

Instructions for authors, subscriptions and further details:

<http://remie.hipatiapress.com>

Use of Flashcards in Dealing with Reading and Writing Difficulties in SEN students

Mona Saleh Alanazi¹

1) Northern Border University, Kingdom of Saudi Arabia

Date of publication: February 15th, 2017

Edition period: February 2017-June 2017

To cite this article: Alanazi, M. S. (2017). Use of Flashcards in Dealing with Reading and Writing Difficulties in SEN students. *Multidisciplinary Journal of Educational Research*, 7(1) 53-87. doi:10.17583/remie.2017.2211

To link this article: <http://dx.doi.org/10.17583/remie.2017.2211>

PLEASE SCROLL DOWN FOR ARTICLE

The terms and conditions of use are related to the Open Journal System and to [Creative Commons Attribution License \(CC-BY\)](#).

Use of Flashcards in Dealing with Reading and Writing Difficulties in SEN students

Mona Saleh Alanazi
Northern Border University

Resumen

Various research studies have found that DI flashcards is a highly effective intervention technique when academic skills deficits are found in the students with disabilities. This study aims to evaluate the effects of a flashcard system in dealing with reading and writing problems with 40 5th grade female students with learning disorders. Students with learning disorders experience academic problems, which is preceded by signs such as distorted language or a delay in picking up a language etc. It means that the problems are natural, neurological and behavioural at times. The school identified for the present study was located in an urban school district in the Northern Border areas of Saudi Arabia. A specific textbook *My beautiful language* by Lughati Al Jamila for 5th grade elementary pupils was chosen as a tool for the study, based on the students' pre-test scores. The effects of the flashcard procedure were assessed across sets of problems. The post study data reveals that all participants improved their mastery of reading and writing skills. The flash card procedure was inexpensive and easily implemented in a resource room setting.

Palabras clave: flashcards, reading and writing problems, learning disorders, Saudi Arabia

Uso de Flashcards en el Tratamiento de las Dificultades de Lectura y Escritura en los Estudiantes con NEE

Mona Saleh Alanazi
Northern Border University

Resumen

Varios estudios de investigación han encontrado que el uso de tarjetas de instrucción directa (flashcards) es una técnica de intervención altamente eficaz cuando los déficits de habilidades académicas se encuentran en los estudiantes con discapacidades. Este estudio tiene como objetivo evaluar los efectos de un sistema de tarjetas en el tratamiento de problemas de lectura y escritura con 40 estudiantes de 5° curso con trastornos de aprendizaje. Los estudiantes con trastornos del aprendizaje experimentan problemas académicos, que son precedidos por signos tales como lenguaje distorsionado o un retraso en la recolección de un idioma, etc. Esto significa que los problemas son naturales, neurológicos y en ocasiones conductuales. La escuela identificada para el presente estudio estaba ubicada en un distrito escolar urbano en las áreas de la frontera norte de Arabia Saudita. Se seleccionó un libro de texto específico, *My beautiful language* de Lughati Al Jamila para los alumnos de 5° grado como una herramienta para el estudio, basado en los resultados de los estudiantes antes de la prueba. Los efectos del procedimiento de flashcard se evaluaron a través de conjuntos de problemas. Los datos del estudio posterior revelan que todos los participantes mejoraron su dominio de las habilidades de lectura y escritura. El procedimiento de la tarjeta flash fue barato y se implementó fácilmente en un entorno de sala de recursos.

Palabras clave: flashcards, problemas de lectura y escritura, trastornos del aprendizaje, Arabia Saudi

This present study aims to identify the effectiveness of using flashcards in dealing with reading and writing problems with 5th grade female students with learning disorders. The present study aims to answer the following two questions:

- 1- How effective is using flashcards in treating reading problems with 5th grade female students with learning disorders?
- 2- How effective is using flashcards in treating writing problems with 5th grade female students with learning disorders?

In order to answer these questions, the researcher chose a sample made up of 40 female students from the elementary level in the city of Rafha in the Kingdom of Saudi Arabia. They were randomly selected as a test group of 20 female students. They were taught by using flashcards and the second group was a control group of 20 female students who were taught by the ordinary methods.

The research was limited to implementing educational tools as specified in the textbook, “My beautiful language” (Lughati Al Jamila) for 5th grade elementary pupils for the second academic term of the year 1435-1436. Three tools were prepared; flashcards for reading and writing sections from the textbook (as prescribed by the Ministry of Education and Training in the Kingdom of Saudi Arabia) to measure the writing and reading skills. It also shows the effectiveness of using the flashcards in dealing with writing problems for female pupils of the 5th grade with learning disorders.

Education has evolved in the modern age since what it was in previous ages when the role of the teacher was limited to dictating the lesson or reading a text aloud. The teacher did not have a major role in the learning process whether in class or outside it. Developments in educational technology have turned the process into an activity for that has aims and results based on measurements and verification. It has now had an effective role between entering the input and output of these activities. Modern technology now has an important and clear role in the development of the system as a whole and the curriculum in particular, which has made it more effective. That is through putting it into the curriculum planning process, implementing it, evaluating it, following it and developing it, which helps a lot in achieving the desired goals.

Through studies and research related to the educational methods, the researcher found that modern methods play in key role in influencing and

broadening students' experience with key roles that it plays in building concepts and designing geographic and natural borders. The teacher can use that to build means that expose them to different attractive means that students look forward to. That achieves the aims that were used for learning subjects. That is achieving the learning aims by presenting the printed material for the students or skills by using stickers, boards or presence. This relates to that in terms of photographic and video methods. They could take other forms that develop from the simple to the complex. They could be equally unpublished for students and teachers. It could fall upon the teacher to differentiate between the means that are presented and the learning matter. The learning outcomes and experience could be presented through the school book, a display device or through other means.

Objective

The foundations for the planning for teaching the Arabic language to those with learning disorders is the framework that aims to deal with these problems in planning, implementing and evaluating. This framework makes the issue of dealing with the matter requiring much effort to achieve it. It is not a matter of a general plan that is placed upon the teacher to implement or exercises that are presented in one form or another. Flashcards play a special role in teaching reading and writing because of what is characterised by originality and eagerness. Among the types of cards: imperative and implementation cards, question and answer cards, games cards that are used in box games, theoretical game or names game and then the flashcards. Starting from the importance of the flashcards in dealing with reading problems, the current research came to identify the effectiveness of using flashcards in dealing with reading and writing problems for 5th grade female students with learning disorders.

Students with learning disorders experience academic problems, which is preceded by signs such as distorted language or a delay in picking up a language etc. It means that the problems are natural, neurological and behavioural at times. The learning theory identifies knowledge forms in four states that are: input, connecting, memory and output. Each of these is connected to knowledge. Using various modern methods helps to reduce the occurrence of these problems.

