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# The Effectiveness of Multi Sensory Approach in Improving Letter Identification of Mild Intellectual Disability in the State of Kuwait

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## ABSTRACT

This research examines the effectiveness of multi sensory approach for the purpose of improving the knowledge on English Letter Identification and among mild intellectual disabled students in the state of Kuwait. The discussion in this study is based on the multisensory approach that could be applied in the teaching of reading skills as well as phonemic awareness skills which could enable the students to acquire the early skills of reading. A total of 20 respondents were involved in the process of gathering data through the quantitative study method, which compromises of male and female mild intellectual disabled students. A pretest-posttest method was applied in order to examine the effectiveness of the multisensory approach that could make it possible for them to identify the letters and its sounds. T test for the paired sample was used to figure out the significant differences between the pretest and posttest scores achieved by the students. The findings of the study showed the effect of the multi sensory approach in the teaching process of identifying the English letters and, which at the same time pave a way for the students to apply the mentioned skills in their learning process to read. This study is also significant for schools, centres, and institutes that are involved in the field of special education. Finally, it is considered as a road map to enable the students to learn and acquire the early skills of reading.

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## 1. Introduction

Mild intellectual disabled children are considered as the biggest group in the community of intellectual disability. According to the information provided by the DSMIV, it was assured that they made up about 85% of all the intellectual disabled students. Moreover, they are the educable group who are able to reach a higher level of education compared to the other groups. According to Howard (2005), the educational goals of the mild ID include the desire and need to become independent and self sufficient. Meanwhile, Patton et al. (1996) clarified that there are several basic goals of educating the mild ID students which include the need to be competent in applying the basic life skills, live independently, and be successfully employed. On top of that, reading also helps the mild ID students to be confident and more successful in life (Koppenhaver, Coleman, Kalman, & Yoder, ). Subsequently, Donahue and Prescott (1988) pointed out the importance of teaching the reading skills to the ID students, which is believed to enable them to be more acceptable in the society and live better. Bradord et al. (2006) mentioned that a lack of reading could limit the quality of life of the mild ID students. Therefore, the teaching of reading skills to them will definitely improve their quality of life, particularly for those who are literate.

## 2. Background of the Study

Literacy skills are considered as the basic skills needed to have a good quality of life. According to Downing (2005), being a literate in a literate society is more than just a convenience. Meanwhile, Fletcher, Lyon, Fuchs, and Barnes (2007) indicated the importance of reading by pointing out the easy access to a wide variety of information and opportunities

that could be gained through reading. Tomas (2005) stated that the ability to read is one of the significant requirements to achieve academic success because it reflects their level of knowledge. Moreover, Al Nahdi (2015) explained the importance of learning to read by stating that being illiterate will hinder the student from having a normal standard life, which is also considered as a great disadvantage for them in finding vocational opportunities. According to Katmis (2001), only 1 out of 5 children with mild or moderate ID is able to achieve minimal literacy skills in countries where English is used as a native language. However, the percentage of students with intellectual disabilities who possess literacy skills is very rare in countries where English is a foreign language. The ability to name letters and linking them to their sounds is considered the strongest single evidence of the ability to learn literacy skills (Adams, 1991). Other than that, Share (2004) demonstrated that learning to name the letters and its sounds is the key element in learning phonics instructions.

## 3. Problem Statement

The focus in teaching letter identification skills is a simple step towards the journey to learn reading. Clearly, these skills are considered a clear marker for the skills that subsequently lead to the development of reading (Adams, 1990). Mutler and Diethelm (2001) adopted that letter knowledge is a strong predictor of reading skills in English and non English speakers learners. There are lots of evidences to the importance of letter knowledge and its relation to the process of learning to read. According to researchers, there is a relation between letter knowledge skills and phonological processing skills (i.e., the ability to discriminate phonetic

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contrasts, to segment and manipulate phonemes, and to detect rhyming (Victoria et al, 2006). Furthermore, Anderson, and Holligan (1996) reported that children who could identify few or no letter names had difficulty on phonological processing tasks, thus, Burgess and Lonigan (1998) claimed that letter name knowledge and phonological processing skills were reciprocally related non reading preschool children.

