



The Effect of Resource Room on Improving Reading and Arithmetic Skills for Learners with Learning Disabilities

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Abstract

This study aims to measure the effect of resource room on improving reading and arithmetic skills for learners with learning disabilities. The sample for this study consisted of sixty (60) students nominated to joining the resource room in the Najran, Kingdom of Saudi Arabia. The students were divided equally into two groups, control and experimental. The experimental group joined the resource room, while the control group received their lessons in a regular class. The results revealed statistically significant differences favoring experimental group members, these differences, however, could not be attributed to gender.

Keywords: Resource rooms, reading and arithmetic skills, learning disabilities.

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INTRODUCTION

Special education has become one the most important fields in education and an increasing number of countries are devoting time and resources to supporting students with learning disabilities. There are a number of national and global agencies and organizations whose purpose is to assist these students and a great many conferences and conventions focused on learners with disabilities have been organized. A growing concern about learners with learning disabilities is also reflected in the establishment of numerous special education schools and centers and in the specialized training courses delivered for those working in the field of special education. Special education programs in schools include preventive programs (early intervention), therapeutic programs, (addressing the cause of disabilities through teaching and training), and compensatory programs (providing tools to learners to help them adapt to their disabilities) (Friend & Bursuk, 2002).

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Teaching learners with learning disabilities requires providing special services that will enable them to receive the utmost benefit from the curriculum – modifications of the current curriculum or new special education programs. Learners with learning disabilities need services that will enable them to develop, affirm themselves, and ensure their integration in the regular class and broader community. This means offering up the maximum investment in their cognitive, social, professional, and emotional potentials (Fraihat, 2007).

Special education programs seek to provide quality programs that eventually lead to effective educational output that helps learners with learning disabilities to progress and develop. A number of researchers recently sought to assess the inputs in the education process (teacher, curriculum, administration, school facility, equipment, and instructional methodologies) given the difficulty of assessing educational output (achievement). Educational inputs are, in fact, considered one of the criteria through which the effectiveness of the educational process can be assessed (Hallahan et al, 2005).

Educational alternatives, where educational services for learners with learning disabilities are offered, vary. Generally, educational alternatives refer to a group of therapeutic and educational programs through which educational services are provided according to each student's needs (Al-Khateeb & Hadidi, 2010). One such educational alternative is the resource room – a room, annexed to the regular school that provides special educational services to learners with learning disabilities. Learners participating in a resource room will receive special academic and behavioural classes. They receive these classes according to a certain schedule and in addition to their other regular classes (Lerner, 2003).

Al-Zoubi (2011) and De l'Eoile (2005) note that learning disabilities can include an inability to learn certain academic skills, such as reading, writing, spelling, and math. Some students suffer from difficulty in one subject, while others may have difficulty with two, more or even all subjects. Resource rooms are critical in that they provide important supplementary services for learners with learning disabilities in regular schools. They also tend to draw the attention of researchers, educators, and parents, and yet they remain a controversial issue in the field of special education.

According to McNamara (1985) there are two methodologies generally used in resource room activities and programs. The first is based on specific aspects of the disability and a process is followed in order to enable the learner to acquire the basic skills needed for academic progress. The second is based on providing academic support for the activities conducted in the regular class. McNamara (1985) notes that teaching basic skills should, as much as possible, be the focus of early periods in the resource room.

Sartawy and Abu Nyan (1998) identify a group of basic resource room activities including providing diagnosis and assessment scales to detect learners with learning disabilities, providing proper instructional methodologies, teaching learners in groups that take into account the kind and degree of the learning disabilities of each learner, and planning and cooperation between the regular class teacher and resource room teacher.

Resource rooms can be divided as follows:

- **Categorical Resource Room.** This is the most common type of resource room. In this kind of resource rooms, learners with learning disabilities and behavioral and emotional disorders share one resource room (McNamara, 1989; Bender, 2008). This type of resource rooms is presently used in the Kingdom of Saudi Arabia.
- **Cross-Categorical Resource Rooms.** In this type of resource room, learners are divided according to their needs without much attention given to traditional categories. While this division may not help teachers to build suitable educational programs, attention is paid to similar identifying students with needs, such as academic, behavioral and physical needs (Bender, 2008).
- **Non-Categorical Resource Rooms.** This type of resource rooms requires highly trained instructors because a high percentage of learners with learning disabilities are unprepared for special education, but are receiving it on trial basis in order to discover the extent to which they need these services (Bender, 2008; Hallahan et al, 2005; McNamara, 1989).