Methods

Flashcards use is among the main means of teaching and training to reach the best results within the shortest of time possible. The card is displayed most of the time by the teacher's hand. He or she raises it for some time then hides it and asks the students then raises it again and so on. A student may review the suitable card from among a group of cards that have words on them to put them from among all the group of cards and words in order to place them on an answer board in their right place while forming sentences, learning definite articles or adverbs with pictures and words.

Reading problems are clearly noticeable in the child's reading ability and varies to different degrees based on the reasoning, whether it is nervous and problems with judgement, hearing and sight

Writing problems are the inability of the pupils to perform retrieval tasks, which means the child's ability to remember words and to identify or differentiate between them and means the child's ability to correctly spell the letters of the words. It also means the inability to perform the necessary movements for writing.

Hypothesis

The hypotheses of the study were as follows:

- There is no statistically significant difference between the average marks for the two test and control groups in the effectiveness of using flashcards to deal with reading problems for female 5th elementary pupils with learning disorders
- There is no statistically significant difference between the average marks for the two test and control groups in the effectiveness of using flashcards to deal with writing problems for female 5th elementary pupils with learning disorders

Organisation of the Study

In this study, the researcher used a semi organised test (organising incapable groups). There were pre and post tests on each of the test and control groups.

Study Group and Sample

Study group. The study group was made up of all the female pupils of the 5th grade in all the elementary government schools in the city of Rafha in the Kingdom of Saudi Arabia for the academic year 1435-1436.

Study sample. The study sample was limited to 40 female pupils from the 5th elementary level in the government schools that had learning problem programs in the city of Rafha in the Kingdom of Saudi Arabia that were chosen by a specific method. They were randomly divided into two sections. After that they were allocated one of the two sections randomly as test group. They were 20 female pupils that were trained by using flashcards and the other was a control group of 20 female pupils that were taught by ordinary methods.

Measurement Tools

In the present study, the researcher has used the following tools:

Flashcards. The researcher prepared flashcards that contain groups of pictures and writing that were presented to the subject studied whereby the female pupils deal with the researcher and perform immediate feedback processes based on the individual sample responses. The cards contain educational and assessment activities as well as activities that motivate, stimulate and challenge the female pupils through various types of cards such as: colours, drawings and various shapes to show the true learning process.

Review of Literature

Learning disorders mean the growth of the mental abilities in a disorganised way. It focuses on the academic achievement of the child. This is based on the inability to learn the language (reading, writing, speaking and listening) which do not relate to mental or neurological reasons. The identification of such disorders is based on differences between the goal of expected

academic achievement and the mental ability of the individual (Al Rosan, 2001, 201-202). Every individual student in special education needs additional time to achieve that. It is possible for those who have learning disorders to read smaller passages, to go through their test successfully and to participate with their parents and friends. It is possible to ask them to search for specific information from the story or asking for assistance from their peers and completing the main concepts in reading in any subjects.

Among the main reasons that make reading slow is in their ability to understand the framework of the text. Good comprehension depends upon the reader's ability to understand the style of the book. It is imminent that the parents and teachers help those students by spending a lot of time with them to develop their essential knowledge background to choose written texts. Many times drawing a simple diagram helps those students a lot as well as increasing the direct treatment intervention by the parents or teachers from the reading comprehension. Normally, the students like that and need assistance with vocabulary as it needs means through which they can be remembered through reading processes. Because of that they are always in need of stimulating their thinking or language clarification (Al Sartawi et al., 2001).

The Individual with Disabilities Act (2004) defines Specific Learning Disorder (SLD) implies the impact on one or more of the basic psychological processes involved in language use, either written or spoken form of language. It furthers affect the students' all the four language skills and their abilities to do simple mathematical calculations (American Speech Language Hearing Association, 2005). It also includes disruption in the auditory processes which leads to difficulty in interpreting or decoding the message correctly. Attention Deficit Hyper Activity Disorder (ADHD) is commonly found with SLD that impacts students' desired academic achievement, interactions with others in normal day to day life (Barkley, 2005). Though hyper activity or impulsive behaviour is commonly observed in students with SLD, ADHD is not defined as SLD in the literature available as it is included in Other Health Impairment. Students who have primarily diagnosed with SLD have shown the symptoms of ADHD in their secondary diagnoses (Barkley, 2005; Heward, 2013).

The number of reading improvement methods for students who have learning disorders has increased over the years because of varieties of

reading problems depending on various difficulty levels and also the nature of agencies who implement them. There is no exact method that resolves specific reading problems for every student. It has been observed that what suits one child might not suit another. They might need amendments or other ways. Therefore, it is not possible to depend on one. There should be variety in the ways from time to time, from one situation to another and from one problem to another. The teachers who are dealing with the problems themselves should develop or prepare new means that is more suitable for dealing with students' reading problems. It is possible to present some of the ways of dealing with the problems for some reading problems that are more common or used more (Al Batayina et al., 2007).

Some people have gone on to say that reading and language problems are caused by a group of learning disorders, while others have confirmed that concentration is the main cause while others felt that mental problems such as memory and reasoning are to be addressed well. In 1977, the American Union government pointed out three types of problems (Mahmood, 2007):

- a. Language problems: problems related to listening and speaking
- b. Reading and writing problems: reading and writing comprehension
- c. Maths problems: performing calculation tasks and mathematical processes

In light of this, it is possible to apply learning disorders to two groups: problem in developmental learning and problem in academic learning. Developmental learning disorders include the previous skills that the child needs with the aim of achieving academic subjects. For example, a child learns how to write their name by means of developing many reasoning skills, optical synergy monitor, and memory. When these duties stop functioning to a large extent and the child is incompetent to compensate it through other means, that results in a problem for the child in learning writing, spelling or performing sensory tasks. Problems in academic learning include: reading, writing, spelling, comprehension and dealing with mathematical tasks.

There are many studies available developing new strategies to deal with poor reading, writing and achievements of female pupils in the traditional method of teaching (Iwad, 2009). Fathi (2006) aimed to identify the difference between ordinary female pupils with learning disorders (reading

and writing) in verbal and non-verbal intelligence with the level of mistakes. Diagnosis of spelling problems (reading and writing) for pupils of the 4th elementary grade and similar, has shown a remarkable impact on the whole program on improving the spelling skills on raising the achievement, understanding oneself and academic achievement (Dawud, 2005).