Recently, the focus that were brought to attention in the field of teaching reading skills to students with intellectual disabilities was sight word recognition as well as isolated skills (Browder, Wakeman, Spooner, Ahlgrim-Dezell, & Algozzine, 2006; Browder & Xin, 1998; Connors, 2003; Joseph & Seery, 2004; Saunders, 2007). Apart from that, this limited effort is believed to be based on the assumption of many educators which states that children with ID are unlikely to learn to read through fully processing print, but the focus was for them to memorise specific lists of words which reduce their ability to generalise their knowledge to new situations because sight word reading mainly depends on identifying certain group of words (Katmis, 2000). Allor (2010) claimed that despite the paucity of the research in the field of reading; however it is still regarded promising because it suggests that students with ID are able to learn various aspects of reading. Other than that, the sight word reading has clearly gained the greatest attention.

Clearly, teaching letter identification and letter sound correspondence to Arabic-speaker students is a challenge because it is a foreign language, including some of the difficulties involved in learning a new language. On top of that, the educational programs in Arabic countries only focus on the simple skills in the field of learning English language, and most of the skills that are taught only aim to improve speaking and listening skills. AL Khatany (2004) recommended to expanding the research in the field of teaching reading to Mild ID for the purpose of figuring out better strategies due to the limited research available to improve reading skills in Arabic language. Subsequently, the studies that focused on the teaching of several reading skills in the field of English language are considered sparse and limited. The Mild ID students are expected to learn basic academic skills up to grade six; however, they need longer time by using different pedagogies (Al Hadidi & Al Khateeb, 1997). In the Arabic literature of teaching Mild ID students, there are many studies that deal with academic skills but most of them mainly focused on teaching the skills in Arabic language, while early skills become the focus of the English language.

#### 4. Multi Sensory Approach

The multi sensory approach is also known as the O&G method (Orton Gillingham approach). The aim of this approach is to teach students to read through the use of different senses. According to Davis (2011), Orton believes that students are able to learn better by remembering the letters if they are allowed to see, pronounce, and write the letters. Davis (2011) also added that the first one to bring the notion of blending sounds together to read a new word was Orton. There are different features involved in the multi sensory approach such as the auditory method and the visual method. In the auditory method, the student is trained to identify the auditory sounds and point to the letters when they hear the sounds, while the visual method focuses on teaching the student to identify specific letter from other letters and link them to their sound when they are shown the letters. Similarly, there are also tactile activities which encourage the student to

use their hands and fingers in writing the letter or drawing it in the air. Davis (2011) urges that the physical engagement of touching the grapheme enables the student to stay focus, while imprinting the shape of the grapheme in the mind which will foster the ability of the students to remember the sound or the letter.

#### 5. Objective of the Study

1-To determine the effect of applying multisensory approach in the teaching of letter identification to mild intellectual disabilities students.

#### 6. Research Questions

In order to achieve the above objectives, the following research questions are proposed:

a) Is the multisensory approach effective in teaching letter identification to mild intellectual disabilities?

#### 7. Research Hypothesis

The research is proposed to test four null hypotheses for both research questions:

R01. There is no significant statistical difference between the means of the pretest and post-test in letter identification.

#### 5. Literature Review

The literature of teaching reading to mental retarded students is in a different category and consists of various dimensional sides. According to the research conducted regarding the particular literature, it was clear that there are different approaches that could be used to teach students to read words. In 2000, Katmis introduced his review of reading instructions related to mental retardation starting from 1800 until 1999 and it is summarised in the following points:

- i. The reviews of reading for mental retardation proved that they are able to read but below their mental age as a result of the de-emphasising of literacy instructions and focusing more on other skills.
- ii. The literacy instructions also focused on sub-skills which cause the difficulty in mastering these isolated sub-skills, thus they failed to gain access to higher process of applying the literacy skills.
- iii. Limited details on the description of academic characteristics assessment for mentally retarded students that leads to the insufficiency of these programs.
- iv. The mention on the work of Algozzine and Wood (1994) that revolves on reading intervention related to mental retardation which urges on the focus of comprehension and the use of wide variety of texts and cooperative grouping practices.
- v. Early trials were conducted to apply the multisensory approach in the teaching of reading based on the work of Kirk (1933) that applied a multisensory alphabetic method as an instructional practice to teach reading to mental retardation students.

