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OBJECTIVES

The main objectives of the Journal are:

- To initiate, conduct, and support research in psycho-educational fields of knowledge;
- To assemble all who are interested in these fields for an exchange of ideas and experiences;
- To disseminate research findings;
- To provide a database for members and researchers.
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Using Computerized Games as a Computer-Assisted Instruction Format to Enhance Helping Behaviour in Kindergarteners at-Risk for Learning Disabilities

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Abstract

Computer-assisted instruction (CAI) has been recently provided in various formats from kindergartens on. It brings several potential benefits as a teaching / learning medium. Computerized games, as a CAI format, are in themselves a very important means of instruction for children in particular because of their unique characteristics. This study investigated the effectiveness of a computerized games program on enhancing the helping behavior in kindergartners at- risk for learning disabilities. Participants were fourteen 5- 6 year- old- kindergartners from Zagazig, Egypt. They were divided into two matched groups (experimental& control) with 7 participants each. Experimental method was used, and results indicated that use of computerized games enhanced helping behavior. It is concluded that those computerized games are practical tools to facilitate training and instruction to children at- risk for learning disabilities, and help them be school ready to learn .

Key words. Computerized games, CAI; helping behavior; at- risk for LD

Introduction

Most children with learning disabilities (LD) and their peers at- risk for LD often experience problems in the social arena. Such problems might impede communication and establishing social interactions with others (Hallahan& Kauffman, 2007). Computer and computerized materials in any computer- assisted instruction (CAI) format specially games might be beneficial in this respect because children like them most, and are always attracted to them, and captured by them (Gee, 2003). Therefore, using such a CAI format, and presenting computerized games to those children that might capture them, might be beneficial because it is likely that those games might enhance the development of communication, and reduce their social problems.

Rationale

The computer has played an important role in children`s life, computer- assisted instruction (CAI) plays a similar role, too. It could be used to help them in all the academic fields. It has been recently used with those children with learning disabilities, and even with their peers who are at- risk for learning disabilities whether to help them in school or in daily life as a whole. Computerized games as a CAI format always have the great effect on those children. It can mainly be used to achieve school readiness in those children which in turn might help them start school ready to learn. Therefore, we are in dire need to formulate a goal like this in Egypt where there is not a sufficient number of kindergartens to determine children who are at- risk for LD, achieve behavior modification, and help them be school- ready to learn. Also, we need to determine the original indicators or criteria for those children to enter school in Egypt, and to establish a clear empirical base to indicate the merits of using computerized games as a CAI format in this respect from either a psychological, developmental, or educational perspective.

Purpose of he Study

The purpose of this study was to develop a computerized games program as a computer- assisted instruction format to be used with kindergartners at- risk for learning disabilities, and to examine the effectiveness of such a program on enhancing the helping behavior in those

children. A secondary purpose of the study was to examine the continuing effectiveness of the program during the follow-up period.

Literature Review

Learning disabilities according to The National Joint Committee on Learning Disabilities (NJCLD) is, of course, a general term that refers to a heterogeneous group of disorders manifested by significant difficulties in the acquisition and use of listening, speaking, reading, writing, reasoning, or mathematical abilities. These disorders are intrinsic to the individual, presumed to be due to central nervous system dysfunction, and may occur across the life span. Problems in self-regulatory behaviors, social perception and social interaction may exist with learning disabilities but do not by themselves constitute a learning disability (Hallahan & Kauffman, 2007; Hallahan et al., 2005). When we are speaking about testing preschool children for learning disabilities, we are really talking about prediction rather than identification as those children are not ordinarily engaged in academics. Hence, the most accurate predictors are preacademic skills (Foorman et al., 1997; Lerner, 2000). These skills are behaviors that are basically needed before formal instruction can begin, such as identification of numbers, shapes, alphabets, and colors in addition to phonological awareness which is important for reading (Torgesen, 2001).

When we think of computerized games, we usually reel to images of exploding targets, flashy graphics, sometimes violent mayhem, pulsing repetitive music and sound effects, in short, everything that makes preschoolers spend long hours losing themselves in an exciting, mesmerizing, pleasurable virtual world. Using such a game as an educational tool, however, is enough to make some educators think of using a computerized game, or even any game, as a learning tool.

