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On the Effectiveness of Differentiated Instruction in the Enhancement of Jordanian Students' Overall Achievement

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Teachers sometimes fail to give varied teaching instructions that are suitable for a mixed-ability classroom because these instructions do not match students' proficiency levels. The current quasi-experimental quantitative study investigated the effectiveness of differentiated instruction strategies on students' overall English achievement. 60 grade 8 students from 2 different randomly selected schools from Irbid, in Jordan participated in this study. The experimental group (N=30) were taught English following differentiated instruction of homogeneous grouping, tiered assignments and tiered instruction in the areas of content, process and product of the Grade 8 text books with supplementary materials and differentiated reading texts. However, the control group (N=30) were taught english from grade 8 Jordanian English text book, Action Pack following the one size-fits-all method. Following the pre-test/post-test quantitative design, t-test results indicated that there was a statistical significant difference between the experimental and the control group in favour of the experimental group. Moreover, the results showed that differentiated instruction had a sizable effect size in reduction classroom diversity. The researcher recommended implementing differentiated instruction over a longer period and on a larger sample.

Keywords: differentiated instruction, mixed-ability, achievement, interests, differentiation, enhancement

INTRODUCTION

Differentiated instruction is a way of teaching based on different students' talents and learning styles. It involves modifying teaching instruction in such a way that all learners can be considered successful (Morgan, 2014). Tomlinson in different publications (2000, 2003, 2010, 2014 and 2017) stated that differentiated instruction is considered as an approach and as a philosophy to deal with students' diversity. Tomlinson (2003) stated that differentiated instruction is tailoring the instruction to meet an individual

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learner, small group of learners or all the students. It consists of all the efforts the teachers make to respond to learners' variance in mixed-ability classrooms. Whenever teachers teach an individual or small group, they vary their teachings to create the best experiences, then they are differentiating the instruction. Differentiated instruction can be applied in different areas like the content, process, product (Levy, 2008) and learning environment (Tomlinson, 2001, 2010, 2014) based on students' readiness, interests and learning profile (Anstee, 2014; Tomlinson, & 2017).

The first area to differentiate is the content. The content includes what teachers will teach and how students will achieve knowledge and understanding. Tomlinson (2010) stated that differentiating the content will provide multiple ways to deal with the facts, the concepts, principles or attitudes and the skills the students are dealing with. Sebihi (2016) explained that all students in the same level should go through the same content but the teachers should adjust the complexity degree by following varied instructional processes to teach the content. The idea is that all students should learn the same concepts in different ways. Teachers can either vary the content by differentiating the complexity or having the same content to all but differentiate the activities.

The second area to differentiate is the process. Aliakbari and Haghighi (2014) stated that the process is how students learn and how the teachers teach the content. Tomlinson (2017) explained that the process should be linked to the content and it is integrated with it. Sebihi (2016) stated that the process is the activities that help the students gain the concepts of the content. He added that the key to differentiate the process is the flexible grouping in which students are grouped based on readiness, interests and sometimes based on learning profiles.

The third area to differentiate is the product. The product is the outcome by which students show what they have learnt. Here, the teachers differentiate the product by giving a variety of items students can employ to show their learning (levy, 2008). Different students can produce different products based on their readiness, interests and learning profiles. The key point in differentiating the content is the choice that the teachers give to students with different and varied outcomes, so students can choose to show the mastery of learning (Levy, 2008; Tomlinson, 2010). Students may choose to work alone in their product or they may choose to work with a group of interests (Tomlinson, 2014). Heather (2013) remarked that the product the teachers suggest to students should be authentic and deal with real problems, depend on problem solving and express concerns. The product should not summarize rather synthesize information.