#### 5.1 Literature Review in Arabic Studies

The history of studies in the field of teaching English reading in the Arabic literature is not so long compared to the studies found by the researcher which are very modern and focused well in the very early skills. In their study, Mohammed and Mostafa (2012) examined the effectiveness of phonological awareness intervention to improve the word recognition ability of children with autism spectrum disorder. In their study, 47 students diagnosed with ASD were chosen as the participants. The findings of the intervention proved the effectiveness of phonological awareness intervention in improving the ability of ASD students in word recognition. Eissa (2013) examined the effectiveness of phonological awareness training intervention to improve the pre-reading skills of children with mental retardation.

A group of 47 students with intellectual disability were divided into two groups, namely experimental and control groups. The two groups possess similar IQ, age, and word recognition test scores. The pretest data was collected based on a pre-reading skills test. The program lasted for five weeks with 20 minutes session conducted three times a week. A variety of fun and play-based phonological activities were conducted in the class. PA is concluded to be effective in improving the pre-reading skills.

Abdul Khalik (2014) conducted another study in the same field by examining the effectiveness of phonological awareness training intervention in order to improve the phonological working memory of children with intellectual disabilities. 30 students with intellectual disability were chosen as the participants of this study. They were divided into two groups according to their age and IQ. A pretest/post-test was used to identify the differences between the two groups, and the finding is in agreement with the findings of the previous researches which confirmed that the phonological awareness is effective in improving the phonological working memory for the experimental group.

## 6. Methodology

This study adopts the quasi-experimental design as the research method. One group of students will be chosen for this study and a pretest post-test method will be applied to find out the effectiveness of the particular approach. The quasi-experimental method was chosen due to the lack of the traditional way used to teach reading to the participants of the study. This method is suitable to achieve the objectives in terms of collection, classification, and organisation of data.

### 6.1 The Respondents

The respondents of this study consist of 20 students with mild mental retardation due to the limited number of students available for this category. The participants include a group of mild intellectual disabled students in special education school of Kuwait. The sample of this study was purposely chosen from all the population of mild intellectual disabled students in Kuwait. The IQ was obtained from the centres and schools where the students are enrolled in educational programs.

**Table 1. Study main sample.**

Participants	No of participants
Students	20

### 6.2 Research Instrument

The researcher adopted a test for letter identification and letter-sound correspondence/CVC reading tests based on several similar tests such as the letter identification test in Brignace Childhood Screens III as well as other tests in order to measure the knowledge of the participants in both letter identification skills and letter sound correspondence.

### 6.3 Description of the Intervention

In the following points the researcher will discuss the general features of the intervention based on the multi sensory approach

#### 6.3.1 Letter Identification according to the mutli sensory approach

The researcher in this stage will use the multi sensory approach to teach the students to identify the letters through different activities

##### 6.3.1.1 Visual activities

The teacher in this activities focus on helping the student to identify the letter visually through circling the letter from other letters and also will encourage the student to point to the letter from other letters. Furthermore, teacher can also encourage the student after introducing the new letter, to copy

it from his own memory. Another activity was to encourage the student to type the letter from his memory in a sand tray.

##### 6.3.1.2 Auditory activity

Auditory activities related to the ability of the student to discriminate the letter thorough listening to it, in these activities, the researcher says a name of any letter and encourages the student to find the letter from other letters. Also, the teacher can say the letter and then the student draw it in the air or in a sand tray.

##### 6.3.1.3 Tactile activities

Tactile is all about the use of hands and fingers as it helps the student to stay engaged and focused and it is considered fun activities which motivate and encourage them to like studying. Students can learn to trace the letters and say them aloud. In a multisensory approach the use of tactile activities can include lots of activities using their hands like tracing the letters using paint by their fingers or giving the student some letters and asking him to close his eyes and touch the given letter and ask him to guess the letter.

##### 6.3.1.4 Kinaesthetic activities

The fourth modality of the multisensory approach is the use of kinaesthetic when learning to read and write. Kinaesthetic means the physical movement of the body in space while performing a task. One of the suggested activities is to ask the student to write the letter in the air or use the spaces in the class and ask the student to match between the lowercase and uppercase. Some teachers also draw the letters on the ground of the class and ask the students to stick some paint or any kind of sand on the letter. Another activity is asking the student to copy the letters from the white board and drawing them to draw them in the air and saying the sound of the letter. Using the flashcards is considered as a kinaesthetic activity as you have asked the students to look in the flashcard and then memorizing it from his mind and writing it in the book.

## 7. Findings

This study used the quantitative method to analyse the results of the intervention. The quantitative study shows the differences between the scores of the students before and after the intervention. The researcher used the T –test for paired sample to find the differences between both of the tests.