Al Labbudi (2004) identified the main reading and writing problems of female pupils from the 3rd elementary grade, and further identified the relationship between their motivation and their social background. He presented a strategy that connects between voice input and various sensory devices. Pictographic intelligence tests and individual interviews were used for the study to profile the reading and writing problems. The study found many reading and writing problems and confirmed that there is a strong relationship between motivation and learning disorders and between the social and economic level. It also found effectiveness in the suggested strategy in dealing with these problems. In a similar study Gibson (2003) identified the effectiveness of an established learning program in developing children's linguistic voice development. The effectiveness of speech therapy training programs worked towards breaking down the word into syllables then working towards putting them together into sentences and reflecting upon it to develop proper speech for the child (Hanson & Fider, 2002).

Many studies have confirmed the effectiveness of a treatment program for reducing poor educational developmental problems for elementary level pupils (Page-Voth & Graham, 2002). There are other studies carried out on the problems of reading and reading and the effectiveness of training programs to deal with such cases (Al Abdullah, 1997; Bakson & Byrne, 1993; Al Zarrad, 1991).

Effectiveness of Direct Instruction (DI) Flashcards

Among the available methods of instruction, flashcard method is found to be very effective. The methods received extensive support from the scientific research community. One of the major components of direct instruction is that it is a repetitive task targeting the identified skills. This focuses on specific skills to be targeted within a shorter time period (Hayter, Skott, McLaughlin, & Weber, 2007; Ruwe, et. Al, 2011; Tan &

Nicholson, 1997; Skarr, McLaughlin, Derby, Williams, & Meade, 2012; Skarr, Zielinski, Ruwe, Sharp, Williams, & MacLaughlin, 2014). DI flashcards focuses on the target skill area to meet the desired need of the student. Most flashcards interventions are completed in single-subject design which requires a pre-test to identify the error-patterns. These patterns in-turn reveal the desired skill deficit. Based on these patterns the teachers use the flashcards methods to address the problem areas. Incorrect responses to the error prompts allow the teachers to implement correction measures. Repetition of the corrective measures is undertaken until the subjects demonstrate mastery of the desired response. To further reinforce, the cards are reshuffled to allow for additional practice.

Other study (Hayter et al., 2007) identified the use of flashcards as effective for teaching two high school students with developmental disabilities. Further studies have been replicated in the field of mathematics (Harris, Helling, Thompson, Neyman, McLaughlin, Hatch, & Jack, 2015; Skarr et al., 2014), language skills (Cole, McLaughlin, & Johnson, 2012; Hopewell, McLaughlin, & Derby, 2011; Kaufman, McLaughlin, Derby, & Waco, 2011; Ruwe, McLaughlin, Derby & Johnson, 2011; Seines, McLaughlin, Derby, Weber, & Gortsema, 2015), or pre-academic skills (Houglum, McLaughlin, Weber, Neyman, & Gould, 2013). As showed by Thomas, McLaughlin & Derby (2015), the direct instruction flashcards with various disabilities, age ranges, and grade levels has been applied in different educational levels.

Cravalho, McLaughlin, Derby and Waco (2012) evaluated the usefulness of DI flashcards at the elementary level in dealing with the subjects' skills to recognize the numerals and also apply their mathematical skills to deal with complex problems. Their scores after undertaking the DI flashcards revealed a sharp enhancement in their learning the targeted skills. DI flashcard has been found to be equally effective in private as well as public schools. Various studies suggest that DI flashcard instruction have been found to be effective in enhancing the fluency skill across the areas of study, be it maths or language learning. Students diagnosed with SLD and low academic achievement in reading have responded remarkably to the DI flashcard instruction method (Ulring, Mclaughlin, Neyman & Waco, 2012). Hopewell, McLaughlin, and Derby (2011) administered the DI flashcard on the students diagnosed with behavioural disorder & ADHD also responded

well to the intervention in dealing with their respective learning deficits. DI flashcards is highly adaptable for instruction in many different subject areas and can be used to teach wide range of students from various age groups or disabilities. There are studies which do not support remarkable response to DI flashcards but they do show upward trend of correct responses (Kroll, McLaughlin Neyman, Johnson & Beiers, 2013). Fjortoft and colleagues (2014) administered DI flashcards on two subjects; one diagnosed with Developmental Delay (DD) and the other one diagnosed with Emotional Behavioural Disorder (EBD). The study focussed on letter identification and letter writing task of the candidate with DD and letter-sound correspondence of the candidate with EBD. Both the subjects displayed improvement across all the sets, compared to the baseline. Likewise Mangundayo and colleagues (2013) administered DI flashcards on the pre-schoolers diagnosed with DD to improve their math skills. The results of the study demonstrate significant improvement in the skills.

Data Elicitation

Writing Skills

The researcher prepared a writing measure that includes 3 axes: the first axis is based on the writing performance, the second is based on implementing a line of copying based on the school rules and the third is based on writing identification.

Confidence in the writing measure. To confirm the confidence in the writing measure, it was presented to a group of people and start by checking their experience based on their range of clarity and suitability as well as the level of containment of each paragraph of the topic in that was allocated to it, and its linguistic makeup whereby their suggestions and comments were taken into account.

Stability of the writing measure. To verify the stability of the writing measure, tools to measure its stability were produced in two ways: the first way is applying and repeating the application on a set sample from the study group, outside the study individuals and they were 10 female pupils with a time gap of two weeks between the first implementation and the

second. The Pearson Coefficient was calculated between the implementation results as well as a way of verifying between the observers through the set sample based on two of the researchers and way of verification between their estimates using Cooper's Equation.

Table 1.
Stability of the writing measure

Field	Internal consistency	Feedback stability	Cooper
Writing performance	0.78	0.76	0.77
Applying writing based on school rules	0.81	0.79	0.80
Writing identification	80	78	78
Overall performance	0.87	0.82	0.85

Reading skills. The teachers of the book *My Beautiful Language* for the 5th elementary grade were liaised with to choose a reading passage printed with 5 inclusive questions from various test types. The passage was selected from the book “My Beautiful Language” that was prepared on behalf of the Ministry of Education and Training. The aim of the reading section was that the female pupils should read it and from that identify the skills and process that they used during the answer. That is through the answer to paragraph measures. There are 4 skills: identifying, speaking, smoothness and fluency and understanding. The paragraph was corrected and the concerned mistakes in them were counted. From that female pupils were measured from the scale 1-5.

Confidence during the reading skills. In order to verify the confidence of the performance, they were presented to a committee of experienced specialised judges from the education body for the universities specialised in the curriculums, teaching methods, measures and assessment. Their

comments and observations were noted and whatever was necessary from amendments and suggestions were implemented.

Stability of reading skills. Stability measures for them were produced in two ways: the first was a way of implementing and implementing again on a set sample from the study group outside the study individuals who were 20 female pupils with a timespan of two weeks between the first implementation and the second and measuring the Pearson Coefficient between the two using an R Test.

