The Use of Cooperative Learning to Reduce Attention Deficits in Students with Learning Disorders in the Kingdom of Saudi Arabia

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Abstract Cooperative learning strategies have proven to be effective for all types of students. Children who have attention deficits appear to have a weakness in most areas of attention and their ability to deal with it. Children who are affected by Attention Deficit Hyperactivity Disorder (ADHD hereafter) might face many difficulties in their lives as an effect of this disorder. Usually what the affected child faces during the taught lessons could lead to failing to gain knowledge. In addition, this can lead to permanent disorders, whether from their colleagues or from adults who cause them to worry under different circumstances. Because of this they are inflicted by more hits or wounds than other children who do not suffer from this disorder. They face difficulties in cooperating with their cohorts or adults because of this. The present study tries to see the use of such learning strategies to reduce the attention deficits in the students with learning disorders.

Keywords: cooperative learning, attention deficit, learning disorder, ADHD


1. Introduction

The previous century witnessed great developments in educational research about modern strategies. Among them is the cooperative learning strategy that is based on the concept of positive interdependence among the learning group, which makes the individual trust the ideas of the other group members and their principles. Because of this, the result is a true, open connection that gives birth to feelings of agreement between the sender and receiver over individual feelings that one prefers themselves over others. Cooperative learning strategies deals with many educational difficulties. They are effective in their ability to offer an alternative choice in many fields.

Children who have attention deficits appear to have a weakness in most areas of attention and their ability to deal with it, which leads to the appearance of problems at home, at nursery and elsewhere [9]. Researchers have managed to pinpoint some of the factors that affect having attention deficits that have an effect on the learning of children. Maybe they relate to inherent factors such as Attention Deficit Hyperactivity Disorder (ADHD, hereafter) that is transmitted inherently from one generation to another. Research has proven that one out of every 40 children have one close family member who suffers from a disability, including at least with a learning disorder. Likewise, the smoking of a mother during pregnancy, using drugs that cause addiction, exposure to poisonous substances and exposure to harmful poisonous environmental pollution are all factors that increase the chances that a child would be born suffering from an attention deficit. There is no doubt that taking spirit drinks can lead to a fall in the activity of neurons that produce neurotransmitters [21,22].

A reduction in the children whose disorders spread to their family and school has shown many methods and interventions that can be used to reduce the symptoms of this disorder in children [5]. It is known that people are social and it is in their nature to be influenced by many factors from those surroundings throughout their life such as the economic environment, the family surrounding, political factors, the nature of leadership and politics. They are affected by the historic developments that they finish with [7].

The way to use cooperative learning in the educational classroom makes it necessary for the teachers to be more observant to the factors that make them use this specific method rather than others. Likewise, educational policies are enforced upon them so that they have a detailed understanding of the major role that they will perform from shaping groups and distributing roles [5], which will be detailed in the research on attention deficits. Children could suffer from disagreement with their teacher that occurs during group learning [5]:

1. The inability of the child most of the time to pay attention to detail or incline towards creating clear mistakes caused by attention deficit, from
Because of that they must take care of the following:
1. The inability of the child most of the time to remain awake while performing important tasks, duties or while playing
2. The child not listening to what they are told, even when facing them directly
3. The child shows difficulty in following and implementing instructions, not being successful most of the time in finishing school work, homework or duties that they are given (failing the child here does not lead to his reluctance to complete the duties or not understand instructions)
4. The child faces difficulty in organising themselves when completing tasks or other important duties
5. The abstinence of the child from performing important duties that they do not like or duties that require mental effort (such as school work or home activities)
6. The child tending to lose their things most of the time (such as dolls, school work, pens and books)
7. It is clearly easy to distract the child
8. The child tends to forget matters and issues a lot of the time

Likewise, the success of cooperative learning depends on the skills of the teacher in dealing with the groups. Because of that they must take care of the following:
1. Working consistently and continuously to make group tasks clear. Life skills are important for students
2. An example of cooperative work by following the group or groups when needed
3. Checking time limit issues
4. Offering praise for the students and their enthusiasm
5. Making groups active when their enthusiasm falls