Computer-assisted instruction (CAI) most often refers to instruction, whether remedial or not, presented on a computer, and allows drill-and-practice, tutorial, games, or simulation activities offered either by themselves or as supplements to traditional, teacher-directed instruction (Hallahan & Kauffman, 2007). CAI is an interactive instructional method that uses a computer to present material, and track learning. It also enhances the teaching process, usually by focusing on one particular learning task and aiming to improve it (Levy, 1997).

Hence, computer programs are interactive and can illustrate a concept through attractive animation, sound, and demonstration allowing students to progress at their own pace and work individually, or problem solve in a group (Smaldino et al., 2004). Computers offer a different type of activity and a change of pace from teacher-led or group instruction (Fuchs et al., 2006).

Although CAI programs in games mode tend to be entertaining and challenging, gaming is too often seen by educators as a problem activity that unless tightly restricted, is ultimately distracting and even harmful to sound learning practices (Gee, 2003; 2004). In this respect two generalizations emerge from more recent research. First, it is the content of the game that is critical. Successful game programs, whether video games or other formats, have tapped into high levels of motivation and interest. As motivation dies, so learning dies and the extrinsic desire to continue stops (Gee, 2004). Consequently, where content is relevant, gaming should be encouraged as a means to reinforce a wide variety of learning values. Second, the methods and design of games have much to be considered by educators and curriculum developers (Gee, 2003). Good games allow multiple solutions to problems, differential rewards for different levels

of play, and regular feedback about the player's progress (Hallahan et al., 2005; Seferian, 2000) because they often do a masterful job of presenting the basic elements in such a way that the player sees how the game works as a whole system, not as discrete, unrelated units. Basic skills are always practiced, not in isolation, but in sets that go together. In such a way they might form strategies to accomplish goals and carry out activities (Gee, 2003).

Hence, CAI formats, especially games, might arouse cooperation and acceptable social behavior in those children, and might be of great importance to the skill deficiencies they often experience as they allow multiple representations of information, and challenge (Hallahan et al., 2005; Hallahan & Kauffman, 2007), they might arouse the development of social behavior in general, and helping behavior, in particular, which can be seen as some sort of cooperation between children. Therefore, the child may assist his peers in various situations, and the number of his social relations and interactions increased. According to literature (Fuchs et al., 2006; Hall et al., 2000; Hughes & Maccini, 1997; Seferian, 2000; Segers & Verhoeven, 2004), computer and computerized instruction can help reduce the negative effect of being at-risk for learning disabilities, and promote the positive effect that might result in such a strategy as those children are basically attracted to computer, and to what is presented on it.

Campion (1995) saw that a computerized game is preferable by children to traditional education because it has been considered a "fun" activity. The only positive aspect these programs add is the use of the computer itself. With a computer, math problems can at least be displayed with large colorful numbers, and immediate feedback can result from each problem attempted. Thus games themselves have a real educational value as many games do indeed help to develop basic reading, writing and arithmetic skills.

The games which do this in the most structured way, and are usually the most accepted in educational circles, often rely on the interpersonal dynamics of game play. In other words, the game itself is not really much fun to the student participants, but the interactions of the students during play is reinforcing. On the other hand, computerized games always provide stimulation necessary for learning, and using a computer in a game eliminates lengthy computations and board updating, and it allows a game with very complex rules to be started quickly and played by people who do not have to know the intricacies of the rules. They may have to learn the application of the rules to play the game well, but nobody actually has to know the administration of the rules (Campion, 1995 p.175)."

Since most computerized games often appear to become enjoyable, and capture learners' attention most of the time, better instruction can be introduced through them leading to better results as a review of research studies reveals that it has many benefits for children with learning disabilities as an effective medium for mathematics instruction (Hughes & Maccini, 1997), and prereading skills instruction (Hall et al., 2000). It might increase social acceptance to those children which in turn helps to increase the students' willingness to engage in social contact with other students, and enhance communication of non-native speakers of English involved in real time interaction (Peterson, 2008). Furthermore, computerized games, especially those dedicated for language, might in fact deal with specific language impairment (SLI) and could develop phonological awareness skills (Segers & Verhoeven, 2004). It could also lead to significant improvement in attention (Solan et al., 2003), and help children feel more competent to complete the required tasks after training (Seferian, 2000), and enhance problem-solving, and self-management (Miller et al., 2007).

