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Face Validity of the Arabic Letters Writing Assessment Instrument for Children

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ABSTRACT

Historically, Arabic writing was used to spread Islam in Malaysia. Nowadays, Arabic writing has become a part of Malaysia's national curriculum under Islamic studies subject. Previous studies have shown that many students in school are still having difficulties to master Arabic learning, especially in writing. These scenarios were claimed to be caused by poor teaching skills and also the lack of proper assessment to assess and evaluate Arabic handwriting performance. Hence, there is an urge to find a trustworthy instrument to assess Arabic handwriting, especially among children in early childhood education. Therefore, this study aimed to test the face validity of a newly developed questionnaire for Arabic writing assessment. Face validity assessment was chosen to get the first layer of experts' review and evaluation on the items constructed in the assessment instrument. A questionnaire using 5-point Likert scale was distributed to 28 experts in Arabic handwriting at different levels of education. The results show that most of the items in the questionnaire are valid to be used to assess children as all experts agreed on the items developed. This is the first pilot study that ensures the basic structure in developing appropriate items in the instrument is good. The results could be used as a verification to support the validation of using this new instrument to assess students' Arabic handwriting performance.

Keywords: Early childhood, Education, Handwriting, Questionnaire

INTRODUCTION

Arabic writing was introduced and had been used in the Malay Archipelago since 1300 BC, which was related to the arrival of Islam (Ahmad, Othman, Afkari, Rusdi, & Abdul Rahim, 2012). The Arabic alphabet that is used in Malaysia is called Jawi, which is also written from right to left and contains six new letters, while retaining the rest of the existing Arabic alphabet (Borham, 2012). Malaysia's national curriculum from preschool to secondary school includes writing and reading Arabic as part of the Islamic Education syllabus (Kementerian Pendidikan Malaysia, 2017). However, studies have shown that students are still not proficient in Arabic writing (Mat Diah & Mat Zin, 2016) and their understanding in Arabic characters is still low (Nahar & Safar, 2016).

Writing Arabic alphabet is a complex task for children as they need to have good fine motor control before being able to write it (Mat Diah, Ismail, Abdul Hamid & Ahmad, 2012). In addition, becoming proficient in Arabic is difficult as it is not used in daily routine and students only learn it at school (Mohd Rashid, Md Salleh, & Md Noor, 2018).

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In Malaysia, assessment on handwriting especially in Arabic writing is very limited. Most of the assessments only focus on the outcome of students' handwriting performance (Kementerian Pendidikan Malaysia, 2017) instead of focusing on the writing process to complete a single Arabic letter. Therefore, there is a need to develop a specific writing assessment instrument to study all these matters regarding the Arabic writing process. In this paper, a face validity assessment was conducted to gain experts' feedback and perceptions towards the suitability of the items in the newly developed instrument to assess Arabic writing performance. This study was also conducted to answer the following research questions:

- 1) What is the feedback and perception of the teachers on the classification of Arabic letters according to their shape and number of strokes?
- 2) What is the feedback and perception of the teachers on the performance criteria to assess students during the process of writing a single Arabic letter?

METHODS

This research used a quantitative approach via open-ended questionnaire. The items in the questionnaire were developed based on Arabic-related assessment to assess students' performance during writing the alphabet. The results obtained were processed and analysed to validate the instrument so that it can be used to assess the process of the Arabic handwriting.

Questionnaire

All items consisted of open-ended questions. Items were built based on literature review. The questions were written in Malay to ease the understanding of all experts involved in this study as most of them are Malay. There are three sections in the questionnaire:

- i. Section A is the respondents' demographics which include gender, age, years of experience as a teacher, and academic backgrounds.
- ii. Section B is about the classification of Arabic letters according to the shape and number of strokes.
- iii. Section C is about the performance criteria that need to be fulfilled by students during the writing process of a single Arabic letter.

Participants

A total of 28 teachers (n = 28) from preschool, primary, and secondary schools were involved as experts for this study. All the participants are teachers that teach Arabic writing in their respective schools.

