

General Education Teachers' and Learning Disabilities Teachers' Level of Knowledge of Differentiated Instruction

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Abstract: The aim of this study was to investigate the knowledge level of general education teachers (Arabic language teachers) and learning disabilities teachers of Differentiated Instruction. The study sample consisted of 318 teachers of whom 233 were Arabic language teachers and 85 were learning disabilities teachers who are in government primary schools in the city of Jeddah for the academic year 2011/2012. The schools have resource rooms and been selected as convenience sample. To achieve the objective of the study, the researcher prepared a study tool, consisted of a 25-item achievement test with indications of validity and reliability being figured out. The results of the study showed that the knowledge level of Arabic language teachers and learning disabilities teachers was low on the total score, which averaged 10.62. The results of the study also pointed out that there were no statistically significant differences attributed to the specialty.

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1. Introduction:

Schooling students with learning disabilities in regular classes is an important issue in the field of special education in general and the field of learning disabilities in particular. This concern has grown because it is associated with the principles presented in Individuals with Disabilities Education Act (IDEA), particularly the principle of the education of individuals with Disabilities in the least restrictive environment. Ivory (2007) pointed out that the principles presented in both IDEA (amended in 1990) and No Child Left Behind Act, have contributed to the emergence of Differentiated Instruction Approach. These principles have contributed to the support of finding ways to help regular teachers to teach all students with disabilities in regular classes, something comes in harmony with the international attention to the education of children in the general educational framework.

This concern necessitates the preparation of teachers to teach effectively those growing numbers of students with diverse challenges and educational needs, which requires teachers' preparation programs to improve lessons and experiences in this field (Ernest *et al.*, 2011). The differentiated instruction was one of the methods that have benefited from these laws in the education of such students. This was confirmed by Tomlinson when interviewed by the *North American Journal of Psychology*, 2010 about Differentiated Instruction Approach, where she stressed that higher education needs to help teachers before and during the service by training them to deal with students of different disabilities in regular class.

The Differentiated Instruction is one of the modern methods used to teach students with special needs in regular classes, where this method teaches students within their abilities, interests, and learning profiles in a way that allows investing the academic capabilities of students in learning (Tomlinson, 2005; Bender, 2008). Differentiated Instruction is also a method which is aware of diversity of backgrounds in terms of knowledge, readiness, language, preferred style of learning, and interests. So the basic focusing of the Differentiated Instruction is to organize learning to meet the varied needs of students, and to teach each student according to his abilities and faculties (Hall, 2002).

One of the fundamental principles on which the Differentiated Instruction is based is to increase the growth and success of the student by knowing his level and then help him in the learning process (Hall, Strangman & Meyer, 2003; the Center for Comprehensive School Reform and Improvement, 2009; Huebner, 2010). Differentiated Instruction seeks to be the curriculum, pedagogical approach and the desired output achieved in line with these concerns, preparations and learning methods. In other words, there must be a curriculum that is adapted to the needs of the student, rather than adapting the students to the needs of the curriculum.

This does not mean that the Differentiated Instruction calls for an independent curriculum to be designed for each student with learning disabilities in the regular class, but it calls for the knowledge of particular needs of each student in order for the teacher to take them into account in educating

students with learning disabilities in the regular classroom. The Differentiated Instruction is an effective and important tool to be applied in the classroom to meet the needs and patterns of students with learning multiple intelligence, which encourages them to use systems of higher order thinking, but at the same time we must remember that the decision about how to modify the curriculum to suit the students must be fully dependent on every need of individual student (Bailey & Williams-Black, 2008).

Hence, there is talk about the importance of identifying the level of knowledge of teachers of general education (Arabic language teachers) and learning disabilities teachers of Differentiated Instruction as a programmed method for the preparation of regular teacher (Arabic language teacher) on how to deal with students within the requirements of inclusion to ensure that the regular teacher has the necessary skills and competencies to deal with people with learning disabilities in regular class in line with modern trends and laws that affirm the right of every child to learn.

Literature review

The Differentiated Instruction is a deep-rooted method in educational theory and practice (Ernest *et al.*, 2011). In the past the Differentiated Instruction has mainly targeted gifted and talented students, but now it has become a teaching tool used by teachers in their instructional plans to meet the needs of all students, (Berger, 2000; Bailey & Williams-Black, 2008).