A number of recent studies have been conducted on resource rooms, their programs and their effectiveness:

- Philips (1990) sought to investigate the satisfaction of students and teachers with a particular educational program used in teaching learners with learning disabilities in resource rooms. This program aimed to develop students' self-awareness and the results revealed that parents were highly satisfied with the resource rooms.
- Stephenson (1992) set out to explore the level of satisfaction of the parents of learners with learning disabilities in terms of integration in the resource room, regular classroom, and special classes. The results show that the parents were highly satisfied with their children joining the resource rooms and the services provided for them.
- Susana (1995) investigated the appreciation of learners with learning disabilities for the services provided in the resource room. The results revealed that the learners in the resource room desired more assistance from the teacher.
- Bentum & Aron (2003) explored the effect of instruction in the resource room on IQ. The results indicated that teaching the students in the resource room had not helped the learners improve their reading skills.
- Naser (2006) assessed resource rooms in Jordan and proposed a new educational program for them. The results of this study showed the need reconsider a number of elements in resource rooms including diagnosis, equipment, curriculum, teaching strategies and the application of educational technology.
- Fraihat (2007) conducted a study looked at services in the resource rooms from the perspective of parents and regular classroom teachers. The results revealed that both were satisfied with the services offered in the resource rooms for learners with disabilities.
- Al-Natour, Alkhmara, & Al-Smadi, (2008) investigated the assessment practices used by resource room teachers to identify learners with learning disabilities and the obstacles encountered in these practices. The results revealed that the teachers most often depended on achievement tests to assess learners and they encountered obstacles in the referral process.
- Ismail, Al-Zoubi, Bani Abdel Rahman and Shabatat (2009) measured the effect of a training program module on improving knowledge competencies for resource room teachers. The results revealed that the module did improve competencies for teachers in the experimental group.
- Al-Khateeb and Hadidi (2009) assessed the level of satisfaction of resource room teachers and of the parents of learners with learning disabilities about the services provided in the resource rooms. Teachers in the resource rooms were satisfied with the work in the resource room but not with the parents who fail to participate in the programs of the resource rooms.
- Al-Zoubi, Ismail, and Bani Abdel Rahman (2010) analyzed an in-service training program aimed at improving the performance competencies of resource room teachers. The results revealed that the training program has improved the performance competencies of teachers in experimental group.
- Moreover, Sabbah & Shanaah (2010) investigated the effect of resource rooms from the perspective of principals, teachers, and educational supervisors. The results showed that principals, teachers and educational supervisors are highly satisfied with the effectiveness of the resource room and its tools, methodologies, educational programs and equipment.
- Bataineh and Al-Shehry (2010) explored the effectiveness of different resource room components from the perspective of resource room teachers. In this study, resource room teachers ranked aides and methods first, the progress of the educational program second, the instructional curriculum third, and resource room equipment fourth/last.
- Somaily, Al-Zoubi, and Bani Abdel Rahman (2012) looked at the attitudes of parents of children with learning disabilities towards the resource room. The attitudes of parents were generally quite positive.

The educational program applied in the resource rooms in the Kingdom of Saudi Arabia is a parallel curriculum focused on the basic skills of reading and arithmetic. This program depends on the assumption that the learners in the resource room have not mastered basic skills in reading and arithmetic. In the skills assessment and diagnoses stage, however, the resource room instructor defines the strengths and weaknesses of each learner. The instructor thus determines the extent of the disability before designing an educational program based on the learner's existing reading and arithmetic skills. The preferred instructional methodology is one based on small group work with learners who share the same weaknesses.

The Kingdom of Saudi Arabia is presently witnessing remarkable developments in the field of special education services. This is reflected in the keenness of the Ministry of Education to open resource rooms for learners with learning disabilities all over the Kingdom. This study emerged from this keenness and seeks to investigate the effect of resource rooms programs on improving the skills of reading and arithmetic for learners with learning disabilities. In order to ensure success, a number of factors must be present in resource rooms. These include the appropriate equipment, educational methodologies, and educational programs. The effectiveness of each of these factors as they now exist must thus be assessed.

METHODOLOGY

The population of the study consisted of all students with learning disabilities in the resource rooms in Najran, Kingdom of Saudi Arabia. The sample, however, consisted of (60) students, males (n=30), and females (n=30, who were randomly chosen. The sample was divided into two groups each of (30) students. One of the two groups was randomly chosen as a control group and the other as an experimental group. Students in the experimental group attended the resource room for a full school year, while students in the control group received their education in a regular class.