Hypotheses

The present study tries to answer four questions manipulated in the form of the following hypotheses :

1. There are statistically significant differences between mean ranks of experimental and control groups in the post- test of helping behavior favoring the first.
2. There are statistically significant differences between mean ranks of pre- and post- test of helping behavior for experimental group favoring the post- test.
3. There are no statistically significant differences between mean ranks of pre- and post- test of helping behavior for control group.
4. There are no statistically significant differences between mean ranks of helping behavior in post- test and follow- up for experimental group.

Method

Experimental method was used with the computerized games program as an independent variable, and the helping behavior as a dependent one. On the other hand, the experimental design of two groups (experimental & control) was used.

Participants

Participants were 14 male children at- risk for learning disabilities. All of them were from second year kindergarten (KG- II) bearing in mind that kindergarten is not included in the Egyptian hierarchy of education. They were from Zagazig city situated in Sharkiya Governorate, Egypt. They were ranging in chronological age from 5- 6 years with a mean age of 5.65 years, and SD of 1.31 years. They were divided into two equal groups (experimental & control) with 7 participants each. Table (1) below shows the results of such matching between both groups.

Table 1. Results indicating the two groups are matched

Variables	Group	Mean rank	Sum of ranks	U*	W	Z	Sig.																																																																								
Chronological age	Experimental	7.43	52.00	24.0	52.0	-0.065	N. Sig.																																																																								
	Control	7.57	53.00					Intelligence	Experimental	7.29	51.00	23.0	51.0	-0.195	N. Sig.	Control	7.71	54.00	Social level S	Experimental	8.43	59.00	18.0	46.0	-0.846	N. Sig.	Control	6.57	46.00	Economic level E	Experimental	7.79	54.50	22.5	50.5	-0.263	N. Sig.	Control	7.21	50.50	Cultural level C	Experimental	8.29	58.00	19.0	47.0	-0.715	N. Sig.	Control	6.71	47.00	Total SEC	Experimental	8.29	58.00	19.0	47.0	-0.711	N. Sig.	Control	6.71	47.00	Neurological scan	Experimental	7.79	54.50	22.5	50.5	-0.263	N. Sig.	Control	7.21	50.50	Helping behavior	Experimental	7.43	52.00	24.0	52.0
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* Letters included refer to non- parametric methods; (U) is Mann- Whitney value, (W) is Wilcoxon value, and (Z) is z value.

Furthermore, they were matched in age, intelligence (average IQ), socio- economic and cultural status (average level) in addition to the helping behavior level as indicated by the pre-test results. Meanwhile, Neurological scanning results indicated that they were neurologically deficient. School teachers` reports, on the other hand, excluded any other impairment suffered by them. A process of informed consent was used to make sure that parents of the participants know what would happen in the experiment and understand that they were allowed to quit the experiment at any time, and that no harm would be done to the participants.

Instruments

As well as the computerized games program as a CAI format, instruments used in the study were diagnostic and measuring in nature where an Arabic version of Stanford- Binet Intelligence Test- IV was used to select participants with an average IQ, and a socio- economic/ cultural status form was also used to select participants with an average level. Furthermore, a test battery for preacademic skills (Mohammed, 2005) was used to make sure that they were deficient in such arena, and according to the results of the Arabic version of Quick Neurological Screening Test such deficiencies were of a neurological basis.

A scale for helping behavior tasks was developed by the author where it was anticipated that participants would cooperate with each other, and help each other to some extent. It was anticipated also to evaluate such behavior if that scale was used. Hence, six tasks were developed to constitute the whole scale with three questions each. There were 3 options before each of them ranging in scores from zero (for not being able to help) to 2 (always helps others). Therefore, each task has got from zero to 2 scores which in turn indicated that the scores dedicated for the scale as a whole ranged from zero to 12 . The higher the score a participant gets, the better. Tasks included in the scale dealt with real situations that always took place in school or in daily life in general i.e. (1) a student had too many books to carry, (2) during play a child was injured and wanted help to stand up and walk, (3) a child lost his pen and found that he had no money to buy a new one, (4) a student could not do his homework because of misunderstanding of the instructions, (5) some one needed money to get a sandwich to eat, and (6) a child felt ill and wanted some one help him go back to home. To ensure reliability of the scale it was readministered (n = 25 participants other than those ones in the study final sample) two weeks after the first administration of the test ($r = 0.793 > 0.01$), and results of internal consistency indicated that (r) values for the item- task correlations ranged from $0.437 > 0.05 - 0.715 > 0.01$. To test the scale validity, a scale for children outdoor social relationships (Mohammed, 2004) was used as a criterion, and ($r = 0.708 > 0.01$) .