Tomlinson (2001) identified three basic elements to modify the lesson plan in order to apply Differentiated Instruction Approach in the classroom effectively. These elements are: (1) Differentiating content (2) Differentiating the process (3) Differentiating the product. These elements would be intended to meet the needs of individual students in the classroom, where the teacher can provide students with Differentiated Instruction in one or all the aspects mentioned earlier.

First: Differentiating the Content

Tomlinson (2001) indicates that the content of the curriculum can be taught by two questions:

- How to adapt what we want to teach?
- How to adjust, present, and facilitate students' access to what we want them to learn?

In preparing the content, the teacher should target what he wants students to be good at. The differentiation of content requires that the teachers either adjust or modify what they want to give to students to access the subject that they want to access. (Hall, 2002; Ivory, 2007; Bailey & Williams-Black, 2008).

Secondly: Differentiating the Process

The process involves how students interact with the content, and such interactions are determined by diverse learning preferences of the students (Bender, 2008) and the process to differentiate how we can teach the content, for example: differentiate individual skills and the use of different models, lesson tables, sources, groups or different roles for students, (Burns, 2004; Ernest *et al.*, 2011). The application of differentiating process depends on three elements (Hall, 2002; Ivory, 2007), they are:

- **Readiness**

Where groups of students in each grade are divided according to their readiness, so groups of students may share the same educational goal but the activities to achieve the goal may vary according to the interest of each group (Ivory, 2007).

- **Interests**

In addition to relevant skills and interests, Tomlinson (2001) pointed out that the aim of differentiating interests is to help students access the new information and help them to understand,.

- **Learning Profile**

The individual educational status is influenced by the learning pattern, and by the actual attention, sex, and culture. So the objective of differentiated learning profile is to help students learn in different ways, so that they learn better, as well as to expand these methods to enable students to learn effectively (Ivory, 2002).

Thirdly: Product

The product is what is developed by the student to demonstrate an understanding of the content that he/she has learned. The differentiating of the product encourages students to describe what they have learned in the different forms that reflect their knowledge and ability to control the idea, (Bailey & Williams-Black, 2008). It should be noted here that the students' learning styles will help the teacher decide on the types of activities he desires to achieve from education of students, (Bender, 2008).

Several studies have confirmed the importance of knowing the differentiated instruction and its applications in regular class and whether these applications commensurate with the practices of inclusion and to what extent they are successful in improving the performance of students with special needs in regular classrooms.

The results of study conducted by Ernest *et al.* (2011) showed that there were great advantages in the differentiated instruction in increasing the success of students with disabilities. Also the results of the study conducted by Konder (2007) to identify the effects of differentiated instruction on motivation of gifted and talented students confirmed that the differentiated instruction has improved the students' integration, motivation and increased their participation as well.

To find out whether the general education teachers differentiate and how they differentiate in their teaching of students during pre-reading and writing (literacy) in their classrooms. Baily and Williams-Black (2008) conducted a study entitled "Differentiated Instruction: Three Teacher's Perspectives". The tool of the study consisted of a questionnaire on the differentiated instruction, and it was sent to 24 teachers across the country to find out what happened in their classrooms. Fourteen teachers have responded to this questionnaire, and it was found that three teachers only made it clear that the Differentiated Instruction was similar to the literature, and they understand what Differentiated Instruction means. Then they were interviewed and observed in order to discover how they differentiate instruction. The researcher found out that two of the three teachers did differentiate the content during instruction, while all the three teachers differentiated the process that was used to help students learn the content. None of the three teachers did differentiate the product, as they did not have the option to explain how students show their understanding of the studied content.

Scott & Spencer (2006) carried out a survey study to identify teachers' beliefs about the use of Differentiated Instruction strategy and about inclusion teaching practices for students with learning disabilities. The study sample consisted of (64) teachers in five schools. The results showed that 8% of the respondents reported that it was possible that none of the students would be able to pass and 41% of the respondents were not sure whether all students would pass. Not all teachers believe that they could ensure success by adapting the curriculum. Moreover, 17% of the respondents thought that students with learning disabilities delay the non-disabled ones.

Logan (2011) tried in her study to identify the level of knowledge of general education teachers to present Differentiated Instruction in the classroom, and examined the ability of teachers to identify tagged components to teach Differentiated Instruction. The study tool was a questionnaire consisted of 16 questions collected through extensive review of the literature, the tool has been applied to 141 teachers, 38 of them were males and 103 were females. The results showed that 94.3% agreed that they need to show respect for their students regardless of the class they belong to and 92.1% of the teachers agreed that the Differentiated Instruction has to focus on the ideas and basic skills in each area of the content. The overall result which the researcher is convinced of is that the responses reflect vital principles that Differentiated Instruction is still in its built on phase, also the teachers stressed that it is necessary to modify the content, processes, evaluation

and subjects in Differentiated classroom. The results also confirmed that 90.79% of the teachers oppose the view that the Differentiated Instruction has one way to differentiate teaching.

