methods of teaching writing in Arabic language that have not been examined in this study.

Perhaps, more importantly, investigators may wish to discover which instructional components (i.e., modeling, opportunities to respond, corrective feedback, brainstorming) have the most robust effects for helping students with and without writing difficulties to produce a substantial quantity of high quality written products. As noted by Mather et al., (2009), many teachers have begun to pay more attention to the writing performance of their students. Knowing students' strengths and weaknesses in the writing process will greatly assist educators in knowing how to develop better instructional and intervention programs. Educators therefore need to understand assessment options and use appropriate assessment measures to determine deficits in written expression, to design and deliver appropriate interventions, and to evaluate the efficacy of the intervention. Without the selection of the appropriate assessment tool and the consequent use of the assessment data for intervention purposes, the student is placed at risk.

References

- Abu-Hamour, B. (2013). Arabic spelling and curriculum based measurement. *The Australian Educational and Developmental Psychologist Journal*. Online First, June 20.
- Abu-Rabia, S. (1997). Reading in Arabic orthography: The effect of vowels and context on reading accuracy of poor and skilled native Arabic readers. *Reading and Writing*, 9, 65–78.
- Abu-Rabia, S., & Siegel, L. S. (2002). Reading, syntactic, orthographic, and working memory skills of bilingual Arabic-English speaking Canadian children. *Journal of Psycholinguistic Research*, 31, 661–678.
- Alber-Morgan, S., Hessler, T., & Konrad, M. (2007). Teaching writing for keeps. *Education and Treatment of Children*, 30, 107–128.
- Baker, S. K., Chard, D. J., Ketterlin-Geller, L. R., Apichatabutra, C., & Doabler, C. (2009). Teaching writing to at-risk students: The quality of evidence for self-regulated strategy development. *Exceptional Children*, 75, 303–318.
- Brenznitz, Z. (2004). Introduction on regular and impaired reading in sematic languages. *Reading and Writing: an Interdisciplinary Journal*, 17, 645-649.
- Brislin, G.J. (1986). *The wording and translation of research instruments*. In W.L. Lonner & J.W. Berry (Eds.), *Field methods in cross-cultural research* (pp. 137–164). Newbury Park, CA: Sage.
- College Board. (2003). *National Commission calls for a writing revolution*. Retrieved November 20, 2007, from http://www.writingcommission.org/pr/pr_4_25_2003.html
- Deno, S. L. (1985). Curriculum-based measurement: The emerging alternative. *Exceptional Children*, 52, 219–232.
- Deno, S. L. (1992). The nature and development of curriculum-based measurement. *Preventing School Failure*, 36, 5–10.
- Deno, S. L. (2003). Developments in curriculum-based measurement. *The Journal of Special Education*, 37, 184–192.
- Elbeheri, G., Everatt, J., Mahfoudhi, A., Abu Al-Diyar, M., & Taibah, N. (2011). Orthographic processing and reading comprehension among Arabic speaking mainstream and LD children. *Dyslexia*, 17, 123-142.
- Espin, C. A., De La Paz, S., Scierka, B. J., & Roelofs, L. (2005). The relationship between curriculum-based measures in written expression and quality and completeness of expository writing for middle school students. *Journal of Special Education*, 38, 208-217.
- Espin, C. A., Skare, S., Shin, J., Deno, S. L., Robinson, S., & Benner, B. (2000). Identifying indicators of growth in written expression for middle school students. *Journal of Special Education*, 34, 140–153.
- Espin, C. A., Wallace, T., Campbell, H., Lembke, E. S., Long, J. D., & Ticha, R. (2008). Curriculum-based measurement in writing: Predicting the success of high-school students on state standards tests. *Exceptional Children*, 74, 174–193.
- Heward, W. L., Heron, T. E., Gardner, R., & Prayzer, R. (1996). Two strategies for improving students writing skills. In G. Stoner, S. Shinn, & H. M. Walker (Eds.), *Interventions for achievement and behavior problems* (pp. 379–398). Bethesda, MD: National Association of School Psychologists.
- Hooper, S., Knuth, S., Yerby, D., Anderson, K., & Moore, C. (2009). Review of science-supported writing instruction with implementation in mind. In S. Rosenfield & V. Berninger (Eds.), *Handbook on implementing evidence based academic interventions* (pp. 49–83). New York: Oxford University Press.