A computerized games program as a CAI format contained 60, 4 times a week sessions with a duration of 30 minutes each was developed by the author. Participants were trained by the author to play the group and social games presented. The program consisted of three main phases of which the first contained 6 sessions, and aimed to create familiarity between the author and participants in addition to qualifying them to receive instruction and training presented through games. It was anticipated that both parties i.e. author and participants would be familiar with the other, and participants would clearly understand what should be done. The second phase in which instruction and training were presented through 48 sessions was distributed to six group and social games that required cooperation of all the group members. Each game was presented through five sessions until participants mastered it, then they were trained to apply what they learned practically in two sessions, and participants were evaluated in the last session. Therefore,

each game was presented in eight sessions. Modeling, manual guidance, repetition, and reinforcement were used. The six games included were :

- (1) *Math mission*: It includes working with pattern blocks, counting change, weighing and measuring, and sorting. It helps children strengthen early mathematical thinking skills in an unusually fun environment.
- (2) *Clifford the Big Red Dog (Phonics)*: It is a phonics program that is intimidating or overwhelming. It contains solid free-play activities, as well as a likable theme that are this program's strengths. Although appropriate for any emergent reader, this game is especially useful for children who are reluctant to go further simply because it is pressure-free and encouraging. It is used with children aged 4-6.
- (3) *Alice In Vivaldi's Four Seasons*: It is a creative arts game that aims to looking for something different, fun, and educational. It works children's brains in fantastic ways as they learn to distinguish sounds and musical instruments. Featuring musical puzzles and games based on Vivaldi's Four Seasons, this fresh software title allows children to play and learn about music and musical instruments in innovative ways. It is also used with children aged 6-up.
- (4) *Blue's Room (Blue Talks)*: It is a graphically-rich early learning software game. It has activities that offer preschoolers the chance to exercise their deductive reasoning skills in simple but effective ways. It is used with children aged 3-5.
- (5) *Star Flyers Alien Space Chase*: It is especially entertaining and does require some thinking skills. It features plenty of arcade action that is never intimidating, some logic puzzles, and a fantastic story line. It is used with children aged 6-up.
- (6) *Adventure Workshop 5 (Preschool-1st Grade)*: It is a virtual playhouse for young children that is educational as well as fun. It is an excellent early logic program that is used with children aged 3- 6.

The final stage aimed to make quick revision on the content of the games included using the same format in 6 sessions with only one session for each game. To test the effectiveness of the program, it was implemented in a pilot study of 3 participants other than those of the study final sample, and results revealed that ($W = 0.00$, and $Z = - 1.631 > 0.05$) which in turn indicated its effectiveness.

Results

Results of the study were summarized in the Table 2. The table shows the presence of statistically significant differences between experimental and control groups in post- test of helping behavior at 0.01 favoring the experimental group as values were all > 0.01 . There were also similar statistically significant differences between pre- and post- test of helping behavior for the experimental group favoring the administration with the greater mean i.e. the post one as U, W,& Z values were all > 0.01 . The results did not indicate the presence of any statistically significant differences between pre- and post- test of helping behavior for the control group as U, W,& Z values were < 0.05 . There were no statistically significant differences in helping behavior between post- test and follow- up for the experimental group as U, W,& Z values were all < 0.05

Table 2. *U, W, & Z values for the differences between experimental and control groups in all measurements of helping behavior*

Measurement	Group	Mean	Mean rank	Sum of ranks	U	W	Z	Sig.
Post- test	Experimental	8.27	11.00	77.00	0.00	28.00	- 3.134	0.01
	Control group	4.41	4.00	28.00				
Experimental Group	Post- test	8.27	11.00	77.00	0.00	28.00	- 3.141	0.01
	Pre- test	4.53	4.00	28.00				
Control group	Post- test	4.41	8.29	58.00	19.00	47.00	- 0.543	N. Sig.
	Pre- test	4.48	6.71	47.00				
Experimental group	Post- test	8.27	8.29	58.00	19.00	47.00	- 0.541	N. Sig.
	Follow- Up	8.32	6.71	47.00				