The final area to differentiate instruction is the learning environment. The learning environment is the climate of the classroom which includes the classroom regulations, the operation and the transition of the classroom, the furniture, the seating, the lighting and the procedures. Tomlinson (2000, 2003 and 2017) stated that differentiating the learning environment and differentiating the classroom structure is rather significant in order to let students work within and between the groups. Differentiating the environment- as Tomlinson (2010) explained- helps learners understand that some learners need to move while others need to sit quietly. Firwana (2017) stated that teachers should not only teach in the usual classrooms, rather they can take their

students in different places inside and outside classrooms. When teachers teach in different places other than in the usual classrooms, students' interests and learning profiles can be differentiated. Differentiated instruction in all in the four areas depends on readiness, interests and learning profiles.

Readiness refers to the learning brain, to the knowledge that the learners have and to the skills in a particular part of learning (Sebihi, 2016; Tomlinson, 2017). It has to do with student's prior learning, experiences, and students' attitudes toward school and subjects. Readiness can vary widely in the classroom overtime based on the circumstances and the topic as well. Tomlinson (2014) remarked that if readiness varies in one classroom, so should the complexity of provided material. So, to solve the readiness variance, tiered activities are the solution. (Santangelo & Tomlinson, 2012; Weselby, 2014). Santangelo and Tomlinson (2012) and Weselby (2014) stated that interests start from topics that arouse passion in learners' learning and in which they would like to spend their time and effort in learning. Sebihi (2016) remarked that teachers differentiate instruction using different resources to fulfil students varied needs in the same classrooms. Tomlinson (2014) explained that the curriculum may sometimes seem limited; however, different students may show different interests in different topics. The idea behind differentiating students' interests is to hook (Tomlinson, 2001) students on certain areas of study to keep interest which fosters task, behavior and increase marks as well.

Sebihi (2016) refers to learning profile as how a student learns best. Tomlinson (2014) suggested that each individual has a learning method and style that best meets their needs. So, if teachers have the awareness of all methods and they use them, they are meeting the different learning profiles of the students. In this way, teachers differentiate by learning profiles whenever they provide activities that meet students' choices to master learning. These activities vary like, journals, tapes, role plays, oral presentations, projects, writings, and acting. So, when different models are presented to students, more students will successfully finish the task (Erickson, 2010).

CONTEXT AND RIEVEW LITERATURE

Theoretical Literature

Theoretical framework of differentiated instruction

Differentiated instruction is constructed on Gardner's theory of Multiple Intelligences, Vygotsky's theory, the Zone of Proximal Development (ZPD) and Bloom's taxonomy.

Multiple intelligences

Differentiated instruction approach is constructed on Gardner's theory (2011) that students learn through eight intelligences. Gardener (1983) identified seven intelligences firstly, then added another one to reach eight by total. The first seven were the logical or the mathematical, the verbal or linguistic, the musical, the visual or spatial, the bodily or kinesthetic, the interpersonal and the intrapersonal. Then Gardner added the naturalist. When the teachers teach, they use different intelligences not just one or two rather different students learn in different ways through different intelligences (Gardner, 2011). With differentiated instruction, students depend on their strongest intelligences when

dealing with their tasks. So, when teachers allow students to use their preferred intelligence in dealing with the given task, they provide the scaffolding to give students more opportunities to be successful (Fleming, 2010). Because students learn in different ways, teachers should vary their methods of teaching to use more styles that can suit more students (Morgan, 2014).

The zone of proximal development (ZPD)

Differentiated instruction is also constructed on Lev Vygotsky's theory, the Zone of Proximal Development (ZPD), which benefits all students to work based on their appropriate level (Levykh, 2008; Magableh & Abdullah, 2019). Vygotsky's Zone of Proximal Development is the level in which a learner can do a task with the guidance of an adult (Levykh, 2008; Vygotsky, 1978). Differentiated instruction based on ZPD benefits students of all levels because their instruction is adjusted and modified to be challenging. So, all the groups, even the above average students, will be on the right level. Morgan (2014) argued that through ZPD, if learners become frustrated because the content is too difficult, it will lead students to withdrawal or inappropriate conduct. However, if the instruction given to them is below the students' average, or below students' readiness, it will lead to detrimental effect, that will lead many above average students to a less motivated classroom environment (Bodrova & Leong, 2007).