Table 2.

Internal consistency and repeat stability factors for writing skills

Skill	Internal consistency factors	Repeat stability
Identifying skills	0.76	0.72
Speaking skills	0.82	0.79
Smoothness and fluency skills	0.87	0.78
Understanding skills	0.81	0.75
Overall measure	0.82	0.76

Statistical solution. In order to answer the study questions, the average values and standard deviations were calculated for the individual marks of the sample from the test and control group and a Paired Sample T Test was implemented to identify the differences between the average marks for the test group in the pre and post study. An Independent Sample T Test was conducted to identify the differences between the two groups in the pre measure for equivalence reasons and a post measure to identify the differences between the two groups. After that an ANCOVA test was done to identify the effectiveness of using the flashcards to deal with reading and writing problems.

Data Analysis and Results

The first main question was to explore the effectiveness of using flashcards in dealing with writing problems for female pupils of the 5th elementary grade with learning disorders.

To answer this question the average and standard deviations for the pre and post measures were produced for the test and control groups. An Independent Sample T Test was applied to identify the difference between the two groups in the pre measure. A Paired Sample T Test was applied to identify the difference between the average pre and post measures for each writing group's performance. The following table shows that.

Table 3.

Independent Sample T Test to identify the differences between the two groups in their writing performance based on the pre measure (n = 40)

Group	Average	Standard Deviation	T Value	Degree of Freedom	Statistical Significance
Controlled	1.45	0.14	0.539	38	0.6
Test	1.42	0.15			

The above table shows that the T Value is low and is not statistically significant at the significance level ($\alpha \leq 0.05$) on the post measure. This proves the equivalence between the two test and control groups is in the pre measure.

Table 4.

Independent Sample T Test to identify the differences between the two groups in their writing performance based on the post measure (n = 40)

Group	Average	Standard Deviation	T Value	Degree of Freedom	Statistical Significance
Controlled	1.84	0.12	4.664	38	0.000
Test	1.62	0.17			

The table 4 shows that the T Value has a statistically significant value at the significance level ($\alpha \leq 0.05$) between the two test and control groups in the post measure. The differences were in favour of the test group where the performance of the pupils in this group was better than the post measure in the control group.

Table 5.

Differences between the two groups in their writing performance based on the pre and post measures for the test and control groups for writing performance

Group	Level	Average	Standard Deviation	T Value	Degree of Freedom	Statistical Significance
Control	Pre	1.45	0.14	9.338-	19	0.000
	Post	1.84	0.12			
Test	Pre	1.42	0.15	3.58	19	0.002
	Post	1.62	0.17			

The above table shows that there is a statistically significant difference between the pre and post measures for each of the two groups in the writing performance where the T Value for the test group is 3.58 with a statistical significance of 0.002. The differences were in favour of the post measure. The T Value for the control group was 9.33 with a statistical significance of 0.000. The differences were in favour of the post measure.

Table 6.

Differences in the pre and post-test.

	Sum of the boxes	Degrees of freedom	Average boxes	F Value	Statistical significance
Group	0.484	1	0.484	22.028	0.000
Pre measure	0.014	1	0.014	0.636	0.430
Error	0.812	37	0.022		
Corrected amount	391.299				

The table 6 shows that there is a statistically significant difference at the significance level, 0.05 based on the group variable. The differences were in favour of the test group. The results also showed that there is no difference between the writing performances in the pre measure. This confirms the equivalence between the two groups in the pre measure.

The second sub-question was about the effectiveness of using flashcards in dealing with (applying the writing rules according to the school rules) for female pupils with learning disorders in the 5th grade.

In order to answer this question, the average values, standard deviation, pre and post measures for the two test and control groups were used. An Independent Sample T Test was also applied to identify the difference between the two groups in the post measure. The following table demonstrates that. A Paired Sample T Test was applied to identify the difference between the averages of the pre and post measures for each group based on writing rules as specified in the textbook.

Table 7.

Equivalence between the two groups in implementing writing rules based on school rules with the pre measure (n = 40)

Group	Average	Standard Deviation	T Value	Degree of Freedom	Statistical Significance
Controlled	1.44	0.20	1.199	38	0.338
Test	1.36	0.21			

The table 7 shows that the T Values are low and do not have statistically significant values at the significance level ($\alpha \leq 0.05$) for the pre measure. This shows that the equivalence between the two tests and control groups is in the pre measure.

Table 8.

Difference between the two groups in implementing writing rules based on school rules with the post measure (n = 40)

Group	Average	Standard Deviation	T Value	Degree of Freedom	Statistical Significance
Controlled	1.59	0.24	3.399	38	0.002
Test	1.82	0.19			

The table 8 shows that the T Values are statistically significant at the significance level ($\alpha \leq 0.05$) for the post measure. The difference is in favour of the test group where the students' performance in the group is better in the post measure of the control group.

Table 9.

Difference between the two groups of their pre and post-test measures in implementing writing rules based on school rules

Group	Level	Average	Standard Deviation	T Value	Degree of Freedom	Statistical Significance
Control	Pre	1.44	0.20	6.899	19	0.000
	Post	1.82	0.19			
Test	Pre	1.36	0.21	2.963	19	0.008
	Post	1.59	0.24			

The table 9 shows that there is statistical significance between the pre and post measures for each of the two groups in implementing writing rules based on school rules where the T Value for the test group reached 2,963 with statistical significance of 0.008. The difference was in favour of the post measure and the T Value for the group was 6,899 with a statistical significance value of 0.000. The differences were in favour of the post measure.

Table 10.

Effectiveness of using flashcards in dealing with problems in applying the specified writing rules

	Total squares	Average squares	Degrees of freedom	F Value	Statistical significance
Group	0.534	1	0.534	10.816	0.002
Pre measure	1.60 - 005	1	1.60-005	.0000	0.000
Error	1.828	37	0.049		
Corrected group	2.383	39			

The table 10 shows that there is statistical significance at the significance level, 0.05, following the group variable. The difference was in favour of the test group. The results also show that there is no difference between implementing writing rules based on school rules in the pre measure. This confirms the equivalence between the two groups in the pre measure.

The third sub-question focused on the effectiveness of using flashcards in dealing with problems in writing identifications for pupils of the 5th elementary grade with learning disorders.

In order to answer this question, the average and standard deviation for the pre and post measures for the two tests and control groups. An Independent Sample T Test was performed for the fixed sample to identify the difference between the two groups in the post measure. The following table shows that. A Paired Sample T Test was performed to identify the difference between the averages for the pre and post measures for each group based on writing identification. The following table shows that.

Table 11.