Procedure

This study used Google Form as a medium to distribute the questionnaire to the experts instead of using paper and pen as it is more convenient and suitable in the COVID-19 pandemic situation nowadays. The questionnaire was distributed via an online platform to all respondents. Respondents were required to choose from a Likert scale of 1 to 5 that stood for 1 = strongly disagree, 2 = disagree, 3 = not sure, 4 = agree, and 5 = strongly agree.

The participants were also given additional space under each question for any remarks or comments that they might have. As this study had a small sample size and showed unmatched normal distribution, a nonparametric test was performed (Nahm, 2016) on the results using Statistical Package for Social Sciences (SPSS) v27. Descriptive analysis was done to obtain the mean and standard deviation which then were discussed in the results and discussions sections.

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RESULTS AND DISCUSSIONS

Demography of the participants

Table 1. Demographic profile of the participants

Category	Item	Frequency	Percentage (%)
Gender	Female	28	100
	Male	0	0
Age (years)	18–25	2	7.1
	26–33	22	78.6
	34–40	2	7.1
	Above 40	2	7.1
Academic background	SPM	3	10.7
_	Diploma	12	42.9
	Degree	13	46.4
	Master/PhD	0	0
Teaching experience	Below 1	7	25
(years)	2–5	13	46.4
•	6–10	5	17.9
	Above 10	3	10.7

Table 1 shows the demographic profile of the participants involved in this study. All participants involved in this study are female teachers (100%). Participants of 26–33 years old participated the most in this study (78.6%), while participants of 18–25 years old, 34–40 years old, and 40 years old and above had the same frequency (7.1%). Most participants have Diploma and Degree as their academic background with 42.9% and 46.4%, respectively. Meanwhile, 0.7% of the participants' highest qualification is SPM, and none has a master's degree or PhD as their academic background. Finally, 46.4% participants have 2 to 5 years of teaching experience, 25% have below 1 year of teaching experience, followed by 17.9% that have 6 to 10 years of teaching experience, and 10.7% have above 10 years of teaching experience.

Classification of Arabic letters and number of strokes data

Figure 1. Classification of Arabic letters and number of strokes

Group/ Number of Strokes	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	١			ر د										٥			
2		C. C. C. C.		ر. د.		ص	ط	ع			ل		و			۶	
3			さ て さ		m	ض	占	غ	<u>ف</u> ق			م			Я		ي
4					m					أى							

Source: Mat Diah & Mat Zin (2016), Ahmed & Al-Olhali (1999)

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Table 2. Mean and standard deviation for the classification of Arabic letters and number of strokes

No	Item	Mean	Standard Deviation
1	Eighteen groups of Arabic letters were formed according to their	4.12	.568
	shape similarities. Do you agree with the classification of the 18 groups as shown in Figure 1?		
	Kumpulan huruf diklasifikasikan mengikut bentuk huruf yang sama		
	dan akhirnya 18 kumpulan huruf dibentuk. Adakah anda bersetuju		
	dengan pengklasifikasian 18 kumpulan huruf Arab tunggal seperti yang tertera dalam Rajah 1?		
2	The number of strokes was counted according to how many strokes needed to form a single Arabic letter. There are five types of strokes in this study, referred to as (1) vertical line, (2) horizontal line, (3) open curve, (4) closed curve, and (5) a group of dots. Do you agree with the number of stroke classification on each Arabic letter as shown in Figure 1?	4.00	.770
	Bilangan strok dikira mengikut jumlah strok yang diperlukan untuk membentuk satu-satu huruf. Terdapat 5 jenis strok yang menjadi rujukan kajian ini iaitu (1) garisan menegak, (2) garisan melintang, (3) keluk terbuka, (4) keluk tertutup, dan (5) sekumpulan titik. Adakah anda bersetuju dengan pengklasifikasian bilangan strok pada setiap huruf Arab tunggal seperti yang tertera di Rajah 1?		
3	Refer to Figure 1: Each letter that has been categorised to its respective group has the same way to be written. Rujuk Rajah 1: Setiap huruf yang dikumpulkan dalam kumpulan masing-masing mempunyai cara yang sama untuk dihasilkan.	4.11	.737
4	Refer to Figure 1: Each letter that has been categorised according to the number of stroke group is appropriate and meets the characteristics to form the letter. Rujuk Rajah 1: Setiap huruf yang dikategorikan mengikut kumpulan bilangan strok adalah sesuai dan menepati ciri-ciri untuk membentuk huruf tersebut.	4.17	.716

RQ 1: What is the feedback and perception of the teachers on the classification of Arabic letters according to their shape and number of strokes?