Bloom's taxonomy

Bloom's taxonomy differentiates the mental skill level and links them with learning objectives. Planning to differentiate instruction with Bloom's Taxonomy leads to deeper learning and elevates knowledge and skills to a better selection of tasks and contexts. This taxonomy consists of six levels of cognitive skills starting from lower order skills which require less cognitive skills to higher order skills which need higher degree of cognitive skills. However, Bloom never classified the categories into lower order thinking skills and higher order thinking skills; the classification appeared later (Adams, 2015). The lower thinking skills are knowledge, comprehension, and application, while the upper or higher thinking skills are analysis, synthesis and evaluation (Bloom, 1956). Another version of bloom's taxonomy modified later to be as follows: remembering, understanding, application, analysis, evaluation, and creation (Anderson & Krathwohl, 2001). Teachers can plan different and differentiated activities based on Bloom's taxonomy (Forhand, 2010). They can plan activities to suit the below average students following knowledge and comprehension, and for the average students following application and analysis. For the above average students, teachers can plan activities related to synthesis and evaluation (Adams, 2015; Forhand, 2010; Noble, 2004).

Differentiated instruction takes a lot from each theory. It takes scaffolding and working on individual needs and interests from ZPD. However, it took from Bloom's Taxonomy the tiered assignments and tiered instruction in which teachers plan and deliver instruction based on the cognitive domains to the three levels in the mixed-ability classrooms. Moreover, it took from Gardner's Multiple Intelligences the eight learning preferences that teachers should deal with in one classroom. These three theories make the foundation of differentiated instruction approach.

Differentiated instruction implementation

Tomlinson (2010, 2014 & 2017) emphasized three important strategies when implementing differentiated instruction which can make it more powerful, emphasizing learner's interests, depending in the right starting point and allowing students to work depending on their own pace (Tomlinson, 2017). If students lack the interests in the subject that is taught at school, there will be no motivation to learn or a very little (Smit & Humpert, 2012). Emphasizing students involves that learners should know their students well and teach according to their motivation. So, when students have good feelings about the topic because either they enjoy it or the teachers employ different activities that interests students, learners tend to react positively (Ellis, 2010; Tomlinson, 2010). Teachers can emphasize learners' interests by engaging and allowing students to participate in an independent study to learn what they are interested in. Using the right starting point involves that students who lack the basic skills may have to do different tasks than the others in the same classroom. Allowing students to work at their own pace involves giving motivated students chances to follow advanced topics instead of limiting them to learn just the topic based on their grade level (Park & Datnow, 2017). So, these three ways of differentiated instruction involve different kinds of learners, the below avearge, the average and the above average. The instruction as Tomlinson (2010) and Morgan (2014) suggested should be modified to suit all of these learners in order to maximize their effort.

Benefits of differentiated instruction

Today's classrooms are diverse (Firwana, 2017; Tomlinson, 2017); students come to classrooms from different backgrounds, cultures, interests, readiness, preferences, and needs. Teachers need to reach all these types of learners at the same time in one classroom period. Differentiated instruction is a possible way to enhance learning and to raise achievement for all (Watts-Taffe et. al, 2012). Differentiated instruction can help SEN students or students with special needs and who are considered at risk of leaving the school before they complete the phase (Tomlinson, 2001& 2003). Differentiated instruction can help students choose their learning and evaluate their improvement. Differentiated instruction allows students to showcase what they have learnt based on their interests. Firwana (2017) stated that through differentiated instruction, students will be able to hold responsibility for their learning. Through Differentiated instruction, motivation is recognized by students' interests. Magableh and Abdullah (2019) reached that differentiated instruction can help mixed-ability classrooms to be more homogeneous to reduce classroom diversity.