Objective of the Study

This study aims to identify the level of knowledge of general education teachers (Arabic language teachers) and learning disabilities teachers of Differentiated Instruction.

Problem of the Study and Questions

The problem of the study is to identify the level of knowledge of general education teachers (Arabic language teachers) and learning disabilities teachers of Differentiated Instruction for students with learning disabilities. Hence, the problem of the current study is determined by answering the following two questions:

- 1) What is the level of knowledge of general education teachers (Arabic language teachers) and learning disabilities teachers of Differentiated Instruction?
- 2) Does the level of knowledge of general education teachers (Arabic language teachers) and learning disabilities teachers vary according to specialty?

Importance of the Study

Based on what has been said previously about the importance of Differentiated Instruction in teaching students with learning disabilities - especially by regular classroom teacher - and the need that he knows how to teach students with learning disability and targets them in the regular class, so the importance of this study lies in identifying the level of knowledge of regular teachers (Arabic language teachers) and learning disabilities teachers of Differentiated Instruction in teaching and improving the level of education of students with learning disabilities in regular class.

Limitations of the Study

- 1 - This study was limited to male teachers (Arabic language teachers and learning disabilities teachers) at the primary level in government schools in the city of Jeddah.
- 2 - Response of the study members to the achievement test.
- 3 - This study was carried out during the academic year 2011/2012.

Terms of the Study

Differentiated Instruction

It is an educational method/trend/approach through which the teacher adjusts his lesson plan and the method of education based on the differences and diversities among students in terms of readiness, interests, and learning profiles in the regular class. In this study, the researcher depends on the tool he has developed to find out the extent of teachers' knowledge of Differentiated Instruction.

Arabic Language Teacher

He is an Arabic language teacher at the elementary level from first to sixth grades.

Resource Room Teacher

He is a learning disabilities teacher appointed by the Ministry of Education in Jeddah for public schools at the elementary level. He teaches students with learning disabilities who have been classified on the basis of the diagnosis basics approved in public schools in the city of Jeddah.

2.Methods**Research Methodology**

The current study includes a method of research to achieve the objectives of the study. Descriptive survey method has been used to answer the two questions of the study, where the independent variable in this study was the specialty and the dependent variable was the level of teachers' knowledge of Differentiated Instruction represented primarily in the achievement test score that measures it.

The Study Population and Sample

The current study population consists of all Arabic language teachers and learning disabilities teachers at the primary level in government schools during the academic year 2011-2012. The study was conducted on a sample of 318 Arabic language teachers and learning disabilities teachers in all government primary schools in the city of Jeddah. All the schools have been selected based on the existence of source rooms. Table (1) shows the distribution of the study sample on the variables.

Table (1) Frequencies and percentages according to the variables of the study

Categories	Frequency	Percentage
Arabic language teacher	233	73.3
Learning disabilities Teacher	85	26.7
Total	318	100.0

Study Tool**Table (2):Correlation coefficients between items and total score**

Item No.	Correlation coefficient with total score	Item No.	Correlation coefficient with total score	Item No.	Correlation coefficient with total score
1	.413**	10	.393*	19	.792**
2	.320*	11	.490**	20	.725**
3	.444**	12	.454**	21	**455.
4	.599**	13	.486**	22	.334*
5	.513**	14	.687**	23	.360*
6	.459**	15	.687**	24	.602**
7	.316*	16	.738**	25	.625**
8	.346*	17	.543**		
9	.441**	18	.544**		

* Statistically significant at the significance level (0.05).

** Statistically significant at the significance level (0.01).

To achieve the goal of this study, the researcher has prepared the following tool:

Achievement test measures the extent of teachers' knowledge of Differentiated Instruction, where this test has been prepared by reference to the previous literature related to the subject of the study, as well as through the researcher expertise in Differentiated Instruction.

Measure Validity**Content Validity**

To verify the content validity, the researcher presented the scale to ten arbitrators in the Department of Special Education at King Abdul Aziz University in order to express their views on the scale in terms of correct language, comprehensiveness of the questions and affiliation of each item to the dimension it measures, as well as the appropriateness of the options developed for each item. After retrieval of copies of the arbitrators, the researcher has taken all the notes into account and leaving all items without deleting any of them. The test consisted in its final phase of 25 items and the test scores range between 0-25 marks. The researcher has relied on the relative importance of the interpretation of the level of teachers' knowledge and considered that the scores which are less than 50 are low scores and those ranging from 50-70 are average, while scores greater than 70 are high.