Discussion

To examine the 4 hypotheses, U, W, & Z values were calculated, and the results indicated the effectiveness of the computerized games program used. Such results might be interpreted in the light of the fact that CAI formats in general and computerized games in particular may in fact be of great importance to the skill deficiencies of the children with learning disabilities, or even their peers at- risk for such learning disabilities (Hallahan et al., 2005; Hallahan & Kauffman, 2007). This of course may be attributed to several reasons that can be identified as follows; (1) CAI in its all formats including computerized games mode provides opportunities to individualize programs and to delineate specific skill deficits far more quickly and with more clarity than can a teacher whose time and resources may be limited, (2) it can also provide an immediate and ongoing feedback to the child on his / her performance, (3) the opportunities for practice can be far greater than can be provided through direct instruction from resource teachers who serve large numbers of children, and (4) most newer CAI formats provide in fact a large array of lessons which focus on specific skills (Fuchs et al., 2006; Gee, 2003, 2004; Hall et al., 2000; Smaldino et al., 2004). Such programs are always designed to ensure that computers do not create further barriers for the learners they are intended to assist, and that computer design and implementation address computers' potential for learners with disabilities in general and those with learning disabilities in particular (Hallahan et al., 2005; Smaldino et al., 2004).

In fact computerized games have undeniable educational values for many reasons i.e. (1) where the learning to take place is specific, (2) learning in such a case is measurable, and (3) it is capable of incorporation into a curriculum, tasks, or activities whether curricular or intracurricular activities. Using the techniques referred to in the present training program, the author could achieve many of those educational goals that participants were anticipated to achieve as most of them have socially behaved in a desirable way that they were previously intended to behave. Their social skills were enhanced as a result of such games which in turn affected their helping behavior in a positive and statistically significant way. Campion (1995)

saw that there are games which incorporate some of the best educational designs. With few chances for failure, the player/learner is lead progressively from his or her current knowledge base to an expanded one. There are even some of these educational games which students will choose to play, not as the least of several evils, but for fun. Very few computer programs fall into this category. Hence we might say that games included in the present study fall into such a category which helped to attain the results revealed.

There are four principles of universal design for digital media that might assist to achieve the desired educational goals; (1) allow for multiple representations of information; (2) provide for multiple means of expression and control; (3) provide customizable support and challenge; and (4) allow customizable content (Gee, 2003; Smaldino et al., 2004). This of course is found in all computerized games included in the program used which in turn makes them enjoyable, and draw learners` attention most of the time. Such capture of attention could be carefully exploited, and by choosing good games we could introduce better instruction to those children enabling ourselves to address all deficiencies those children might have, and achieving good results (Miller et al., 2007) as a review of research studies on computer- assisted instruction CAI reveals that it has many benefits for children with learning disabilities as an effective medium for instruction (Miller et al., 2007; Peterson, 2008; Seferian, 2000), and that the best-supported finding in the research literature is that the use of CAI, in its all formats, as a supplement to traditional, teacher-directed instruction produces positive effects superior to those obtained with traditional instruction alone (Hallahan& Kauffman, 2007).

Generally speaking, this finding holds true for students of different ages and abilities because a well- designed and well implemented computerized games format program used in this respect, might produce an educationally significant improvement in child's final performance (Gee, 2003). What helped to achieve such goals is that according to Campion (1995) in order for a child to choose to play a game, whether educational or not, it must be perceived as fun. So, games were carefully chosen, and children were effectively taught to perceive such games as fun, and to master them. As a result, participants played and interacted with one another, and experienced fun which helped to enhance their helping behavior.

Capper and Copple (1985) argued that CAI users sometimes learn as much as 40 percent faster than those receiving traditional, teacher-directed instruction. Also, student scores on delayed tests indicate that the retention of content learned using computer, games, or any CAI format is superior to retention following traditional instruction alone (Fuchs et al., 2006; Miller et al., 2007). Furthermore, the use of computerized games as a CAI format leads to more positive student attitudes toward education, content, quality of instruction, school in general, and self-as-learner than the use of conventional instruction (Smaldino et al., 2004) which might help them to be school ready to learn.

On the other hand, the variety of computerized games could enhance various abilities in those children. Thus they were also anticipated to be school ready. Elkind (2008) pointed that intellectual ability which is positively affected by such games was seen to reflect readiness before it was changed to be only cognitive readiness. The child must have a good memory and be able to learn, think, observe and communicate. He/ She must be able to understand instructions. The child must also show that he/ she wants to learn which is known as hunger for knowledge. Language development is also necessary for child in primary 1 as he/ she needs to be able to speak, to understand and to express himself/ herself. The child also needs to be emotionally

ready, he/ she must be able to fit into the new environment and show consideration for others. He/ She must be able to control his/ her emotions.