1.1. Research Objectives

Children who are affected by ADHD might face many difficulties in their lives. Usually the affected child not only faces difficulties in gaining knowledge but further this can lead to permanent disorders, whether from their colleagues or from adults who cause them to worry under different circumstances. Because of this they are afflicted by more hits or wounds than other children who do not suffer from this disorder. They face difficulties in cooperating with their cohorts or adults because of this. The present study aims at identifying the effects of using cooperative learning in reducing the attention deficits among such students and look for the possible recommendations for the various stakeholders.

2. Review of Literature

Suleman [24] has conducted studies that aimed to identify the knowledge of the teachers of ADHD and identifying the types of social effects, experiences with students with disorders, attending training sessions, the age, appropriate knowledge and number of years of experience among the teachers knowing about the disorder. The researcher used a measuring scale for attention deficits prepared by Sciutto, et al [29] as rationalisation and validation. The researcher used some of the suitable statistical methods for the researcher’s questions. The results of the study showed that the level of knowledge of the teachers of students with ADHD is poor to a large extent as the level of knowledge of the teachers was 71.43%. It showed that there are no significant differences between males and females in the amount of knowledge of disorders. There are no significant differences between the teachers who have experience with disorders and the teachers who do not have experience in their amount of knowledge of disorders. There are differences between the teachers who attended the educational training and those who did not in their amount of knowledge of disorders in favour of those who attended.

Ghasoon [16] performed a research that aimed to identify the effects of using concept maps to reach and improve attention deficits that specialist school pupils have. The researcher used experimental design for the two experimental, controlled groups. The group sample was limited to the pupils of the 4th primary educational grade at the centre for the county of Nanyawi for the year 2010 - 2011. The sample for the research was made up of 18 pupils distributed over two groups of 8 pupils from the experimental group and 10 pupils in the control group. The researcher prepared the educational plans for the grammar subject for the research group and test made up of 20 paragraphs; the measure for attention deficits that Al Aheedi [28] depended on. The researcher made sure of the validity of the two tools through presentation to a group of controls. Proofs were released for them through the use of a Coder-Richardson Equation. 20 were used for education test. The stable value came to 0.90 while the middle segment was used to measure the attention deficit and the stable value came to 0.93. These two factors are good. The experiment was implemented and after it finished, tests were done on the two research groups. After analysing the data statistically by using two independent samples, the results showed that there is a difference between those with statistical significance (T Test). The following test between the middle of the test group that was studied using concept maps and the middle of the controlled group that was studied using a normal method of achievement and was in favour of the test group. Upon this, the researcher advised of the importance of using concept maps in teaching special education pupils and suggested conducting a similar study for the current learning in the Science subject.

Al Mafraji [4] also conducted similar studies that aimed to identify the use of storyboards and the roles they play in improving attention deficits that some special education pupils have. The researcher has put effort into the 3 groups in a number of variables (the chronological age of the pupils in months, the reading level for the 2nd elementary grade, the average for the 3rd elementary grade, the average educational level of the fathers and mothers and the level of experience to measure attention deficits). After analysing the data statistically, results surpassed the two test groups –the first and the second, over the control group in improving attention deficits.

Ahmed, et al. and Khaleef Allah [2] conducted research that aimed to categorise a remedial program to reduce ADHD that pupils with learning difficulties have at the foundation level in the 3rd and 4th grades in Khartoum and investigating the effectively of this program following the various types (male and female), the class level (3 and 4), the connection between the type and class level upon
ADHD. To verify that, an experimental curriculum was used, first level design, primary design, long term design for one group and then choosing and designing the following research tools: establishing the competence levels of specialist teachers with educational difficulties, Michael Best Scale for identifying pupils with learning disorders and choosing the characteristics that relate to the boredom of children while checking the environment in Sudan) and measuring ADHD. After confirming the specifics of these psychometric tests, a research sample is applied, which measures 29 pupils (19 male and 10 female) from pupils with learning disorders in the 3rd and 4th grades among those with ADHD by using the following sensory methods: connecting between Pearson’s Coefficient with Chronbach’s Alpha, T Test and two way verification analysis. The studies found that: the remedial program is effective with a statistically significant level in reducing ADHD among the pupils and that there is no significant statistical proof that the improvement is because of changing the type of test for hyperactivity among females (school documents). The studies proved that there is no statistical significance in improvement in the class level except after the amount of attention that was at home was in favour of the 4th grade.