There are four questions in Section B of the questionnaire that are related to RQ 1. Table 3 shows the mean and standard deviation of the four items. The classification of Arabic letters and number of strokes in this study as shown in Figure 1 was made based on previous studies with some amendments.

Data from Table 2 show that most participants agree and have a positive perception of the classification of 17 groups of Arabic letters according to their shape. According to Mat Diah and Mat Zin (2016), several Arabic letters have the same shape with additional dots and the alphabets can be grouped according to their shape.

Majority of the participants also approved the number of strokes group and the way to count each stroke. Ahmed and Al-Olhali (2000) stated that some Arabic characters consist of more than one stroke. Dot (*nogtah*) is also a part of Arabic character which can reach up to three dots for some characters.

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Performance criteria data

Table 3. Performance criteria mean and standard deviation

No	Item	Mean	Standard Deviation
	ا ا ^ب ا و ا		
		0 5	
	<u> </u>	ړ	5
		cture 3	
1	Does the letter need to start at the correct starting point? Example: If the letter starts from the top dot like \(\), then writing it must start from the top dot then go down. Adakah huruf perlu dimulakan pada titik permulaan yang betul? Contoh: Jika huruf	4.11	.875
	bermula daripada titik atas seperti , maka perlu bermula daripada titik atas		
2	kemudian turun ke bawah.	2.46	1 170
2	Does the letter-writing movement need to be performed continuously, i.e., the student must not lift the pencil while writing each stroke of the letter? Adakah gerakan menulis huruf perlu dilaksanakan secara berterusan iaitu murid tidak boleh mengangkat pensel ketika menulis strok bagi setiap huruf?	3.46	1.170
3	Each letter must be written completely as in Picture 1 where each stroke and dot needs to be written. Huruf perlu ditulis dengan sempurna (lengkap) seperti Gambar 1 di mana setiap	4.07	.940
4	strok dan titik yang ada perlu ditulis. Letter should be copied and written according to the size in the example given on the	3.68	1.056
·	worksheet. Huruf perlu disalin dan ditulis mengikut saiz seperti contoh yang diberikan dalam lembaran kerja.	3.00	1.030
5	Is it necessary to differentiate letter size to test student's ability to identify and copy the letter with the same size on the worksheet given? Adakah perlu untuk membezakan saiz huruf untuk menguji kebolehan murid mengenal pasti dan menyalin huruf seperti saiz yang disediakan dalam lembaran kerja?	3.64	1.096
6	Do you agree that when writing the letter, the fingers should move with a smooth movement where they exhibit comfort and the position of the pencil is not changed as the student writes? Adakah anda bersetuju ketika menulis huruf, jari digerakkan dengan pergerakan yang licin di mana jari menunjukkan keselesaan dan kedudukan batang pensel tidak diubah-ubah ketika murid menulis?	4.14	.891
7	Time will be recorded starting from when the pencil moves to form the letter and stops when finished. Do you agree with the time being recorded after the letter has finished being written? Masa akan dicatat bermula daripada pensel digerakkan untuk membentuk huruf dan dihentikan apabila huruf selesai dibentuk. Adakah anda bersetuju masa dicatat selepas huruf selesai ditulis?	3.32	1.156
8	Does the letter need to start at the correct starting point? Example: If the letter starts from the left dot like τ , then writing it must start from the left dot then go to the right. Adakah huruf perlu dimulakan pada titik permulaan yang betul? Contoh: Jika huruf bermula daripada titik kiri seperti τ , maka perlu bermula daripada titik kiri kemudian bergerak ke kanan.	4.25	.844
9	Does the letter-writing movement need to be performed continuously, i.e., the student must not lift the writing tool while writing each stroke of the letter?	3.43	1.136