Construct Validity:

To find out evidence of the tool construct validity, the correlation coefficients of the test items with the total score were figured out in a pilot sample (other than the study sample) consisted of 40 teachers. The tool items were analyzed and the discrimination coefficient of each item was calculated, where the discrimination coefficient here represents an indication of validity for each item in a form of correlation coefficient between each item and the total score, the items correlation coefficients with the total score ranged between 0.316-0.792, and table 2 shows that.

It should be noted that all the correlation coefficients had acceptable scores and were statistically significant; therefore no item has been deleted.

Tool Reliability:

To ensure the reliability of the tool, reliability coefficient has been calculated by repetition approach (reliability through repetition), where the test had been administered on a sample of 40 teachers from outside the study sample, and then re-applied after a month where the Pearson correlation coefficient between the first application and the second application reached 0.87.

Application Procedures

The achievement test, which measures the extent of teachers' knowledge of Differentiated Instruction had been applied in its final form on all members of the study sample, totaling 318 teachers in Jeddah, in order to achieve the objectives of this study. The process took almost a month and a half. Then the data was handled and appropriate statistical analyses were done.

Figuring out Grades

After applying the achievement test which measures the extent of teachers' knowledge of Differentiated Instruction, on the study sample, each item was given one score, the correct answer was given one score and the wrong answer was a zero score, then a total score per examined individual was calculated by aggregating all scores achieved by the examined individual on all items of the test, and thus the highest possible score of the test is 25 grades, and the lowest score is zero.

Results

This study aimed to identify the level of knowledge of general education teachers (Arabic language teachers) and learning disabilities teachers of Differentiated Instruction, and study the differences in the level of this knowledge according to specialty. The study tried specifically to answer the following two questions:

1) What is the level of knowledge of Arabic language teachers and learning disabilities teachers of Differentiated Instruction?

2) Does the level of knowledge of Arabic language teachers and learning disabilities teachers differ according to different specialty?

To answer the first question of the study, means and standard deviations were figured out concerning the level of knowledge of Arabic language teachers and learning disabilities teachers in the city of Jeddah of Differentiated Instruction, and Table 3 below illustrates this data.

It can be noticed from table (3) that the arithmetic means ranged between (0.11-0.83) where one item came as a high level and eight items as

average level, while sixteen items came at a low level. The arithmetic mean of the total score was (10.62) out of 25 and considered as a low level.

To answer the second question of the study, the arithmetic means and standard deviations of the level of knowledge of Arabic language teachers and learning disabilities teachers in the city of Jeddah of differentiated instruction were figured out based on specialization variable. To indicate the statistical differences between the arithmetic means, "T" test was used. Table 4 below illustrates this information.

As shown in table 4 there are no statistically significant differences at ($\alpha=0.05$) ascribed to the impact of the specialization.

It is known from table (4) there is no statistically significant difference at ($\alpha = 0.05$) due to the impact of specialization.

3. Discussion of Results

The present study aimed to identify the level of knowledge of Arabic language teachers, and learning disabilities teachers of Differentiated Instruction, the study results have shown that the level of knowledge of Arabic language teachers and learning disabilities teachers was low on the total score, which averaged 10.62.

This result can be justified as this method was introduced very recently in the Arab countries and Arab Studies did not address it, as well as it has not been addressed in the curricula taught at the bachelor's level in special education.

It may be because the Arabic language teachers and learning disabilities teachers have not studied or been trained during the pre-service on Differentiated Instruction. And there are no statistically significant differences between the Arabic language teachers and learning disabilities teachers. This also indicates that the learning disabilities teacher specifically does not know what Differentiated Instruction is about, though his qualifications are linked to individual differences and how to handle them.

It should be noted also that the targeting of students with learning disabilities in regular classes by teachers in public education, did not exist; because the teachers think they are with slow learning or educationally retarded and such teachers have no information on the characteristics of students with learning disabilities, and believe that teaching students with learning disabilities is the duty of learning disabilities teachers. The reason for this result can also be attributed to the fact that the Differentiated Instruction had started with talented students as noted Tomlinson, and confirmed by Konder (2007) in her study, and this indicates that Differentiated Instruction moved recently to special

Table (3): Means and standard deviations of the level of knowledge of Arabic language teachers and learning disabilities teachers in the city of Jeddah of Differentiated Instruction Approach organized in descending order according to the arithmetic means.