Barriers of differentiated instruction

Holloway (2000) identified fifteen challenges and barriers to differentiated instruction like planning time, lack of necessary materials and unsupportive administration. Another important barrier Tomlinson (2005) identified is the one heavy standard curriculum. This puts teachers under pressure trying to finish all of it rather to teach based on students' needs leaving the teachers under a race against time (Mctighe & Brown, 2005). Teachers are under pressure to teach and prepare students for the test or meeting

students' individual needs (Tomlinson & Doubet, 2005). Sebihi (2016) stated that the time needed for preparation in order to meet the individuals' interests, readiness and learning profile is a measure barrier to apply differentiated instruction. Magableh and Abdullah (2019) indicated that planning for differentiated instruction and the noises the groups made while implementing it are two main barriers in differentiated instruction implementation.

Empirical Literature

Many researchers investigated the effect of differentiated instruction to enhance students' learning in different school subjects and in different English language skills. Some of these studies are: Ariss, 2017; Hassan, 2016; Ismajli and Imami-Morina, 2018; Magableh and Abdullah, 2019; Mavido and Kakana , 2019; and Suprayogi, Valcke, & Godwin, 2017. Hassan (2016) investigated the effect of differentiated instruction on students' achievement in History of Art subjects. The sample consisted of 50 students distributed into 25 respondents for the experimental group and was taught depending on the differentiated instruction strategies. Another 25 students were selected for the control group which was taught using traditional method. The researcher followed the pre/post-test as the instrument of the study which consisted of 30 multiple choice items. The results showed that differentiated instruction was effective in developing students' achievements. Moreover, statistically significant differences were found favoring the experimental group.

Ariss (2017) investigated the differentiated instruction effectiveness in Math secondary classrooms in America. Different differentiated instruction strategies were used in the experimental classrooms. Five instruments were used to collect data, students' reflections, observations, lesson plans, assessment tools and interviews. A convergent parallel quantitative and qualitative design was adapted to collect data from 30 participants in grade 10 who were randomly distributed in two sections, one of 15 students for the experimental group and another of 15 for the control group. The findings showed that there was a positive feedback toward differentiated instruction. The findings also indicated that students enjoyed being with flexible grouping, and tiered activities, where teacher is not standing in the front and just lecturing.

Suprayogi, Valcke, and Godwin (2017) investigated the effectiveness of differentiated instruction implementation when it is linked to a set of complex variables. The researcher examined six variables: teacher's differentiated instruction self-efficacy, teaching experiences, teacher's certifications, classroom size, professional development and teacher's beliefs. 604 teachers from 145 schools in Indonesia participated in this study to do the survey. Four instruments were used to collect data, a questionnaire and three scales for beliefs, efficacy and implementations of differentiated instruction. The findings showed that differentiated instruction implementation is high despite being below the expectations or benchmark. Results also indicated that 39% of the variation of differentiated instruction implementations was linked to the variables of self-efficacy beliefs, and higher classroom sizes. In addition, the findings revealed that the teachers who have teaching certificate license showed higher implementation of differentiated instruction compared to teachers without teaching certificate.

Ismajli and Imami-Morina (2018) investigated the effect of differentiated instruction to meet the needs of all students. 200 students from 4 primary schools, 2 schools were public and 2 non-public schools, 30 teachers and 30 parents also from both public and private schools in Kosovo participated in the study. Three instruments were used, a questionnaire for students, another questionnaire for teachers and an interview with parents. The findings showed that the implementation of the differentiated instruction at the primary schools is not at the right level, moreover there was no statistical significant difference existed between the public and the non-public schools in applying differentiated instruction. The findings indicated that teachers pay more attention to the product and less to the content and the process of learning. The parents' interviews showed that parents are eager to participate and cooperate with the school to implement differentiated instruction.

Magableh and Abdullah (2019) investigated the effectiveness of differentiated instruction strategies on grade 7 male students' reading comprehension achievement in Irbid, Jordan. The sample consisted of 55 grade 7 male students from two male schools in Irbid District. This quasi-experimental study distributed students into two groups, 28 students for the experimental group which was taught through differentiated instruction strategies of flexible grouping, tiered assignment and tiered instruction in the areas of content, process and product. The control group was 27 students and taught reading comprehension following the whole class instruction. Two instruments were used to collect data, a reading comprehension, pre-test/post-test and a semi-structured interview with the experimental group students. The results indicated that using differentiated instruction was effective in developing grade 7 students. T-test results showed that the difference is statistically significant and differentiated instruction has a big effect size in reading comprehension.