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	Adakah gerakan menulis huruf perlu dilaksanakan secara berterusan iaitu murid	1	
	tidak boleh mengangkat pensel ketika menulis strok bagi setiap huruf?		
10	Is it necessary to make dots to form the letters to help students trace the letter?	4.18	.945
10	Adakah perlu untuk membuat titik-titik bagi membentuk huruf untuk membantu murid	4.10	.,,,,
	menyurih huruf?		
11	Should directional numbers and arrows be placed on the letter to facilitate student to	4.21	.787
11	start and finish writing the letter?	7.21	.707
	Perlukah nombor dan anak panah mengikut urutan nombor diletakkan pada		
	permulaan sehingga hujung huruf untuk memudahkan murid memulakan dan		
	menyelesaikan menulis huruf?		
12	The letter needs be traced completely as in Picture 2 where each stroke and dot should	4.11	.786
12	be written accordingly.	4.11	.700
	Huruf perlu disurih dengan sempurna (lengkap) seperti Gambar 2 di mana setiap		
13	strok dan titik yang ada perlu ditulis mengikut urutan dan titik yang telah disediakan. Do you agree that when writing the letter, the fingers should move with a smooth	4.18	.819
13	movement where they exhibit comfort and the position of the pencil is not changed	4.18	.819
	as the student writes?		
	Adakah anda bersetuju ketika menulis huruf, jari digerakkan dengan pergerakan		
	yang licin di mana jari menunjukkan keselesaan dan kedudukan batang pensel tidak diubah-ubah ketika murid menulis?		
14		3.43	1.200
14	Time will be recorded starting from when the pencil moves to form the letter and	3.43	1.200
	stops when finished. Do you agree time being recorded after the letter has finished		
	being written?		
	Masa akan dicatat bermula daripada pensel digerakkan untuk membentuk huruf dan		
	dihentikan apabila huruf selesai dibentuk. Adakah anda bersetuju masa dicatat		
1.5	selepas huruf selesai ditulis?	4.1.4	902
15	Does the letter need to start at the correct starting point? Example: If the letter starts	4.14	.803
	from the right dot like شْ, then writing it must start from the right dot then go to the left.		
	Adakah huruf perlu dimulakan pada titik permulaan yang betul? Contoh: Jika huruf		
	bermula daripada titik kanan seperti म्हें, maka perlu bermula daripada titik kanan		
16	kemudian bergerak ke kiri. Does the letter-writing movement need to be performed continuously, i.e., the student	3.57	1.230
10	must not lift the writing tool during writing each stroke of the letter?	3.37	1.230
	Adakah gerakan menulis huruf perlu dilaksanakan secara berterusan iaitu murid		
17	tidak boleh mengangkat pensel ketika menulis strok bagi setiap huruf? Each alphabet must be written completely as in Picture 3 where each stroke and dot	4.18	.905
17	needs to be written.	4.18	.903
	Huruf perlu ditulis dengan sempurna (lengkap) seperti Gambar 3 di mana setiap		
10	strok dan titik yang ada perlu ditulis. Is it necessary to differentiate the position of the box to test student's ability to copy	2.64	080
18	correctly?	3.64	.989
	Adakah perlu untuk membezakan kedudukan kotak untuk menguji kebolehan murid		
10	untuk menyalin dengan betul? The letter needs to be corried and written on the correct how	4.21	720
19	The letter needs to be copied and written on the correct box.	4.21	.738
20	Huruf perlu disalin dan ditulis pada kotak yang betul.	2.06	022
20	Do you agree that when writing the letter, the fingers should move with a smooth	3.96	.922
	movement where they exhibit comfort and the position of the pencil is not changed		
	as the student writes?		
	Adakah anda bersetuju ketika menulis huruf, jari digerakkan dengan pergerakan		
	yang licin di mana jari menunjukkan keselesaan dan kedudukan batang pensel tidak		
	diubah-ubah ketika murid menulis?		

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2	Time will be recorded starting from when the pencil moves to form the letter and	3.29	1.117
	stops when finished. Do you agree with the time being recorded after the letter has		
	finished being written?		
	Masa akan dicatat bermula daripada pensel digerakkan untuk membentuk huruf dan		
	dihentikan apabila huruf selesai dibentuk. Adakah anda bersetuju masa dicatat		
	selepas huruf selesai ditulis?		