Hence the experimental group children who received the computerized games program as a CAI format have become able to cooperate with one another, and help each other on a practical basis while their control peers were still unable to do so. This observation explained the result that shows the presence of statistically significant differences between both groups in the first hypothesis favoring the experimental group, and the presence of similar differences between pre- and post- tests for the experimental group in the second hypothesis favoring the post- test. Meanwhile, no statistically significant differences were found between pre- and post- tests for the control group. Because such a group did not receive instruction as the experimental one, no change has occurred, and this fact indirectly supported the importance and effectiveness of the program used. Also, no statistically significant differences were found between post- test and follow- up for the experimental group children, and that result went back to what happened during the last phase of the program as the author could reteach them to perform the tasks determined which in turn led to transmission of training through such a period that lasted for two months without any drawbacks .

Limitations

Although it is apparent that the issue of computerized games is one of critical importance especially for children at- risk for learning disabilities so as to help them to be school ready, it is one for which there is little substantive empirical knowledge especially in the Arabic environment to guide our present efforts. There is little agreement about the optimal design principles of such games, the skills that are critical for determining readiness, how such skills might be facilitated for readiness to occur, and how we might accurately assess the various dimensions involved. Also, participants involved in the study were not of a large number that can be accounted on because the great number mentioned to here requires other procedures and efforts, and therefore it needs a team of work to conduct.

Conclusion

Perhaps even beginning to consider kindergartens the first step in the educational hierarchy in Egypt is an impossible task nowadays, as it needs to generalize such kindergartens, and a public decision should be issued to do so. It also seems critical that kindergarten might enhance a range of knowledge and skills related to entering kindergartners' social interactions with their peers, i.e. ease in joining others in play, ability to make and keep friends, and positively interacting with peers. Here lies the helping behavior we should aim to enhance. Finally, it was concluded and recommended to use computerized instruction mainly through games with those children at- risk for LD to enhance their social, emotional, and preacademic skills. It could also be used to help those children to be school ready as those goals are closely related to school readiness, and as a result, children are anticipated to achieve progress later in school.

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The Effectiveness of Touch Math Intervention in Teaching Addition Skills to Preschoolers at-Risk for Future Learning Disabilities

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Abstract

The purpose of this study was to explore The Effectiveness of Touch Math in Teaching Addition Skills to Preschoolers at-risk for future learning disabilities. The selection of the participants (KG1 children) was based on the marks obtained by all the 138 subjects in a mathematics test. The mean and Standard Deviation (SD) of these scores was calculated. Only those subjects who scored 1 SD below the mean in their math test were selected for the study. 60 subjects were assigned into Control (n= 30, 21 boys and 9 girls) and Experimental (n= 30, 23 boys, 7 girls) group. ANCOVA and Repeated Measures Analyses were employed for data analysis. Results. Findings from this study indicated the effectiveness of the program employed in addition ability in the target children. Discussion. On the basis of the findings, the study supports the idea of Touch Math as a powerful intervention for children.

Keywords. Touch Math, preschoolers, Learning Disabilities, Addition skills.

Introduction

Touch Math is a multi-sensory, supplemental curriculum that attempts to bridge the gap between manipulation and memorization of math facts (Bullock, 2000; Grattino, 2004). It follows the sequential learning strategies endorsed by Bruner, Piaget, and Vygotsky in their developmental theories. Students point to, touch, and count dots representing the quantity of the number. This satisfies the sensorimotor and concrete stages of understanding, according to the ideas of Piaget and Bruner, respectively (Vinson, 2004). Eventually students learn to associate the number of dots, or touchpoints, on a numeral that corresponds to the quantity of the number. In learning to add, students are taught the number and touchpoints, touch the touchpoints while counting them, verbalize the total quantity, write the answer, and restate the problem with the answer.