Likewise Madani [31] performed studies that aimed to rationalise the test for attention deficits and hyperactivity disorder test (ADHDT), finding psychometric tests and derivatives based on the Sudanese environment in the State of Khartoum. This rationalising test was undertaken in the following stages: using the curriculum described to reach test results. The test was translated from the original English language to the target language in Arabic and was translated in reverse to confirm the correctness of the language. The test was amended by removing and interrogating some of the statements in 3 test items. The test was implemented on a simple level random sample of 404 male and female pupils from foundation level classes from the age group 6-12 years in the State of Khartoum. The study has shown that there are high levels of consistency in terms of Crombach Alpha, which is at 0.84. The results have proven that there is no statistical significance in improvement in the class level except after the amount of attention that was at home was in favour of the 4th grade.

Earlier, Julie et al. [17] performed studies, which found that there was a lot of evidence regarding the academic and social difficulties that the children who have ADHD face. The level of experience is considered to be low in relation to what the teachers can do with them and what they can do in terms of knowing about and summarising information about the disorders that students with ADHD face, their relationship with it, knowing those have knowledge of ADHD and working with them before and after the service.

During the service, teachers need to personalise student behaviour in order to increase their support by knowing about family circumstances and their circumstances. The holistic therapy for that group is to focus on the relationship of those with ADHD and their relatives.

Ghanizeh et al. [15] aimed to identify teachers’ knowledge and attention towards the disorder. The study was implemented on elementary school teachers in the Iranian city of Shiraz, which made up 196 teachers. The study used a measure to identify the level of knowledge that teachers had and their attitude towards the disorder. Their results found that the knowledge that the teachers had about the disorders was low in percentage as it was 46.9%. This referred to the disorder occurring because of biological and inherent reasons and that 53.1% of them thought that the disorder was a result of paternal reasons. As for attention towards children with disorders, that was low as 64.8% of teachers confirmed that using punishments that are applied to the normal students should be applied to the children with disorders and that 77.6% of them thought that the children with the disorders had difficulties with their relatives. Likewise, there is statistically significant evidence connecting between the knowledge of teachers, the disorders and the perceptions towards them. It was clear that their knowledge of the disorder was at a very low level and that their main source of information about the disorder was television, radio, friends, relatives, newspapers and magazines.

Barakat [14] undertook a study aimed at verifying the effectiveness of a test program that uses the method “playing a new character” in order to reduce the class behaviour that pupils between the test and controlled groups have, in favour of the test group in terms of males and females. There were also large statistically significant differences between repeating normal behaviours between the test and control groups in the two measures: during implementation afterwards and imitating. That is in favour of the test group. This is a clear indication of the effectiveness of using the new character game in reducing negative classroom behaviour.

3. Methodology and Its Implementation

This section contains a description of the methodology and implementation that the researcher followed to achieve the aims of the study.
3.1. Research sample

The students of the schools that follow the training and education management in the Northern Borders of the Kingdom of Saudi Arabia for the year 2015-2016. The individuals for the study are 65 students. They were chosen by the educational classes from the schools that followed the management of education and training where two classes were randomly chosen. After that one of the group classes were randomly allocated as a test group of 35. They are taught using cooperative learning and the second class was a controlled group of 30 students and they were taught by the usual methods.