RQ 2: What is the feedback and perception of the teachers on the performance criteria to assess students during the process of writing a single Arabic letter?

There are twenty-one items in Section C of the questionnaire related to RQ 2. Items number 1 to 7 referred to Picture A, items number 8 to 14 referred to Picture B, and items number 15 to 21 referred to Picture C, as shown in Table 3. Table 3 shows the mean and standard deviation of the twenty-one items.

In the questionnaire, several items were asked repeatedly. Items number 1, 8, and 15 were about the need of starting to write the Arabic letter on the correct dot. Early writers may find it difficult to place their writing tool on paper to start writing and this process is very important for the students as they will face difficulties to start writing if they not able to hold writing tool correctly (Graham, Harris, & Fink, 2001). While assessing students, score will not be given if they write the letter in an incorrect order (Mat Diah & Mat Zin, 2016).

Items number 2, 9, and 16 were about the need of students to write a stroke of each letter without stopping or lifting their writing tools during writing. All items have a mean score in the range of 3.43 to 3.57. This indicates that the majority of participants were not sure of the requirement of students to write a single stroke without lifting their writing tools. Past researchers have suggested that students with handwriting difficulties often face hardship executing smooth writing, which may be caused by poor penmanship (Graham, 1990).

Items number 6, 13, and 20 asked for participants' agreement on students writing the letters with smooth movements where they showed comfortability and consistent pencil movement. The results show that these items were approved and agreed by most participants. Pencil movement is related to pencil grip force patterns, which play a significant role in handwriting product (Falk, Tam, Schwellnus, & Chau, 2010).

Items number 7, 14, and 21 were about the perception on recording the time starting from when the students start writing the Arabic letter until they finish. The results show that the majority of the participants were not sure of these items. Clinicians and educators are able to prove anecdotally that the speed and handwriting output time have significant relation with poor or better writers, but studies have shown otherwise (Rosenblum, Weiss & Parush, 2003). Writing too slow may cause children to forget the idea, and the plan that they had in mind might not be transferred to the paper successfully (Graham & Weintraub, 1996).

Participants did agree on items 3, 12, and 17 where students need to complete all the strokes and dots of each Arabic letter during writing. Poor writers are defined as students with handwriting difficulties and those who often make mistakes such as writing incomplete or incorrect letters and mixing letter forms (Hamstra-Bletz & Blote, 1994). The results from this study show that participant agreed on these items.

Items 4 and 18 intended to test students' ability to recognise differences. For item 4, students have to copy and rewrite the alphabet according to the size of each letter on the worksheet (Picture 1) while item 18 is for students to identify and rewrite the letter in the correct box (Picture 3). Mixing the order of words in writing assessment can be useful to trick the memory of better readers and give them less advantages (Reisman, 1993). Students' representation of knowledge is crucial to ensure that the assessment is done effectively (Pellegrino, 2014). However, both items scored medium mean, indicating that participants were not sure whether these items are suitable to be used to assess students during writing.

Item 11 assessed participants' perception on the necessity of putting directional arrows and numbers (Picture 2) on the alphabet to facilitate students in starting and continuing writing Arabic letters.

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There is no evidence in previous research about the importance or necessity of this item, but this study found that most participants agreed with the item where it obtained a mean score of 4.21 (standard deviation = 0.787).

CONCLUSIONS

In conclusion, the findings from this study provide a face validation of the newly developed assessment instrument. The results show that most of the items in the questionnaire such as starting to write on the correct dot, completing all letter strokes and dots, and showing smooth movement are valid and suitable to assess the students' writing performance for Arabic alphabet as majority of the experts agreed on it. However, several items like recording time during handwriting and writing without lifting writing tools are still vague as most experts were unsure; thus, further discussion is needed on these items. Constructing assessment plays a vital role to ensure that educators are alert of the difficulties faced by the students, so that they can improve their instruction methods and learning content to help students achieve the learning goals (Pellgerino, 2014). Therefore, future studies can use and refer to the assessment instrument to assess students' ability to precisely and correctly write not only single Arabic letters but other letters as well.