Mavido and Kakana (2019) investigated the effect of differentiated instruction strategies on children's reading achievement. This quasi-experimental study involved pre-tests/ post-tests instruments to investigate the effect of differentiated instruction strategies of three experiments including curriculum adjustment, differentiated content and product. 154 kindergarten students were distributed into 80 students for the experimental group which was taught using differentiated instruction according to students' readiness, interest and learning profiles. However, 74 students were selected for the control group which was taught traditionally. The content, process and product were differentiated by tailor-made content, flexible grouping and a board of choice for product. The study findings indicated a statistical significant difference between the two groups of the study favoring the experimental group, which indicated that differentiated instruction developed students' achievements. Moreover, differentiation by interest is shown to have the highest mean score among all other kinds of differentiated strategies.

In Jordan, the one-size-fits-all method is the dominant method and no differentiation takes place in the mixed-ability classrooms (Magableh & Abdullah, 2019; Siam and Al Natour, 2016). Differentiated instruction might help bridge the gap of diverse classroom specially when there is no Special Education Needs (SEN) teacher for English to deal with SEN students. It is the English teacher who should deal with all kinds of learners in

the same classroom. Differentiated instruction has proved to help students in different parts of the world and helped students in Jordan, but would it help to develop the overall English achievement to grade 8 students in Jordan in their mixed- ability classrooms. Differentiated instruction might be the answer to this problem. From this point, the researcher decided to investigate the effectiveness of differentiated instruction on students' overall achievement. So, this research is trying to answer the following research question:

What is the effect of differentiated instruction strategies on students' English overall achievement?

The null hypothesis is set forth which stated that there is no statistical significant difference at ($\alpha<0.05$) on the post-test mean scores between the experimental group which was taught following differentiated instruction strategies and the control group which was taught the one-size-fits-all method.

METHOD

Design

The researcher followed the quantitative quasi-experimental pre-test/ post-test two group design. A pre-test was administered at the beginning of the study for the both groups and after eight weeks of instruction, a post-test was conducted. Results were analysed quantitatively using SPSS, V. 24.0 to reveal the effect of differentiated instruction on overall students' achievement. The design was as follows, (Creswell, 2012):

O1 X O2
O3—O4

Where **O** is the pre-test/ post-test, **X** is the treatment for the experimental group and —is no treatment for the control group, refers to the one-size-fits-all method.

Participants

The participants included (N= 60) eight-grade students from two randomly selected schools from Irbid public schools in Jordan distributed into two classes. One class of (N=30) for the experimental group was taught using differentiated instruction and another class from a different male school (N=30) for the control group was taught following the one size-fits-all. The researchers selected two schools from Irbid using the random sampling technique and the classes inside the schools were also randomly selected. However, the researchers were not able to redistribute the participants into the study groups due to Ministry of Educations' rules. Furthermore, 2 competent teachers participated in the study from 2 different schools. The experimental group teacher has 15 years' experience while the control group teacher has 14 years teaching experience with both bachelor's degrees. The teacher of the experimental group was informed with the differentiated instruction strategies of forming homogeneous grouping, tiered assignments and tiered instruction in the three areas of content, process and product over three sessions of training of three hours for each session in their schools after the school

days and before the beginning of the treatment and other 6 sessions while implementing the treatment to better apply differentiated instruction strategies. Power point presentations and workshops are made through the three days of the training and through the six times of training while the experiment. However, the control group teacher was not informed with the differentiated instruction strategies and instructed to use the traditional way.