Rank	Number	Items	Arithmetic average	Standard deviations	Level
1	13	Problem-based learning strategy is used as a strategy in differentiated instruction in many ways. Which of the following is not a problem-based learning approach and does not allow differentiation?	.83	.38	High
2	4	Mr. Abdurrahman is a primary school teacher. He is worried about the amount of subjects he ought to cover to meet the students' different needs. What should he do in order to cover the subjects in an effective way?	.68	.47	Average
3	2	Teacher Ahmed plans to teach the numbers to his students in third primary grade. In order to meet his students' different needs he has to62	.49	Average
4	16	Differentiated instruction is used	.58	.50	Average
5	24	The assessment in Differentiated instruction uses measurement tools such as	.58	.49	Average
6	23	Differentiated instruction is applied in way	.57	.50	Average
7	9	When we use differentiated instruction we have to explain to the people in order to help them understand why	.54	.50	Average
8	15	Differentiated instruction is an approach based on	.53	.50	Average
9	17	When Differentiated instruction is used in the classroom, the teacher has to	.50	.50	Average
10	25	Differentiated instruction is based on the philosophy that the teacher has to	.47	.50	Low
11	5	One of potential problems of the use of Differentiated instruction by the teacher is that he may give low-level students some tasks having no challenges to keep them busy, while he works with the others. It is possible to achieve this by using the principle of every student has to be given something to?	.44	.50	Low
12	6	The effective assessment in the differentiated grade	.44	.50	Low
13	19	According to Differentiated instruction Approach, students in the classroom can be taught through the following activities	.43	.50	Low
14	14	--- includes strategies such as: flexible learning group, learning stations, learning centers, concentrated curriculum (compressed) or expanded, and participating education (cooperative).	.42	.49	Low
15	20	Teaching the content of the curriculum according to differentiated instruction approach can be made through	.40	.49	Low
16	18	Which of the following teaching strategies are not used in the application of differentiated instruction?	.39	.49	Low
17	21	Educational process in differentiated instruction concentrates on---	.36	.48	Low
18	12	Which of the following is considered as key for differentiated grade teacher compared with conventional grade?	.33	.47	Low
19	10	In planning for differentiation, teachers could adjust...	.32	.47	Low
20	1	The process of adapting education according to	.26	.44	Low

		student's needs is called			
21	11	The basic difference between flexible groups and assembling groups according to ability is	.25	.43	Low
22	22	Differentiated classroom environment includes	.21	.41	Low
23	3	Name the scholar who is associated directly with differentiated instruction	.19	.39	Low
24	8	To which aspect of the unit the teacher may possibly adjust or implement certain amendments to meet the needs of the student who uses wheelchair.	.18	.39	Low
25	7	For the whole units Mr. Asa'ad knows that he would face some pressure in some part of the curriculum, what should he do?	.11	.31	Low
Total score			10.62	3.22	Low

Table (4): Arithmetic means and standard deviations and “T” test of the impact of specialization on the level of the knowledge of Arabic Language Teachers and Learning Disabilities Teachers of the Differentiated Instruction

	specialization	number	Arithmetic mean	Standard deviation	“T” value	Freedom degrees	Statistical significance
Total score	Arabic teacher	233	10.73	3.17	1.040	316	.299
	Learning disabilities teacher	85	10.31	3.35			

education and in particular to the field of learning disabilities, making us emphasize that the result is logical because the Arabic language teachers and learning disabilities teachers were not exposed previously to courses or training courses in this area.

What confirms the newness of this method and the lack of knowledge in the Arab countries that there is only one study in Arabic about Differentiated Instruction – as far as the researcher knows - and this confirms the results shown by the study?

It should be noted in this regard that many foreign studies that dealt with Differentiated Instruction touched on the impact of Differentiated Instruction more than the level of knowledge of it, which shows that the Differentiated Instruction is common in foreign countries while it is not known in the Arab countries, hence the result of this study confirms what has already been asserted about the importance of the application of this study.

Recommendations

- 1- Conduct further studies to include all regular teachers and special education teachers.
- 2 - Training teachers of general education and special education on the Differentiated Instruction Method and its applications in the regular classroom.
- 3 - Develop special teachers' programs aimed at developing their ability to deal with people with learning disabilities in the regular classroom.

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