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REFERENCE

- Ahmad, S., Othman, H., Afkari, R., Rusdi, M., & Abdul Rahim, M. H. (2012). Cabaran Semasa Tulisan Jawi Sebagai Warisan Masyarakat Peradaban Bangsa Melayu. *Journal of Techno-Social*, 4(2). Retrieved from https://publisher.uthm.edu.my/ojs/index.php/JTS/article/view/1431
- Ahmed, P., & Al-Ohali, Y. (2000). Arabic Character Recognition: Progress and Challenges. Journal of King Saud University Computer and Information Sciences. 12. 10.1016/S1319-1578(00)80004-X.
- Borham, A. J. (2012) *Tulisan Jawi: Tulisan Serantau*. In: Seminar Jawi dan Teknologi Peringkat Kebangsaan 2012, 18 Oct 2012, Dewan Astaka, Universiti Malaysia Pahang.
- Falk, T. H., Tam, C., Schwellnus, H., & Chau, T. (2010). Grip Force Variability and Its Effects on Children's Handwriting Legibility, Form, and Strokes. *Journal of biomechanical engineering*. 132. 114504. 10.1115/1.4002611.
- Graham, S. (1990). The Role of Production Factors in Learning Disabled Students' Compositions. *Journal of Educational Psychology*, 82, 781-791.
- Graham, S., & Weintraub, N. (1996). A review of handwriting research: Progress and prospects from 1980 to 1994. *Educational Psychology Review*. 8. 7-87. 10.1007/BF01761831.
- Graham, S., Harris, K.R., & Fink, B. (2000). Is handwriting causally related to learning to write? Treatment of handwriting problems in beginning writers. *Journal of Educational Psychology*, 92, 620-633. 10.1037//0022-0663.92.4.620.
- Hamstra-Bletz, L., & Blote, A. (1994). A Longitudinal Study on Dysgraphic Handwriting in Primary School. *Journal of learning disabilities*. 26. 689-99. 10.1177/002221949302601007.
- Kementerian Pelajaran Malaysia (2017). Kurikulum Standard Prasekolah Kebangsaan Semakan 2017. Putrajaya : KPM
- Mat Diah, N., & Mat Zin, N. A. (2016). Tracing Activity Engine for Learning Writing the Jawi Character. *Asia-Pacific Journal of Information Technology and Multimedia*, 5(1), 61-69. doi:10.17576/apjitm-2016-0501-06

ISSN: 2232-1918 / eISSN: 2600-9323 https://ejournal.upsi.edu.my/journal/JSSPJ

- Mat Diah, N., Ismail, M., Abdul Hamid, P. M., & Ahmad, S. (2012). A Development of a Computer-Assisted Software (AJaW) That Encourages Jawi Writing for Children. *Education*. 2. 130-135. 10.5923/j.edu.20120205.04.
- Mohd Rashid, N. A., Md Salleh, S., & Md Noor, N. (2018). The Role of Game Elements in Improving Jawi Skills through a Mobile Game 'G-Jawi'. *International Journal of Interactive Mobile Technologies (iJIM)*. 12. 20. 10.3991/ijim.v12i7.9636.
- Nahar, N., & Safar, J. (2016). Amalan Pengajaran Jawi dalam Pendidikan Masa Kini: Suatu Tinjauan. *TAMU Journal*, 2, 70-85.
- Nahm, F. S. (2016). Nonparametric statistical tests for the continuous data: The basic concept and the practical use. *Korean Journal of Anesthesiology*. 69. 8. 10.4097/kjae.2016.69.1.8.
- Pellegrino, J. (2014). Assessment as a positive influence on 21st century teaching and learning: A systems approach to progress. *Psicología Educativa*. 20. 10.1016/j.pse.2014.11.002.
- Reisman, J.E. (1993). Development and Reliability of the Research Version of the Minnesota Handwriting Test. *Physical & Occupational Therapy in Pediatrics*, 13, 41-55. 10.1080/J006V13N02_03
- Rosenblum, S., Weiss, P., & Parush, S. (2003). Product and Process Evaluation of Handwriting Difficulties. *Educational Psychology Review*. 15. 41-81. 10.1023/A:1021371425220.

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