Research Instruments

Standardized Diagnostic Scales in Reading and Arithmetic, accredited by the Ministry of Education in Kingdom of Saudi Arabia, were used in this research. They were used to investigate the strengths and weaknesses of students with learning disabilities in these academic fields. The Reading Diagnostic Scale consists of alphabet recognition skills, alphabet breaking and combining skills, skills related to assessing letter position in words, and skills related to letter that are similar in pronunciation but differ in writing. The Arithmetic Diagnostic Scale consists of number recognition, writing two digit numbers, understanding the (>) and (<) sign, adding two decimal digit numbers, recognizing geometric shapes, and addition and subtraction skills.

RESULTS

Before answering the study questions, researchers ensured that the two groups were at equal reading and arithmetic pretest levels. The means and standard deviations were computed for the two groups in the pretest period in reading and arithmetic. Table 1 shows the results.

Table1: Means and standard deviations in the pretests of the two groups

Test	Independent Variable	Levels	Mean	SD
Reading	Group	Control	39.90	7.067
		Experimental	39.66	6.509
	Gender	Male	35.90	5.961
		Female	43.66	5.060
Arithmetic	Group	Control	40.46	7.713
		Experimental	36.30	7.465
	Gender	Male	39.80	7.572
		Female	36.96	7.919

Table 1 shows that there are differences between the means of the two groups in the pretest of reading and arithmetic based on the two variables, (group & gender). To investigate the statistical significance, ANOVA was used in the reading test as shown in Table 2.

Table 2: ANOVA results for two groups in reading pretest

Variable	Source of variance	Σ	Df	Means Squares	F	Sig.
Group	Within	6.217	1	.270	1.108	.383
	Between	8.783	58	.244		
Gender	Within	7.650	1	.333	1.629	.092
	Between	7.350	58	.204		

Table 2 shows that there are no significant differences between the members of the two groups in the reading pretest that can be attributed to either of the two variables: gender and group. These results lead to the conclusion that the two groups are comparable and there are no circumstances favoring either in the reading pretest. To investigate the statistical significance of the performance of the two groups on the arithmetic pretest, ANOVA was used and results are shown in Table 3.

Table 3: ANOVA results for two groups in arithmetic pretest

Variable	Source of variance	Σ	df	Means Squares	F	Sig.
Group	Within	6.150	1	.256	1.013	.477
	between	8.850	58	.253		
Gender	Within	5.700	1	.238	0.894	.607
	Between	9.300	58	.266		

Table 3 shows that there are no statistical differences between the performances of the two groups in arithmetic pretest that can be attributed to gender or group. These results lead to the conclusion that the two groups are equivalent and that there are no circumstances favoring either in the arithmetic pretest.

This study is guided by three research questions: what is the effect of the resource room on improving reading skills of learners with learning disabilities? What is the effect of resource room on improving arithmetic skills of learners with learning disabilities? In addition, is there an effect of resource room on improving reading and arithmetic skills of learners with learning disabilities attributable to gender? In order to answer these questions, the means and standard deviations of the performance of the two groups in the reading and arithmetic skills are investigated by the posttest. Table 4 shows the results.

Table 4: Means and standard deviations in the posttests of the two groups

Test	Independent Variable	Levels	Mean	SD
Reading	Group	Control	43.33	7.058
		Experimental	71.83	4.410
	Gender	Male	55.60	17.45
		Female	59.56	13.28
Arithmetic	Group	Control	48.16	8.917
		Experimental	69.76	7.568
	Gender	Male	58.40	1.394
		Female	59.53	1.353

Table (4) shows that there are differences between the performance of the two groups in the posttest in reading and arithmetic. In order to investigate the statistical significance, ANOVA was used for the reading posttest, as shown in Table 5.

Table 5: ANOVA results for the means of the two groups in reading posttest

Variable	Source of variance	Σ	df	Means Squares	F	Sig.
Group	Between	12183.750	1	12183.750	351.775	.000*
	Within	2008.833	58	34.635		
Gender	Between	236.017	1	236.017	.981	.326
	Within	13956.567	58	240.630		

$\alpha \leq .05$

Table 5 shows that there are statistically significant differences at $\alpha \leq .05$ in the reading posttest where the $F = 351.775$ and $P = .000$. This is a statistically significant difference favoring the members of the experimental group. Table 5 confirms that these differences cannot be attributed to gender. It is also clear from Table 5 that there are differences in the means of the two groups in arithmetic posttest. In order to investigate the statistical significance of these, ANOVA was used for the arithmetic posttest as shown in Table 6.