Instrument

The instrument of the study was an English proficiency pre-test/post-test. A proficiency pre-test was administered at the beginning of the study for both groups consists of a reading passage, comprehension questions of multiple-choice items, grammar items, vocabulary items and writing a short paragraph. The main goal of the pre-test was to identify students' proficiency level so that homogeneous groups, tiered assignments and tiered instruction can be given in the areas of content, process and product. Besides, based on the achievement in pre-test, students of the experimental groups were divided into three homogeneous groups to be given tiered assignment and tiered instruction. The aim of the post-test was to investigate the effect of the experiment and compare the results with the pre-test. The proficiency test consisted of 20 multiple choice items with 2 points for each correct item and 10 points for the writing. The highest mark to obtain is 50 and the lowest is zero. The time for completing the test is 45 minutes. The researchers ensured the test validity before administrating it. The test was given to 2 EFL instructors from Yarmouk University, to 2 English supervisors in Irbid and to 4 English teachers who teach grade 8 in order to express their opinions on its complexity, clarity, length, grammar, suitability and its relatedness to content. The researcher followed all the recommendations of the panel and made the amendments accordingly. To ensure the reliability, the researcher piloted it to a whole section (N=25) of grade 8 from the same population but outside the sample of the study and administered the test twice with two weeks period between the test and retest. The researcher considered the test reliable since reliability lies between -1 and 1 coefficient correlation. Pallant (2005) stated that 0.6 correlation and above is acceptable and above 0.8 is strong. Since the test reliability which was calculated based on Pearson's coefficient correlation is 0.89, the researchers considered the test reliable.

Materials

The main course book of English which was provided to the two groups of the study was Action Pack 8. Action Pack is a series of books has been taught in the Ministry of Education in Jordan from grade 1 to 12 since 2013. Action Pack book consists of a course book, an activity book, a teacher's book or a teacher's guide as well as an audio for listening. The experimental group was supported by supplementary materials including short stories; supplementary reading comprehension materials, differentiated grammar sheets and differentiated vocabulary worksheets as well as Action Pack 8 textbook.

Procedures

Over 8 weeks of instruction, from the beginning of March till the end of April 2019, the experimental group students were instructed using differentiated instruction strategies of

homogeneous grouping, tiered assignments and tiered instruction and the control group was constructed following the one-size-fits-all method. Before the beginning of the treatment, the researcher ensures the validity and reliability of the test and took the Ministry of Education consent as well as the schools' and teachers' concerned. 3 sessions of training for the experimental group teacher were held before the treatment and other six sessions of training while the treatment to acquaint him with the procedures of the differentiated instruction strategies. Both of the two groups, the experimental and the control went through a pre-test. The independent t-test was calculated to ensure the homogeneity of the groups. T-test as indicated in table 1 showed that no statistical significant difference existed at the beginning of the treatment and both groups are homogeneous. Using the pre-test data, the researcher and the experimental group teacher divided the students into three homogeneous groups to deliver tiered assignments and tiered instruction in content, process and product. However, the control group was taught following the one-size-fits-all with the material of the second semester from action pack 8 without differentiating the content, process or product. To differentiate the content, the researcher and the experimental group teacher modified the content of Action Pack 8 textbook second semester and supplied the experimental group students with supplementary material available in teachers' guide and school library as well as the content of Action Pack 8. To differentiate the process, homogeneous groups of different levels, below average, average and above average were formulated. To differentiate the product, different choices from which students can choose were given to show students' learning. However, control group students were all given the same material from Action Pack 8 textbook in the same book order. At the end of April, both groups took a post-test to determine the effectiveness of differentiated instruction on students' overall achievement.

Data Analysis

To answer the question of the study, the Statistical Packages of Social Sciences (SPSS), V. 24.0, was used. The results of the post-tests were analysed using t-test, standard deviation, mean scores and Cohen's d effect size. The results of grade eight students in the post-test were computed and compared to their results in the pre-test.

FINDINGS

Tables 1, 2, and 3 present and compare the mean, the standard deviation, t-test and the effect size of the students' achieved scores in the exams in the treatment and control groups. Table 1 explains the results of the pre-test. Table 2 compares the results of the post-test and table 3 compares the results on pre-test/post-test for each group.