3.2. Research Tools

The researcher has designed the cooperative learning strategy that was to be implemented onto a test sample and a test for attention deficits:

3.2.1. Firstly: Cooperative Learning Strategy

The researcher prepared the special study plans for learning through choosing a study unit then teaching it to the students within a limited amount of time where it included paragraphs that the students could prepare and the teacher could work on testing. A worksheet was prepared by the teacher for each study unit where the study unit was divided into smaller units so that it included these worksheets with a glossary of terms in every paragraph. The educational units and test units were organised so that it depended on the sections of a worksheet, which included a number of facts, concepts and skills that lead to a high level of organisation between the educational units and the outcomes of the educational process. Students were divided into cooperative groups that varied in characteristics and specialities such as achievement and aims. The original group was broken down into subgroups made up of members who took part in the important educational section. After completing their duties, each group member returned to the original group as they gave feedback of their information in front of the original group. All the groups were certain that they would get the information about their specific abilities in all the unit sections. After that the students were tested individually as each student was personally responsible for their achievements. The students were gathered in the test for each individual unit then each achievement mark for students were given in order to gain the total marks. The countable cooperative learning strategy was verified on a control group from the specialists and experienced members of the teaching society in the universities specialised in the curriculums and methods of teaching.

3.2.2. Secondly: Performing a Test For Attention Deficits

The researcher prepared a checklist for comments about students’ performance in tests. The performance was from 30 distributed paragraphs based on facts, concepts and skills. A connection was made between the sub paragraphs through the college skills in a specific area. To verify the performance, it was presented to a group of experienced specialists from the educational society members in the universities for specialist curriculums and methods of teaching Arabic. Comments and suggestions were taken and necessary amendments and changes were made.

3.3. Controls for Performing the Test of Attention Deficit

To verify the stability of performing the test for attention deficits, control factors were extracted in two steps: 10 children with a time gap of two weeks between the first application and the second administered. Factors for calculating the Pearson Coefficient were used between the two application results as the mode of agreement between the observers was used by testing the test group by two inspectors and extracting a level of agreement between their abilities by Cooper’s equation.

<table>
<thead>
<tr>
<th>Field</th>
<th>Internal</th>
<th>Replay stability</th>
<th>Cooper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor concentration test</td>
<td>0.87</td>
<td>0.82</td>
<td>0.90</td>
</tr>
</tbody>
</table>

3.4. Study Curriculum

The semi test curriculum in this study was used because it was the most suitable. The study group sample was divided between two groups and one of them was randomly allocated to cooperative learning strategies and the other remained as a control group that was not used for this strategy.

Undertaking the research: to verify the aims of the study, the researcher performed the following tests:

- Study and verification tools were made and their suitable controls for the age group of the children in the test sample.
- Individuals were identified for the study sample for the academic year 2015-2016.
- A book had been received to simplify the task of research aimed at the Ministry of Education and Training and permission was granted for the implementation of the study tools upon the individuals of the test and control groups.
- A book had been received to simplify the task of research from the educational management of the Kingdom of Saudi Arabia aimed at the teachers who were chosen from the study sample.
- There was a meeting with the educational manager. The nature of the study and liaison with him was to perform the study on the test group directly through the researcher, which was expected to continue for 4 weeks over 3 classes per week.
- The researcher has performed pre-assessments for the children in the two groups for the test and control groups using a checklist.
- The strategy was implemented for cooperative learning with children in the test group while the control group remained without any strategic involvement.
- A checklist was implemented for observing attention deficits that were counted in this study as a post measure of the two test and control groups after finishing implementing the strategy.
- The answers for the individual samples were extracted onto a checklist in the computer memory and statistical analysis was done using the statistical program, SPSS.

3.5. Study Variables

The study included the following variables: cooperative learning strategy (independent variable), follow up
variable i.e. Attention deficit, which is expressed by the mean marks for the children on the checklist in this study.