Equivalence between the two groups in identification based on the pre measure (n = 40)

Group	Average	Standard Deviation	T Value	Degree of Freedom	Statistical Significance
Controlled	1.17	0.12	1.217-	38	0.231
Test	1.21	0.12			

The table 11 shows that the T Value is weak and not statistically significant at the significance level $\alpha \leq 0.05$ for the pre measure. This shows that there is equivalence between the two test and control groups in the pre measure.

Table 12.

Equivalence between the two groups in identification based on the post measure (n = 40)

Group	Average	Standard Deviation	T Value	Degree of Freedom	Statistical Significance
Controlled	1.74	0.17	2.115	38	0.041
Test	1.84	0.13			

The table 12 shows that the T Value is statistically significant at the significance level $\alpha \leq 0.05$ between the two test and control groups in the post measure. The difference was in favour of the test group where students' performance in the group was better in the post measure than in the control group.

Table 13.

Difference between the pre and post measures for the test and control groups in terms of identification

Group	Level	Average	Standard Deviation	T Value	Degree of Freedom	Statistical Significance
Control	Pre	1.17	0.12	19.276	19	0.000
	Post	1.84	0.13		19	
Test	Pre	1.21	0.12	11.376	19	0.000
	Post	1.74	0.17		19	

Table 13 shows that there is statistical significance between the pre and post measures for each of the two groups in terms of identification. The T Value for the test group was 11.376 with a statistical significance of 0.000. The difference was in favour of the post measure. The T Value for the control group was 19.276 with a statistical significance of 0.000 and the difference was in favour of the post measure.

In order to identify the effectiveness of flashcards in dealing with reading problems (identification) an ANCOVA test was applied. The following table shows that.

Table 14.

Difference between the two groups in terms of identification for the post measure with an accompanying pre measure

	Sum of the boxes	Degrees of freedom	Average boxes	F Value	Statistical significance
Group	0.105	1	0.105	4.578	0.039
Pre measure	0.005	1	0.005	0.0198	0.659
Error	0.845	37	0.023		
Corrected amount	0.949	39			

The results for the table 14 show that there is statistical significance at the significance level, 0.05 following the group variables. The differences were in favour of the test group. The results show that there is no difference in identification in the pre measure. This confirms the equivalence between the two groups in the pre measure.

The second main question was to explore effectiveness of using flashcards to deal with reading problems for female pupils of the 5th grade with learning disorders.

Use of Flashcards in Enhancing Identification Skill

In order to answer this question, the averages, standard deviations and pre and post measures were calculated for the two tests and control groups. An Independent Sample T Test was performed to identify the difference between the two groups for the post measure. The following table shows that. A Paired Sample T Test to identify the difference between the averages for the pre and post measures for each group in terms of identification was applied. The following table shows that.

Table 15.

Equivalence of the two groups in terms of identification in the pre measure, n-40

Group	Average	Standard Deviation	T Value	Degree of Freedom	Statistical Significance
Control	1.36	0.20	0.151	38	0.881
Test	1.37	0.22			

The table 15 shows that the T Value is weak and not statistically significant at the significance level, $\alpha \leq 0.05$ for the pre measure. This shows that there is equivalence between the two test and control groups in the pre measure.

Table 16.

Equivalence of the two groups in terms of identification in the post measure (n =40)

Group	Average	Standard Deviation	T Value	Degree of Freedom	Statistical Significance
Control	2.88	0.33	1.993	38	0.054
Test	2.65	0.39			

The table 16 shows that the T Value is statistically significant at the significance level, $\alpha \leq 0.05$ between the two test and control groups in the post measure. The difference was in favour of the test group where the performance of the students in this group was better in the post measure than the control group.

Table 17.

Difference between the pre and post measures for the test and control groups in terms of identification

Group	Level	Average	Standard Deviation	T Value	Degree of Freedom	Statistical Significance
Control	Pre	1.36	0.20	15.21	19	0.000
	Post	2.88	0.33			
Test	Pre	1.37	0.22	11.258	19	0.000
	Post	2.65	0.39			

The table 17 shows that there is statistical significance between the pre and post measures for each of the two groups in the writing performance whereby the T Value for the test group was 11.258 with a statistical significance of 0.000. The difference was in favour of the post measure. The T Value for the control group was 15.21 with a statistical significance of 0.000. The difference was in favour of the post measure.

In order to identify the effectiveness of using flashcards in dealing with problems of identification, an ANCOVA test was performed. The following table shows that.

Table 18.

Difference between the two groups in terms of identification in the post measure with the accompanying pre measure

	Sum of the boxes	Degrees of freedom	Average boxes	F Value	Statistical significance
Group	0.613	1	0.613	5.180	0.029
Pre measure	1.041	4	0.260	2.200	0.090
Error	4.021	34	0.118		
Corrected amount	5.591	39			

The table 18 shows that there is statistical significance at the significance level, 0.05, following the group variable. The difference is in favour of the test group. The results show that there is no difference in the identification in the pre measure. This confirms the equivalence between the two groups in the pre measure.

Use of Flashcards in Enhancing Pronunciation

In order to answer this question, the average and standard deviations were produced for the pre and post measures for the two test and control groups. An Independent Sample T Test was applied to identify the difference between the two groups in the post measure. The following table shows that. A Paired Sample T Test was applied to identify the difference between the averages of the pre and post measures for each group. The following table shows that.

Table 19.

Equivalence of the two groups in speaking in the pre measure (n = 40)

Group	Average	Standard Deviation	T Value	Degree of Freedom	Statistical Significance
Control	1.48	0.23	1.415	38	0.681
Test	1.51	0.23			

The results in table 19 show that the T Value is weak and not statistically significant at the significance level, $\alpha \leq 0.05$ for the pre measure. This shows that there is equivalence between the two test and control groups in the pre measure.

Table 20.

Equivalence of the two groups in speaking in the post measure (n = 40)

Group	Average	Standard Deviation	T Value	Degree of Freedom	Statistical Significance
Control	3.03	0.50	2.882	38	0.006
Test	3.51	0.55			

The results in table 20 show that the T Value is statistically significant at the significance level, $\alpha \leq 0.05$ between the two test and control groups in the post measure. The difference was in favour of the test group whereby the performance of the students in this group was better in the post measure than the control group.

Table 21.

Difference between the pre and post measures for the test and control groups in speaking

Group	Level	Average	Standard Deviation	T Value	Degree of Freedom	Statistical Significance
Control	Pre	1.48	0.23	12.780	19	0.000
	Post	3.03	0.50			
Test	Pre	1.51	0.23	17.649	19	0.000
	Post	3.51	0.55			

The table 21 shows that there is statistical significance between the pre and post measures for each of the two groups in terms of writing performance whereby the T Value for the test group is 17.649 with a statistical significance of 0.000. The difference was in favour of the post measure. The T Value for the control group remained at 12.780 with a statistical significance of 0.000. The difference was in favour of the post measure.