Table1
T-test Results of the Experimental and Control Groups on the Pre-test

Test	Group	N	Mean	Std. Dev.	T value	Sig.
pre-test	control	30	18.2	6.44	0.04	0.968
	experimental	30	18.6	6.30		

Table2
T-test Results of the Experimental and Control Groups on the Post-test

test	Group	N	Mean	Std. Dev	T value	Sig.	Effect size Cohen's d
post-test	control	30	18.26	6.47	9.72662	0. 000*	2.53
	experimental	30	32.6	4.73			

Table 3
T-test and Effect- size Results for Grade 8 Students on the Pre and Post-test for each Group

Grade 8	Test	DF	Mean	ST. Deviation	T value	Sig.	Effect size Cohen's d
Control	pre	29	18.2	6.44	0.24307	0.404404	0.009295
	post		18.26	6.47			
Experimental	pre	29	18.6	6.30	9.79473	0.0001*	2.5132
	post		32.6	4.73			

DISCUSSION

Two classes of grade 8 from two different schools in Irbid, Jordan, were randomly selected to investigate the effect of differentiated instruction on students' overall English achievement. As shown in table 1, the control group average score was 18.2 and 18.6 for the experimental group. To check whether the two groups are homogeneous at the outset of the treatment, the independent sample t-test was calculated. T value was 0.04 and P value was 0.968 which was higher than the significant P value of P< 0.05. The results of the t-test indicated that there was no statistical significant difference at P<0.05 between the two groups of grade 8 at the beginning of the study and the two groups of the treatment were homogeneous. This is probably because they are from the same district from the same socioeconomic status, taught English from grade 1 to grade 8 by non-native speakers and both are from public schools and from the same gender. Since the both groups are homogeneous at the beginning of the study, so any changes in the mean scores would be due to the effect of the treatment.

After implementing the experiment, an achievement post-test was administered to the both groups at the same day. As indicated in table 2, the control group's mean score in the post-test was 18.26 and was 32.6 for the experimental group. To show whether the difference in the mean scores was statistically significant, an independent t-test value was calculated. T-test value was 9.72662 and the P value was (sig. =0.000) which was less that the significant P <0.05. T-test shows that there are statistical significant differences in the mean score between the two groups of the experiment in favor of the experimental group which was taught following the differentiated instruction strategies. So, it could be safely stated that differentiated instruction strategies affected students' overall achievement. So, the null hypothesis which stated that there is no statistical significant difference in the mean scores between the two groups of study was rejected, and the alternative hypothesis was accepted.

To compare the results of each group on the pre-test and post-test, as shown in table 3, the control group's mean score on the pre-test was 18.2 and rose to be 18.26. T-Test value was 0.24307 and significant P value was 0.404404. P value for the control group is bigger than the significant $P < 0.05$ which indicated that the change in the mean score of the control group is statistically insignificant and the one-size-fits-all method did not affect students' overall achievement. Compared to the experimental group, the pre-test mean score was 18.6 and rose to reach 32.6 on the post-test. T-test value was 9.79473 and the significant P value was 0.0001 which was less than the significant level $P< 0.05$ which indicated that the change in the post-test for the experimental group was statistically significant. It is safe to say that this change is due to the experiment.

An outstanding finding from the results of the experimental group is linked to the standard deviation between the pre-test before the treatment and the post-test after the experiment. As shown in table 3, the standard deviation of the experimental group before the onset of the treatment was 6.30 and after the experiment was reduced to 4.73. This change in the standard deviation indicates that differentiated instruction reduced classrooms diversity to be more homogeneous. Conversely, the standard deviation for the control group which was taught traditionally was 6.44 at the beginning of the treatment and remained nearly unchanged 6.47 after the treatment. One-size-fits-all did not reduce classroom diversity and did not improve students' overall English achievement.