Research question one:

1-Is the multisensory approach effective in teaching letter identification to mild intellectual disabilities?

R01. There is no significant statistical difference between the means of the pre-test and post-test in letter identification.

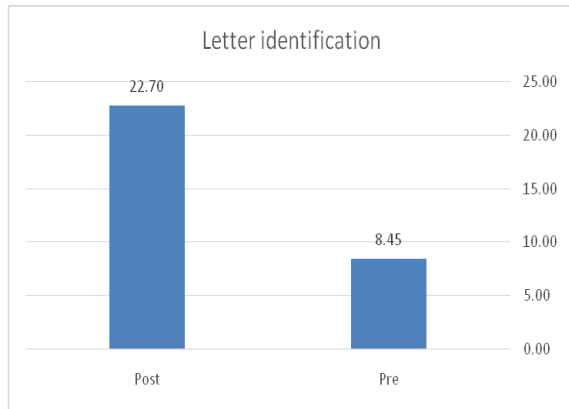
The paired sample T test was conducted to examine the differences between the pre test and post test. The results are presented in Table 4.2.

**Table 2. Results of Paired Samples T -Test for significance of differences between the means of the pretest and post-test in letter identification.**

Test	No	Mean	Std. Deviation	T	DF	Sig.
pre	20	8.45	4.947	-17.648	19	0.000
post	20	22.70	2.677			

Table 4.2 above shows the sample of the study in both pre test and post test. In the pre test, the means of the scores of the student is 8.45) while the standard deviation is 4.947. On the other hand, the mean score of the same students in the post test is 22.70 and the standard deviation is 2.677, while the t-test value is 17.648) and the degree of freedom is 19. The significance value is less than 0.05, thus it can be a proof to reject the null hypothesis one which can be explained by observing the effectiveness of multisensory approach in

teaching the mild intellectual students to learn the English letters.



**Figure 1.** Shows the differences between scores of the students in both pre test and post test after using the mutli sensory approach.

## 8. Discussion

One of the basic components of the multi sensory approach is the application of phonemic awareness skills in the teaching of reading through the screening of previous studies that discuss the area of reading. It is noted that this study coincides with different studies that depend on the use of Phonemic awareness such as the study of Dessementet and Chambrier (2015), in which a longitude study was conducted to examine the role of phonological awareness and letter-sound knowledge as a predictor for reading progress in children with ID. This study also coincides with more studies such as the study of Soltani and Roslan (2013) that determined the contributions of phonological awareness, phonological short-term memory, and rapid automated naming for students with mild ID. The role of phonological awareness was the heart of the study by Barker et al. (2013) which aim to examine the role of phonological processing and its relations with language and reading skills on 294 students with mild ID.

## 9. Recommendation for Future Research

This study reveals the ability of the mild students in Arabic societies to learn the reading skills. It will be more beneficial if this study is conducted on a large number of participants and with longer period. Furthermore, the focus on the comprehension skills might benefit the students by learning to deal with printed reading materials.

## References

- 1- Adams, M. J. (1990). *Beginning to read: Thinking and learning about print*. Cambridge, MA: MIT Press.
- 2- Allor, J. H., Mathes, P. G., Roberts, J. K., Jones, F. G., & Champlin, T. M. (2010). Teaching students with moderate intellectual disabilities to read: An experimental examination of a comprehensive reading intervention. *Education and Training in Autism and Developmental Disabilities*, 45, 3–22.
- 3- Bradford, S., Shippen, M. E., Alberto, P. A., Houschins, D. E., & Flores, M. (2006). Using systematic instruction to teach decoding skills to middle school students with moderate intellectual disabilities. *Education and Training in Developmental Disabilities*, 41, 333–343.
- 4- Bradford, S., Shippen, M. E., Alberto, P., Houschins, D. E., & Flores, M. (2006). Using systematic instruction to teach decoding skills to middle school students with moderate intellectual disabilities. *Education and Training in Developmental Disabilities*, 41(4), 333-343.
- 5- Bradford, S., Shippen, M. E., Alberto, P., Houschins, D. E., & Flores, M. (2006). Using systematic instruction to teach decoding skills to middle school students with moderate

intellectual disabilities, *Education and Training in Developmental Disabilities*, 41(4), pages???