An ANCOVA test was performed to assess the effectiveness of flashcards in enhancing the speech as showed in Table 22:

Table 22.

Difference between the two groups in terms of speech at the post measure with an accompanying pre measure.

	Sum of the boxes	Average boxes	Degrees of freedom	F Value	Statistical significance
Group	1.807	1	1.807	6.200	0.018
Pre measure	0.921	5	0.184	0.632	0.688
Error	9.619	33	0.291		
Corrected amount	12.844	39			

The table 22 shows that there is statistical significance at the significance level, 0.05, following the group variable. The results were in favour of the test group. The results showed that there is no difference in speech at the pre measure. This confirms the equivalence between the two groups at the pre measure.

Use of Flashcards in Enhancing Smoothness and Fluency

In order to answer this question the averages and standard deviations were calculated for the pre and post measures for the two tests and control groups. An Independent Sample T Test was performed in order to identify the difference between the two groups at the post measure. A Paired

Sample T Test was applied to identify the difference between the averages for the pre and post measures for each group for smoothness and fluency. The following table shows that.

Table 23.

Equivalence of the two groups for smoothness and fluency speaking in the pre measure (n=40)

Group	Average	Standard Deviation	T Value	Degree of Freedom	Statistical Significance
Control	1.43	0.16	0.171	38	0.865
Test	1.42	0.20			

The results above show that the T Value is weak and not statistically significant at the significance level, $\alpha \leq 0.05$ for the pre measure. This shows that there is equivalence between the two test and control groups in the pre measure.

Table 24.

Equivalence of the two groups in smoothness and fluency in the post measure (n = 40)

Group	Average	Standard Deviation	T Value	Degree of Freedom	Statistical Significance
Control	3.15	0.88	2.396	38	0.022
Test	3.74	0.66			

The results above show that the T Value is statistically significant at the significance level, $\alpha \leq 0.05$ between the two test and control groups in the post measure. The difference was in favour of the test group whereby the performance of the students in this group was better in the post measure than the control group.

Table 25.

Difference between the pre and post measures for the test and control groups in smoothness and fluency

Group	Level	Average	Standard Deviation	T Value	Degree of Freedom	Statistical Significance
Control	Pre	1.43	0.16	8.416	19	0.000
	Post	3.15	0.88			
Test	Pre	1.42	0.20	15.801	19	0.000
	Post	3.74	0.66			

The table above shows that there is statistical significance between the pre and post measures for each of the two groups in terms of writing performance whereby the T Value for the test group is 15.801 with a statistical significance of 0.000. The difference was in favour of the post measure. The T Value for the control group remained at 8.416 with a statistical significance of 0.000. The difference was in favour of the post measure.

An ANCOVA test was performed to assess the effectiveness of flashcards in enhancing the smoothness and fluency, as seen in Table 26.

Table 26.

Difference between the two groups in terms of smoothness and fluency at the post measure with an accompanying pre measure

	Sum of the boxes	Average boxes	Degrees of freedom	F Value	Statistical significance
Group	2.896	1	2.898	4.353	0.054
Pre measure	0.410	4	0.102	0.154	0.960
Error	22.628	34	0.666		
Corrected amount	26.519	39			

The table 26 shows that there is statistical significance at the significance level, 0.05, following the group variable. The results were in favour of the test group. The results showed that there is no difference in smoothness and fluency at the pre measure. This confirms the equivalence between the two groups at the pre measure.

Use of Flashcards in Enhancing Comprehension Skills

In order to answer this question the averages and standard deviations were calculated for the pre and post measures for the two tests and control groups. An Independent Sample T Test was performed in order to identify the difference between the two groups at the post measure. A Paired Sample T Test was applied to identify the difference between the averages for the pre and post measures for each group for understanding. The following table shows that.

Table 27.
Equivalence of the two groups in the pre measure (n = 40)

Group	Average	Standard Deviation	T Value	Degree of Freedom	Statistical Significance
Control	1.48	0.27	1.024	38	0.312
Test	1.56	0.22			

The results 27 show that the T Value is weak and not statistically significant at the significance level, $\alpha \leq 0.05$ for the pre measure. This shows that there is equivalence between the two test and control groups in the pre measure.

Table 28.
Equivalence of the two groups in the post measure (n = 40)

Group	Average	Standard Deviation	T Value	Degree of Freedom	Statistical Significance
Control	3.02	0.69	2.766	38	0.009
Test	3.77	1.00			

The results 28 show that the T Value is statistically significant at the significance level, $\alpha \leq 0.05$ between the two test and control groups in the post measure. The difference was in favour of the test group whereby the performance of the students in this group was better in the post measure than the control group.

Table 29.

Difference between the pre and post measures for the test and control groups

Group	Level	Average	Standard Deviation	T Value	Degree of Freedom	Statistical Significance
Control	Pre	1.48	0.27	9.452	19	0.000
	Post	3.02	0.69			
Test	Pre	1.56	0.22	10.979	19	0.000
	Post	3.77	1.00			

The table 29 shows that there is statistical significance between the pre and post measures for each of the two groups in terms of writing performance whereby the T Value for the test group is 10.979 with a statistical significance of 0.000. The difference was in favour of the post measure. The T Value for the control group remained at 9.452 with a statistical significance of 0.000. The difference was in favour of the post measure.

An ANCOVA test was performed to assess the effectiveness of flashcards in enhancing the comprehension skills, as seen in table 30.

Table 30.

Difference between the two groups in terms of comprehension at the pre and post measure.

	Sum of the boxes	Average boxes	Degrees of freedom	F Value	Statistical significance
Group	5.701	1	5.701	8.701	0.007
Pre measure	5.582	5	1.116	1.648	0.175
Error	22352	33	0.677		
Corrected amount	33.559	39			

The table above shows that there is statistical significance at the significance level, 0.05, following the group variable. The results were in favour of the test group. The results showed that there is no difference in understanding at the pre measure. This confirms the equivalence between the two groups at the pre measure.

Conclusion

The above study shows the effectiveness of flashcards in enhancing pronunciation, smoothness and fluency and comprehension skills. The results of the paired sample test score shows remarkable difference in the performance of experimental group with the T value 17.64. In the writing task, with T value 10.979, there is remarkable change in their performance.

The outcome indicated that DI flashcards could improve the comprehension, identification skills for an elementary student with learning disabilities. Though the same strategy applied in the other educational skill areas like maths or creative writing, this outcome do support much of our previous research with elementary school students using DI flashcards (Lund, McLaughlin, Neyman & Everson, 2012; Thomas et al., 2015).