Children enter school with a certain knowledge base of numbers and some find it easier to perform numeric operations than others (Kilpatrick, Swafford, & Findell, 2001). However, with intense instruction most students could make noticeable progress. Many students learn to add without supplemental instructional techniques such as Touch Math. However, some students, such as gifted students, may require a program such as Touch Math that incorporates a structured, systematic, and multisensory approach in order to master basic computational skills. Touch Math is a multisensory instructional program. It has been used for over thirty years in a variety of settings. It is commonly used to teach students with mild to moderate disabilities, both in general education and special education classrooms. Most of the literature indicates that Touch Math is used largely with students from first through fifth grades. Touch Math has been used with students from high achieving, high socio-economic communities to students from lower achieving schools in lower socio-economic communities (Bedard, 2002; Dulgarian, n.d.; Simon & Hanrahan, 2004). Furthermore, numerous colleges and universities across the country incorporate Touch Math in teacher training courses.

Many researchers suggest that students learn best through preferential learning styles (Bedard; Moustafa, 1999; Rudolph, 2008; Scott, 1993; Simon & Hanrahan); however, research by Cronbach (1975) indicates that teaching styles and student learning preferences are not determinants of student success. The key factor in learning is employing a highly structured, systematic, and repetitive program that offers students the opportunity for guided practice and for receiving corrective feedback (Shapiro, 2004).

Touch Math, while based in part on the preferential learning style theory, also incorporates these key components of effective instruction. Surveys and small studies have been conducted to determine the effectiveness of Touch Math in various classroom settings (Jarrett & Vinson, 2005; Rains et al., n.d.; Rudolph, 2008; Strand, n.d.) available on this topic, most studies have concluded that Touch Math has been an effective tool in teaching basic addition, subtraction, multiplication, and division with students in various classroom settings. Few comparison studies have been conducted to determine if Touch Math is a more effective tool or approach than traditional methods of instruction (Bedard, 2002; Dev, Doyle, & Valente, 2002; Dulgarian, n.d.; Wisniewski & Smith, 2002).

Presently there is limited research on the effectiveness of Touch Math on kindergarten children who are at-risk for future learning disabilities. There is even less information available from studies that included treatment and comparison groups through an experimental design. The majority of the research available includes information from surveys that were conducted to summarize the use, implementation, and success of Touch Math by teachers and other educators. Although there is a paucity of research, many of the results are positive in nature (Dev et al., 2002; Grattino, 2004; Jarrett & Vinson, 2005; Raines et al., n.d.; Rudolph, 2008; Strand, n.d.).

Considering the limited research, this study aims to further explore the effect of Touch Math in teaching addition to preschool children who are at-risk for future learning disabilities. Specifically, the aim of this study was to examine the effectiveness of Touch Math in teaching addition to preschool children who are at-risk for future learning disabilities.

Method

Participants

The geographical area selected for research was from Zagazig City. The researcher approached 10 kindergarten schools within the geographical area. Both boys and girls were included in this study. Out of the 10 schools to which permission was sought only three schools agreed to participate in the research. Once the schools agreed to participate, the random sampling method was used to select the participants.

The selection of the participants (KG1 children) was based on the marks obtained by all the 138 subjects in a mathematics test. The mean and Standard Deviation (SD) of these scores was calculated. Only those subjects who scored 1 SD below the mean in their math test were selected for the study. Out of 138 using the systematic random sampling method 60 subjects were assigned into Control and Experimental group. Thus the final sample consisted of 60 subjects.

There were 30 subjects in the Control group (n= 30 , 21 boys and 9 girls)and 30 subjects in the Experimental group(n= 30 , 23 boys , 7 girls).

The two groups were matched on age, IQ, and addition skills. Table 1.shows means, standard deviations ,t- value, and significance level for experimental and control groups on age (by month) ,IQ , and addition skills (pre-test).

Table 1. means, standard deviations , t- value , and significance level for experiment tal and control groups on age (by month),IQ, and addition skills (pre-test).

Variable	Group	N	M	SD	T	Sig.
Age	Experimental	30	53.24	1.96	-.121	Not sig.
	Control	30	51.41	2.01		
IQ	Experimental	30	122.34	4.45	-.221	Not sig.
	Control	30	124.89	4.24		
Addition Skills	Experimental	30	10.21	3.00	-.547	Not sig.
	Control	30	10.67	3.52		

Table 1. shows that all t- values did not reach significance level. This indicated that the two groups did not differ in age , IQ , and addition skills (pre-test) .