- 6- Browder, D. M., Wakeman, S. Y., Spooner, F., Ahlgrim-Delzell, L., & Algozzine, B. (2006). Research on reading instruction for individuals with significant cognitive disabilities. *Exceptional Children*, 72 (4), 392–408.
- 7- Browder, D., Ahlgrim-Delzell, L., Courtade, G., Gibbs, S. L., & Flowers, C. (2008). Evaluation of the effectiveness of an Early Literacy Program for students with significant developmental disabilities. *Exceptional Children*, 75, 33–52.
- 8- Browder, D.M., Wakeman, S.Y., Ahlgrim-Delzell, L., & Algozzine, B. (2006). Research on reading instruction for individuals with significant cognitive disabilities, *Exceptional Children*, 72 , 392-408.
- 9- Browder, D.M., Wakeman, S.Y., Ahlgrim-Delzell, L., & Algozzine, B. (2006). Research on reading instruction for individuals with significant cognitive disabilities, *Exceptional Children*, 72 , 392-408.
- 10- Burgess, S., & Lonigan, C. (1998). Bidirectional relations of phonological sensitivity and pre reading abilities: Evidence from a preschool sample. *Journal of Experimental Child Psychology*, 70, 117–141.
- 11- Conners, F. A., Atwell, J. A., Rosenquist, C. J., & Sligh, A. C. (2001). *Abilities underlying decoding differences in children with intellectual disability*. *Journal of Intellectual Disability Research*, 45 4, 292–299.
- 12- Davis, D. H., Fredrick, L. D., Alberto, P. A., & Gagne', P. (2010). *Naming speed, letter-sound automaticity, and acquiring blending skills among students with moderate intellectual disabilities*. (Unpublished doctoral dissertation). Georgia State University, Atlanta, GA.
- 13- Davis, James Breckinridge, "The effects of an Orton-Gillingham-based reading intervention on students with emotional/behaviour disorders" (2011). Theses and Dissertations. Paper. university of Toledo
- 14- Johnston, R., Anderson, M., & Holligan, C. (1996). Knowledge of the alphabet and explicit awareness of phonemes in prereaders: The nature of the relationship. *Reading and Writing: An Interdisciplinary Journal*, 8, 217–234
- 15- Joseph, L., & Seery, M. E. (2004). Where is the phonics? A review of the literature on the use of phonetic analysis with students with mental retardation. *Remedial and Special Education*, 25, 88–94.
- 16- Katims, D.S. (2000). Literacy instruction for people with mental retardation: Historical highlights and contemporary analysis. *Education and Training in Mental Retardation and Developmental disabilities*, 35, 3-15.
- 17- Minnesota Literacy Council. (2016). Minnesota Literacy Council. Retrieved 3 September 2016, from <https://mnliteracy.org/>
- 18- Muter, V., & Diethelm, K. (2001). The contribution of phonological skills and letter knowledge to early reading development in a multilingual population. *Language Learning*, 51, 187–219.
- 19- Oakland, T., Black, J. L., Stanford, G. N. L. N., & R., B. R. (1998). An evaluation of the dyslexia training program: A multisensory method for promoting reading in students with reading disabilities. *Journal of Learning Disabilities*, 31(2), 140-147.
- 20- Patton, C. M., & Roschelle, J. (2008). Why the best math curriculum won't be a Textbook. *Education Week*, 24-32. Retrieved from EBSCO host.
- 21- Patton, J.R, Smith T.E.C., Clark, G.M., Polloway, E. A. Edgar, E., & Lee, S. 1996 individuals with mild mental

retardation: post-secondary outcomes and implications for educational policy. *Education and training in mental retardation and developmental Disabilities*, 31 (issue?), 75-85.

22-Richey, K., & Goeke, J. (2006). Orton-Gillingham and Orton-Gillingham-based reading instruction: a review of the literature. *The Journal of Special Education*, 40 , 171-183.

23-Share, D. L. (2004). Knowing letter names and learning letter sounds: A causal connection. *Journal of Experimental Child Psychology*, 88 (3), 213–233..

24-Victoria J. Molfese, A. A. M., Jennifer L. Beswick, Jessica D. Neamon., & Shelby A. Berg, C. J. B., and Andrew Molnar. (2006). Letter Knowledge, Phonological Processing, and Print Knowledge: Skill Development in Nonreading Preschool Children. *journal of learnig disability*, 39.