References

- Al Abdullah, M.F. (1997). *Athar Barnamij Ilaji Muqtarah Fi Tahseen Al Qudra Al Quraniya Litalabat Al Saf Al Sadis Al Asasi Mimmien Yuanoon Min Suoobat Fi Al Qira (Al Dyslexia) Fi Madaris Al Aghwar Al Shamaliya*. Unpublished Master dissertation. Irbit, Jordan: University of Yarmook.
- Al Batayina, O., et al. (2007). *Suoobat Al Taleem Al Nathari wa Al Mumarasa*. Amman, Jordan: Dar Al Massira.
- Al Labbudi, M. I. (2004). Tashkees Baad Suoobat Al Qira Wa Al Kitaba Laday Tilmeethat Al Marhala Al Ibtidaiya Wa Istritajiyat Ilajaha. *Dirasat Fi Al Manahij Wa Turq Al Tadrees Magazine, College of Education, Ain Al Shams University, 98, 21-44.*

- Al Rosan, A. (1987). Al Ajz An Al Taallum Ltalab Al Madrasa Al Ibtidaiyya Min Wajh Nathar Al Tarbiya Al Khassa – Dirasa Nathariyya. *Al Uloom Al Ijtimaiyya magazine*, 1, 245-262.
- Al Sartawi, Z. et al. (2001). *Madkhal Ila Suoobat Al Taaleem*. Riyadh, KSA: Special Education Academy.
- Al Zarrad, F. (1990). *Al Lughha Wa Idtirabat Al Nutq Wa Al Khalam*. Riyadh, KSA: Dar Al Mareekh.
- American Psychiatric Association. (2000). *Diagnostic and Statistical Manual of Mental Disorders* (4th edition, text rev.). Washington DC: American Psychiatric Association.
- American Speech Language Hearing Association. (2015). *Specific Learning Disability*. Retrieved from <http://www.asha.org/advocacy/federal/idea/04-law-specific-ld/>
- Barkley, R. A. (2006). *Attention-deficit hyperactivity disorder: A handbook for diagnosis and treatment (3rd ed.)*. New York, NY: Guilford Press.
- Bakson, N., & Byrne, M. (1962). The relationship between missing teeth and selected consonant sounds. *Journal of Speech and Hearing Disorders*, 27, 341-348. doi:10.1044/jshd.2704.341
- Cole, M., McLaughlin, T. F., & Johnson, R. (2012). The effects of direct instruction flashcards with oral sentence creation on the spelling accuracy of three middle school students with disabilities. *International Journal of Basic and Applied Science*, 1, 308-319. Retrieved from <http://www.insikapub.com/>
- Cravalho, C. J., McLaughlin, T. F., Derby, K. M., & Waco, T. (2014). The effects of direct instruction flashcards on math performance with measures of generalization across elementary students with learning disabilities and autism spectrum disorder. *International Journal of Basic and Applied Sciences*, 2(4), 16-31. Retrieved from <http://www.insikapub.com/>
- Dawud, A. M. A. (2005). *Athar Tatbeeq Barnamij Mutakamil Liksab Maharat Al Hija Lilatfal Zawat Suoobat Al Taleem Fi Doh Al Namoozaj Al Kulli Liwazaif Al Mukh*. Unpublished Master dissertation. Egypt: College of Education, Kafrelsheikh University.
- Fathi, A., & Ahmadi, K. (2006). Verbal and non verbal intelligence dyslexia –Dystrophic students and normal students. *Arch. Med, Sci*,

- 2(1), 42-46. Retrieved from
<http://journals.indexcopernicus.com/abstract.php?icid=447753>
- Fedler, D., Hodapp, R., & Elisabeth, M. (2002). Co-articulation of lip rounding. *J. of Speech and Hearing Research, 11*, 707-721. doi: [10.1044/jshr.1104.707](https://doi.org/10.1044/jshr.1104.707)
- Fjortoft, A., McLaughlin, T., Derby, M., Everson, M., & Johnson. (2014). The effects of two direct instruction teaching procedures to basic skills to two elementary students with disabilities. *Multidisciplinary Journal of Educational Research, 4*(2), 151-181. doi: [10.4471/remie.2014.09](https://doi.org/10.4471/remie.2014.09)
- Gibson, D. (2003). Effects of grammar facilitation on the phonological performance of children with speech and language impairments. *J. Speech and Hearing Research, 37*, 594-607. doi:[10.1044/jshr.3703.594](https://doi.org/10.1044/jshr.3703.594)
- Hanson, M. J. (2002). Efficacy of speech therapy in children with language problems: specific language impairment compared with language impairment in co-morbidity with cognitive delay. *International Journal Paediatric Otorhinolaryngology, 63*(2), 129-136. doi: [10.1016/S0165-5876\(02\)00004-6](https://doi.org/10.1016/S0165-5876(02)00004-6)
- Harris, M., Helling, J., Thompson, L., Neyman, J., McLaughlin, T. F. Hatch, K., & Jack, M. (2015). The effects of a direct instruction flashcard system to teach two students with disabilities multiplication facts. *International Journal of Applied Research, 1*(3), 59-65. Retrieved from
<http://www.allresearchjournal.com/vol1issue3/PartB/issue/vol1issue3.html>
- Hayter, S., Scott, E., McLaughlin, T. F., & Weber, K. P. (2007). Use of the modified direct instruction flashcards system with two high school students with developmental disabilities. *Journal of Developmental and Physical Disabilities, 19*, 409-415. doi: [10.1007/s10882-007-9059-3](https://doi.org/10.1007/s10882-007-9059-3)
- Herberg, K., McLaughlin, T.F., Derby, K.M., & Gilbert, V. (2011). The effects of direct instruction flashcards on shape recognition and recall for two pre-schoolers with disabilities. *Academic Research International, 1*(3), 59-64. Retrieved from
[http://www.savap.org.pk/journals/ARInt./2\(2\)/2012\(2.2-26\).pdf](http://www.savap.org.pk/journals/ARInt./2(2)/2012(2.2-26).pdf)
- Heward, W. L. (2013). *Exceptional children: An introduction to special education (10th ed.)*. Upper Saddle River, NJ: Pearson Education.