In addition, the statistical effect size was computed to show the effect of both independent variables on each group. Cohen's d formula was used to show the effect of each method on each group. Sullivan and Fienn (2012) explained that when Cohen's d value is 0.2, it shows a small effect size and 0.5 is a medium and 0.8 and above shows a large effect size. The larger the effect size is, the more effect of the method will be. As shown in table 3, the effect size of the one- size-fits-all method on the control group was 0.009295 which was even below 0.2 indicating that it had a very limited effect size on students' learning. However, the effect size of the experimental group which was taught following differentiated instruction was 2.5132 indicating that it had a very large effect size on students' achievement. Differentiated instruction improved students' overall achievement in the experimental group because each student in the classroom was taught based on his level and is given instruction and assignment based on his proficiency level. The teacher of the experimental group simplified the below average content and challenged the material of the above average which has given them the motives to achieve better. However, the one-size-fits-all did not affect students' learning because all students are given the same instruction as if they are in the same level. Moreover, the experimental group respondents were challenged to do tasks based on their proficiency level according to ZPD. The results of the study are in line with Hassan's (2016) in that differentiated instruction helped students' achievement despite the difference in school subject. Moreover, the findings of this study also were in line with Magableh and Abdullah (2019) in that differentiated instruction did not only help students' achievement but reduced classroom diversity. Finally, the results are in line with Mavido and Kakana (2019) in that both studies proved that when differentiating the content, process and product, students' achievement is statistically improved.

CONCLUSION

The study aimed at investigating the effect of differentiated instruction on overall English achievement in Jordan. The design was a quantitative two group design in which a pre/post-test was used to collect data. The differentiated instruction strategies of homogeneous grouping, tiered assignment and tiered instruction were used as the procedures of the study. The finding reveals that differentiated instruction is a solution to the mixed-ability classrooms because it offers instruction to all classroom levels. It offers the right level of challenge based on students' abilities, interests and preferences which maximizes students' potentials. Differentiated instruction application needs the teachers' commitment in order to make it reality. It needs commitment from the school administrations to train teachers on using the differentiated instruction strategies and to provide them with the necessary materials for application. Teachers need to alter their teaching strategies in order to use the styles that best fit to a given student. Besides, teachers should provide more scaffolding for learners who lack some basic skills and provide more challenge to above grade level students according to the Zone of Proximal Development. When overcoming the barriers, differentiated instruction will become the right solution to mixed-ability classrooms as the results of this study indicated.

When the teacher of the experimental group followed differentiated strategies to modify the content, the process and the product, students with different levels were motivated and worked based on their level. The teacher of differentiated instruction simplified the content for the below average students, so they did not find it very difficult to them. Conversely, the experimental group teacher also modified the content for the above average students; therefore, they did not find it so easy and they were not demotivated. Following differentiated instruction approach helped students' overall achievement in Jordan. However, the teacher of the traditional method did not modify the curriculum; he delivered it in the one-size-fits all- method. Giving the curriculum for all students at the same time as if they are in the same level following the same processes did not have any effect on students' learning as indicated by the small effect size the results of the study.

Differentiated instruction helped grade 8 Jordanian students to improve their overall English achievement by differentiating the content, process and product through a set of strategies of homogeneous grouping, tiered assignments and tiered instruction. Differentiated instruction has a sizable effect size on the experimental group compared to the limited effect size of the one-size-fits-all method on the control group. Moreover, differentiated instruction helped to reduce the classroom diversity at least one standard deviation and turned it to be more homogeneous. Educator in Jordan should take into consideration applying differentiated instruction strategies in the mixed-ability classrooms and train teachers on how to apply different strategies of differentiated instruction. The Ministry of Education in Jordan should organize formal professional development sessions about differentiated instruction strategies and how to apply them in mixed-ability classrooms. The results would be better if future researchers apply the treatment over a longer period of time with a larger sample and different English skills. The findings of the study are limited to the small sample of the study and in selecting

just two schools to investigate the effect of the treatment. Moreover, the finding is limited because only two teachers participated in the study. More teachers would be better with more sections taking gender into consideration. It would be better to investigate more variables like the effect on vocabulary or other English skills like reading comprehension.

CONFLICT OF INTEREST

The authors witness that there is no any conflict of interests with any party negatively or positively. This article is not funded by any organization that might cause conflict.

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