3.6. Statistical Analysis

To answer the study questions and identify its specifics, the mean value was extracted and standard deviation for the various levels of the sample from the two test and control groups on the checklist for observing attention deficits (facts, concepts and skills) then performing Paired Test samples for the paired samples. This was in order to identify the difference between the pre and post measures for the test and control groups and analysing the results using ANCOVA (Analysis of Covariance) to identify the effects of the cooperative learning strategies in reducing attention deficits.

4. Discussion on Results and Its Implications

To find the effects of using cooperative learning to reduce the poor concentration with students who have learning disorder, mean values have been extracted, the Standard Deviation and the pre and post measures for the two test and control groups. Independent Sample T Tests were also applied to the independent samples to identify the differences between the two groups on the post measure. The following table shows that the Paired Sample T Test was applied to the paired samples to identify the differences between the pre and post measures for each group on the cooperative learning strategies to reduce attention deficits (See Table 2).

<table>
<thead>
<tr>
<th>Table 2. Difference between the pre and post measurement for each group on the cooperative learning strategies to reduce attention deficits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Group</strong></td>
</tr>
<tr>
<td>Facts</td>
</tr>
<tr>
<td>Test</td>
</tr>
<tr>
<td>Concepts</td>
</tr>
<tr>
<td>Test</td>
</tr>
<tr>
<td>Skills</td>
</tr>
<tr>
<td>Test</td>
</tr>
<tr>
<td>Whole test</td>
</tr>
<tr>
<td>Test</td>
</tr>
</tbody>
</table>

The T Test value on the table is low and is not statistically significant at the significance level (α ≤ 0.05) for the strategic cooperative learning test to reduce attention deficits. This proves that the pre measurement difference between the two groups (test and control) is significant.

<table>
<thead>
<tr>
<th>Table 3. Independent Sample T Test to identify the differences between the two groups in the cooperative learning strategy to reduce attention deficits in the pre-measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Group</strong></td>
</tr>
<tr>
<td>Facts</td>
</tr>
<tr>
<td>Test</td>
</tr>
<tr>
<td>Concepts</td>
</tr>
<tr>
<td>Test</td>
</tr>
<tr>
<td>Skills</td>
</tr>
<tr>
<td>Test</td>
</tr>
<tr>
<td>Whole test</td>
</tr>
<tr>
<td>Test</td>
</tr>
</tbody>
</table>

The Table 3 shows that all the T Test results are statistically significant at the level of significance (α ≤ 0.05) between the two groups (test and control) in the post measure. The differences were for the benefit of the test group as the concentration in this group was better in the post measure.

<table>
<thead>
<tr>
<th>Table 4. Paired Samples Tests to identify the differences between the average marks in the pre and post measures for the cooperative learning strategy to reduce attention deficits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Group</strong></td>
</tr>
<tr>
<td>Controlled Persistence</td>
</tr>
<tr>
<td>After</td>
</tr>
<tr>
<td>Facts</td>
</tr>
<tr>
<td>After</td>
</tr>
<tr>
<td>Concepts</td>
</tr>
<tr>
<td>After</td>
</tr>
<tr>
<td>Skills</td>
</tr>
<tr>
<td>After</td>
</tr>
<tr>
<td>Test Facts</td>
</tr>
<tr>
<td>After</td>
</tr>
<tr>
<td>Concepts</td>
</tr>
<tr>
<td>After</td>
</tr>
<tr>
<td>Skills</td>
</tr>
<tr>
<td>After</td>
</tr>
<tr>
<td>Overall</td>
</tr>
<tr>
<td>After</td>
</tr>
</tbody>
</table>
As for the test group, the results in Table 4 show that there are differences that are statistically significant for measuring concentration between the pre and post measures and the differences were for the benefit of the post measure as the T Test value was 33.28 with a statistically significant value of 0.00. The average value in the early measurement was 30.40 whereas the average value had risen to the post measurement of 63.89.

The average value in the early measurement was 44.49 whereas the average had risen in the later measurement to 92.00. The T Test value had reached 31.74 with a statistically significant value of 0.00. The differences were in favour of the post measurement. The average value for the skills in the early measurement was 20.74 whereas the average had risen in the later measurement to 45.71. The T Test value for the data was 33.71 with a statistically significant value of 0.00 and the differences were in favour of the post measurement.