- Hopewell, K., McLaughlin, T. F., & Derby, K. M. (2011). The effects of reading racetracks with direct instruction flashcards and a token system on sight word acquisition for two primary students with severe conduct disorders. *Electronic Journal of Research in Educational Psychology*, 9, 693-710. Retrieved from <http://www.investigacion-psicopedagogica.org/revista/new/english/antiores.php>
- Houglum, R., McLaughlin, T. F., Weber, K., Neyman, J., & Gould, C. (2013). The effectiveness of direct instruction flashcards with guided practice activities to instruct two elementary students diagnosed with autism spectrum disorder and delays in pre-academics and communication. *International Journal of Basic and Applied Science*, 2(1), 11-38. Retrieved from <http://www.insikapub.com/>
- Iwad, A. A. (2009). *Faaliyat Istratijiya Muqtariha Fi Ilaj Al Daaf Al Qirai Wa Al Kitabi Wa Al Tahseeli Fi Al Lugha Al Arabiya Laday Baad Tilmeethat Al Saf Al Tasi Min Al Taaleem Al Asas.*, Masters dissertation, Egypt: Kafralesheikh University press.
- Kaufman, L., McLaughlin, T. F., Derby, K. M., & Waco, T. (2011). Employing reading racetracks and DI flashcards with and without cover, copy, and compare and rewards to teach of sight words to three students with learning disabilities in reading. *Educational Research Quarterly*, 34, 24-44.
- Kroll, L., McLaughlin, T.F., Neyman, J., Johnson, K., & Beiers, K. (2013). The effects of direct instruction on reading first grade high frequency sight words with a student with severe conduct disorders. *Educational Research International*, 2(1), 13-21. [http://www.erint.savap.org.pk/PDF/Vol.2\(1\)/ERInt.2013\(2.1-02\).pdf](http://www.erint.savap.org.pk/PDF/Vol.2(1)/ERInt.2013(2.1-02).pdf)
- Lund K, McLaughlin T. F., Neyman, J., Everson, M. (2012). The effects of DI flashcards and math racetrack on multiplication facts for two elementary students with learning disabilities. *Journal of Special Education Apprenticeship*, 1(1), 1- 15. Retrieved from <http://josea.info/archives/vol1no1/article-04-FT.pdf>
- Mahmood, O. (2007). *Baad Simat Al Shakhshiya Wa Al Maharat Al Ijtimaiyya Laday Al Atfal Min Thawat Suoobat Al Taaleem: Dirasa Sykolojiya Fi Mukhayyimat Al Lajjeen Al Filisteeniyeen Fi Lubnan*, Masters dissertation, Lebanon: Department of Psychology, Arab Beirut University.

- Mohammed, S. I. (2001). *Faaliyat Al Taallum Al Ilaji Fi Takhfeef Suoobat Al Taallum Al Nimaiya Laday Tilmeethat Al Marhala Al Ibtidaiya*, Doctoral dissertation, Egypt: College of Education, Ain Al Shams University.
- Mangundayao, J., McLaughlin, T. F., Williams, R. L., & Toone, E. (2013). An evaluation of the direct instruction flashcards system on acquisition and generalization of numerals, shapes, and colors, for pre-school aged students with developmental delays. *Journal of Developmental and Physical Disabilities*, 25, 461-473. doi:10.1007/s10882-012-9326-9
- Page-Voth, V., & Graham, S. (2002). Effects of goal setting with performance and self-efficacy of students with writing performance and self-efficacy of students with writing and learning disorders. *Journal of Educational Psychology*, 91(2), 68-82. doi: 10.1037/0022-0663.91.2.230
- Ruwe, K., McLaughlin, T. F., Derby K. M., & Johnson, J. (2011). The multiple effects of direct instruction flashcards on sight word acquisition, passage reading and errors on three middle school students with intellectual disabilities. *Journal of Developmental and Physical Disabilities*, 23, 241-255. doi:10.1007/s10882-010-9220-2
- Salaah, U.A.M. (2002). *Barnamij Muqtarah Lilaj Suoobat Taallum Al Qiraa Wa Al Kitaba Laday Tilmeethat Ghuraf Al Masadir Bi Al Madrasa Al Taseesiya Bi Dolat Al Imarat Al Muttahida*. Unpublished doctoral dissertation, Egypt: Childen's advanced studies institution, Ain Al Shams University.
- Seines, A., McLaughlin, T. F., Derby, K. M., Weber, K. M., & Gortsema, K. (2015). The effects of direct instruction flashcards on sight word skills of an elementary student with a specific learning disability. *International Journal of Advances in Scientific Research*, 1(3), 167-172. Retrieved from <http://www.ssjournals.com/index.php/ijasr/issue/view/218>
- Silbert, J., Carnine, D., & Stein, M. (1981). *Direct instruction mathematics*. Columbus, OH: Merrill Publishing Company.
- Skarr, A., McLaughlin, T. F., Derby, K.M. Williams, R. L. & Meade, K. (2012). A comparison of direct instruction flashcards and copy, cover, compare to teach spelling to elementary school students. *Academic*

Research International, 2(2), 247-263. Retrieved from
[http://www.savap.org.pk/journals/ARInt./2\(2\)/2012\(2.2-26\).pdf](http://www.savap.org.pk/journals/ARInt./2(2)/2012(2.2-26).pdf)

- Skarr, A., Zielinski, K., Ruwe, K., Sharp, H., Williams, R. L., & McLaughlin, T. F. (2014). The effects of direct instruction flashcard and math racetrack procedures on mastery of basic multiplication facts by three elementary school students. *Education and Treatment of Children*, 37, 77-93.
- Tan, A., & Nicholson, T. (1997). Flashcards revisited: Training poor readers to read words faster improves their comprehension of text. *Journal of Educational Psychology*, 89(2), 276-288. Retrieved from <http://psycnet.apa.org/journals/edu/89/2/276/>
- Thomas, R., McLaughlin, T. F., & Derby, K. M. (2015). Employing direct instruction flashcards to teach academic skills to students with high incidence disabilities: a review. *International Journal of English and Education*, 4(4), 404-421. Retrieved from http://www.ijee.org/yahoo_site_admin/assets/docs/35.27214055.pdf
- Ulring, A. M., McLaughlin, T. F., Neyman, J., & Waco, T. (2012). The differential effects of direct instruction flashcards and reading racetracks on sight word accuracy on three elementary students with learning disabilities. *Academic Research International*, 2(2), 406-420. Retrieved from [http://www.savap.org.pk/journals/ARInt./2\(2\)/2012\(2.2-46\).pdf](http://www.savap.org.pk/journals/ARInt./2(2)/2012(2.2-46).pdf)

Mona Saleh Alanazi is researcher at the Department of Education, College of Arts and Science, Rafha Female Campus, Northern Border University.

Contact Address: Department of Education, College of Arts and Science, Rafha Female Campus, Northern Border University, PO Box: 1189, Pin Code: 91911, Rafha, Kingdom of Saudi Arabia. Tel: 966-056-373-6333.

E-mail: mona70546@gmail.com