Table 6: ANOVA results for the means of the two groups in arithmetic posttest

Variable	Source of variance	Σ	Df	Means Squares	F	Sig.
Group	Between	6998.400	1	6998.400	102.307	.000*
	Within	3967.533	58	68.406		
Gender	Between	19.267	1	19.267	0.102	.750
	Within	10946.667	58	188.736		

$\alpha \leq .05$

Table 6 shows that there are statistically significant differences at $\alpha \leq .05$ for the arithmetic posttest where $F = 102.307$ and $P = .000$. This is a statistically significant difference in favor of the experimental group. Table 6 also shows that these differences cannot be attributed to the gender.

DISCUSSION AND CONCLUSION

This study has investigated the effect of resource room on improving reading and arithmetic skills for learners with learning disabilities. Instruction in this resource room is based on an individualized educational program which assesses the current performance level of learners by identifying their strengths and weaknesses and tailoring learning to these strengths and weaknesses. Vaughn, Elbaum & Boardman (2001) note that the effectiveness of instruction in resource rooms in terms of improving the performance of learners with learning disabilities, especially when teaching students in a less restrictive environment, increases their acceptance in the community and improves their social skills and self-esteem. Saeed (2002); Mohammed (2002); Al-Smadi (1996); Abu Alia & Mulhem (1998) explored the effectiveness of resource rooms and found improvements in reading, writing, and arithmetic, and reductions in the behavioral problems of learners with learning disabilities. This study also found that learners joining a resource room were able to master the basic academic skills in the early elementary stage.

Calhoun and Fuchs (2003) found that teaching mathematics in the resource room for a number of learners with learning disabilities contributed to improving their performance and motivation for learning. Englert, Wu and Zhao (2005) investigated the effect of planned assessment and the application in the Internet on the writing performance for a group of learners with learning disabilities joining the resource room. Their results showed that student writing improved noticeably, especially the writing of organized texts.

The visual, auditory, and sensory instructional methodologies used by resource room teachers play a significant role in improving the academic skills of learners with learning disabilities. Some of these include the Fernald, Orton–Gillingham and multisensory strategies. The educational methods used by resource room teachers likewise play an important role in the enrichment of the teaching and learning process and expanding the expertise of learners, and this was confirmed by Al-Makahleh (2011).

Resource room teachers have an important role to play in terms of designing the individualized educational programs that address the special needs of the students joining the resource room. As active members in each student's individualized education program, these teachers are also a critical link between learning in the resource room and both regular classroom teachers and parents. According to McQuarrie and Zarry (1999) resource room teachers play numerous roles that all contribute to improving the academic skills of learners with learning disabilities. They also perform/offer evaluation, guidance, and cooperation with/for parents, teachers of the regular classrooms, and school administrators.

Despite the effect of resource rooms in terms of improving the reading and arithmetic skills of learners with learning disabilities, some studies found that the performance of learners declined after receiving instruction in the resource room. Elbaum (2002) showed, for example, that the self-esteem of learners with learning disabilities declined after joining a resource room when compared with their peers in the regular classes. Bryan, Burstein & Egul (2004), point out however, that learners with learning disabilities tend to be more susceptible to social and emotional problems when compared with their regular classroom peers. They tend to suffer from low self-esteem and a lack of acceptance by others. Part of this may stem from low social cognition and the misunderstanding of the feelings and reactions of others. Bender, Rosenkrans and Crane (1999) contend that the social and emotional problems of learners with learning disabilities tend to be more pronounced among those who struggle with mathematics. They are also more visible among students who have difficulty performing place-visual tasks, those challenged by self-organization, and those with nonverbal disabilities. Wong and Donahue (2002) affirm in their study that learners with learning disabilities lack the social acceptance that enables them to socialize with their regular peers.

Finally, Bentum & Aaron (2003) found that the spelling abilities of learners with learning disabilities become better after spending three years in the resource room. Resource rooms in this study, however, did not improve reading comprehension or word recognition. This latter failure of resource rooms, according to the authors, may be attributable to the positive or negative role played by resource room teachers, their experience, motivation, and attitude towards their work, and the availability of various instructional methodologies that attract the learners and help them to improve and succeed academically.

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