As for the control group, also all of the T Test values were statistically significant with a significance value of 0.05. The differences were in favour of the post measurement but the middle differences between the pre and post measures were less than the test group that showed a large difference in the post measures.

In order to identify the effectiveness of the cooperative learning in reducing attention deficits, ANCOVA is shown in the following table, which clarifies that

<table>
<thead>
<tr>
<th>Group</th>
<th>Sum of the boxes</th>
<th>Degrees of freedom</th>
<th>Average boxes</th>
<th>F Value</th>
<th>Statistical significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early test (accompanied)</td>
<td>696.46</td>
<td>1</td>
<td>696.46</td>
<td>6.37</td>
<td>0.01</td>
</tr>
<tr>
<td>Error</td>
<td>47.36</td>
<td>1</td>
<td>47.36</td>
<td>0.43</td>
<td>0.51</td>
</tr>
<tr>
<td>Correct amount</td>
<td>6774.75</td>
<td>62</td>
<td>109.27</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>7500.62</td>
<td>64</td>
<td>696.46</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The table shows that there is a statistically significant difference between the significance 0.05 following the change of the group to the post measure. The differences were in favour of the test group. The results showed that there was no difference in the effectiveness of the test group in reducing attention deficits in the pre measure. This confirms that the differences between the two groups in the early measure.

We can summarize the findings as follow:

1. The results showed that there was no difference in the effectiveness of the cooperative learning to reduce attention deficits on the pre measure.
2. As for the test group, the results showed that there is a statistically significant difference on the concentration scale between the pre and post measures. The differences were in favour of the post measure as the T Test value was 33.28 with a statistical significance of 0.00. The average for the real value in the later scale was 3.04 whereas the average had risen in the later scale to 63.89.
3. The average value for the actions in the later scale was 44.49 whereas the average had risen in the later scale to 92.00. The T Test value for the actions was 31.74 with a statistical significance of 0.00. The differences are in favour of the post measure. The average for the skills in the pre measure is 20.74 whereas the average has risen in the late measurement to 45.71. The T Test value for the data is 33.71 with a statistical significance of 0.00. The differences were in favour of the post measure.
4. As for the control group, all the T Test values also had statistically significant values at the significance level of 0.05. The difference was in favour of the post measure. The average difference between the early and late measures were less than the test group, which showed large differences in late measurement.
5. There is a statistically significant difference at the significance level of 0.05 following the group variable at the post measure. The differences were in favour of the test group.

5. Recommendations

1. Management should organise training programmes for concerned guardians and carers to give them enough opportunity to exchange experiences and reach suitable methods to deal with those with attention deficits in and out of the school.
2. Abstain from making random seat changes to those with attention deficits so it does not draw their attention deficit and keep them in their places through cooperative learning with their groups.
3. Continuously monitor children who have weak concentration by giving them the opportunity to take their turn in their role in the group.
4. Try to perform similar studies for the methods of teaching that reduces attention deficits with students and refresh their minds.
5. Ensure that the family gets involved through assisting their children in performing their homework, dividing it into small skills, taking care of the child’s concentration for that task and organising a suitable time for homework and allowing the child to have regular breaks.
6. Presenting new educational skills such as the key themes, making notes and reading aloud.
7. Praising the children for any work that they achieve well. The family should to remember that the word “good” does not mean “complete”.
8. The family should verify that the homework is complete and that the other subjects are performed well, as they should be.

6. Conclusion

In this study, we can see that there is statistically significant difference at the post measurement of the...
sample. The difference favours the test group. Based on the results, it is highly recommended that school authorities should organize training programmes for the educators and the other stakeholders in order to enhance attention level among the students. New methods in Learning strategies are ever evolving and the effectiveness of the related strategies needs to be communicated well to the trainers so as to quip them with the best possible tools to meet the learners’ requirement.

References