- Hosp, M. K., Hosp, J. L., & Howell, K. W. (2007). *The ABCs of CBM: A practical guide to curriculum-based measurement*. New York: Guilford.
- Gansle, K. A., Noell, G. H., VanDerHeyden, A. M., Naquin, G. M., & Slider, N. J. (2002). Moving beyond total words written: The reliability, criterion validity, and time cost of alternate measures for curriculum-based measurement in writing. *School Psychology Review, 31*, 477-497.
- Gansle, K. A., Noell, G. H., VanDerHeyden, A. M., Slider, N. J., Hoffpauir, L. D., Whitmarsh, E. L., et al, (2004). An examination of the criterion validity and sensitivity to brief intervention of alternate curriculum-based measures of writing skill. *Psychology in the Schools, 41*(3), 291-300.
- Gersten, R., & Baker, S. (2001). Teaching expressive writing to students with learning disabilities: A meta-analysis. *Elementary School Journal, 101*, 251-272.
- Graham, S., & Harris, K. (2006). Preventing writing difficulties: Providing additional handwriting and spelling instruction to at-risk children in first grade. *Teaching Exceptional Children, 38*, 64- 66.
- Marston, D. (1989). Curriculum-based measurement: What it is and why do it? In M. R. Shinn (Ed.), *Curriculum-based measurement: Assessing special children* (pp. 18-78). New York: Guilford Press.
- Malecki, C. K., & Jewell, J. (2003). Developmental, gender, and practical considerations in scoring curriculum-based measurement writing probes. *Psychology in the Schools, 40*, 379-390.
- Mather, N., Wendling, B. J., & Roberts, R. (2009). *Writing assessment and instruction for students with learning disabilities*. New York: Wiley.
- McMaster, K., & Espin, C. (2007). Technical features of curriculum based measurement in writing: A literature review. *The Journal of Special Education, 41*, 68-84.
- National Center on Response to Intervention. (2010). *Essential components of RTI: A closer look at response to intervention*. Retrieved from <http://www.cldinternational.org/Articles/rtiessentialcomponents.pdf>
- National Center for Educational Statistics. (2003). *NAEP 2002 writing report card for the nation and the states* (Report NCES 1999-462). Washington, DC: Office of Educational Research & Improvement.
- Poteet, J. (1992). Written expression. In J. Choate, B. Enright, L. Miller, J. Poteet, & T. Rakes (Eds.), *Curriculum-based assessment and programming* (pp. 204-240). Boston: Allyn & Bacon.
- Stecker, P. M., Fuchs, L. S., & Fuchs, D. (2005). Using curriculum-based measurement to improve student achievement: Review of research. *Psychology in the Schools, 42*, 795-819.
- Torrance, M., & Galbraith, D. (2006). The processing demands of writing. In C. A. MacArthur, S. Graham, & J. Fitzgerald (Eds.), *Handbook of writing research* (pp. 67- 80). New York: Guilford Press.
- Troia, G. A., & Graham, S. (2002). The effectiveness of a highly explicit, teacher-directed strategy instruction routine: Changing the writing performance of students with learning disabilities. *Journal of Learning Disabilities, 35*, 290-305.
- Venn, J. J. (2007). *Assessing students with special needs* (4th ed.). Upper Saddle River, NJ: Pearson-Merrill/Prentice Hall.
- Walker, B., Shippen, M.E., Alberto, P. A., Houchins, D. E., & Cihak, D. F. (2005). Using the expressive writing program to improve the writing skills of high school students with learning disabilities. *Learning Disabilities Research & Practice, 20*, 175-183.