Instruments

The Addition Test . The probe consisted of a paper and pencil test of 22 simple addition problems with addenda 1-8. Questions for this probe were selected from the complete set of twenty-five possible combinations of the addenda one to five. Selection of problems was conducted in a systematic manner. Included first were the five questions considered as "doubles" (1+1, 2+2, 3+3, 4+4, 5+5, 6+6 , 7+7, 8+8). The remaining problems for the pretest were determined by choosing a problem and not its reciprocal. For example if 1+2 were chosen then 2+1 would be omitted. This method was conducted in such a way as to assure that half of the problems had the larger addend placed first and the other half had the smaller addend placed first. Each number from 1-8 appeared as an addend in the pretest a total of 8 times. The fifteen problems were then placed in a random order for administration.

Procedures

Before beginning the application of Touch Math to the addition process, a period of Touch point training was required. One hundred percent mastery of the touch point configurations for each number 1 to 5 was required. Instruction was provided for the touch points, and then the subject was given supervised practice in touching and counting in the recognized order. criterion for this task was considered to be three consecutive correct trials of touching and counting on three separate days. During training, numbers were presented in different ways to aid the students with generalization of the knowledge. Different sized numbers were used and the numbers were presented both in isolation and together as on a number line.

Once criterion was reached, the application of this knowledge to the process of addition was initiated. Each session commenced with a review of the touchpoint configurations for the numerals 1 to 5, presented in a random order. Correct answers were praised, incorrect answers were corrected, reviewed and readministered.

The subject then received directed practice on a set of four simple addition problems following the order set out on the worksheets. Subjects were presented with laminated numbers arranged into vertical and horizontal addition problems. Different sized numbers were used in order to aid generalizability. The four problems that had been practiced were then tested at the end of the session or earlier if the subject was consistently correct on practice trials. The subject could progress to the next set of problems if they received a score of 3/4 (75%) correct or better on the test worksheet. A record of these scores was kept. The subject was praised and given stamps for hard work. Corrective feedback was given immediately on problems done inaccurately. If the subject received less than 75% correct, that training set was continued in the next session. When the subject completed both the original series of worksheets with the touchpoints and the reciprocal series without touchpoints, the probe was readministered to all the subjects. The subsequent subject was then introduced to the training phase as described above. When the final subject completed the training phase, a concluding probe was administered to all the subjects.

Scoring

For both the instructional worksheets and the probe tests, problems were assessed as either correct or incorrect based on unassisted and unprompted answers given by the child. Answers could be written, marked with a number stamp, or if either of the two written recordings were unavailable to the student, he/she was allowed to answer verbally.

Results

Table 2. shows data on ANCOVA analysis for the differences in post- test mean scores between experimental and control groups in addition test. The table shows that the (F) value was (128.009) and it was significant value at the level (0.01).

Table 2. ANCOVA analysis for the differences in post- test mean scores experimental and control groups in addition test

Source	Type III sum of squares	df	Mean square	F	Sig.
Pre	1.725	1	1.725		
Group	217.276	1	217.276	128.009	0.01
Error	317.340	57	5.567		
Total	1067.933	59			

Table 3. shows T. test results for the differences in post- test mean scores between experimental and control groups in Addition test. The table shows that (t) vale was (11.67). This value is significant at the level (0.01) in the favor of experimental group . The table also shows that there are differences in post- test mean scores between experimental and control groups in Addition test in the favor of experimental group .

Table 3. *T- test results for the differences in post- test mean scores experimental and control groups in Addition test*

Group	N	Mean	Std. deviation	T	Sig.
Experimental	30	13.50	1.10	11.67	0.01
Control	30	6.43	3.12		

Table 4. shows data on repeated measures analysis for Addition test. The table shows that there are statistical differences between measures (pre- post- sequential) at the level (0.01).

Table 4 . *Repeated measures analysis for comprehension test.*

Source	Type 111 sum of squares	df	Mean square	F	Sig.
Between groups	661.250	1	661.250		0.01
Error 1	105.611	58	1.821	363.148	
Between Measures	794.978	2	794.978	193.121	0.01
Measures x Groups	596.933	2	298.467	145.011	0.01
Error 2	238.756	116	2.058		

Table 5. shows data on Scheffe test for multi-comparisons in Addition test. The table shows that there are statistical differences between pre and post measures in favor of post test , and between pre and sequential measures in favor of sequential test , but no statistical differences between post and sequential test .

Table 5. *Scheffe test for multi- comparisons in Addition test*

Measure	Pre M= 6.76	Post M= 13.20	Sequential M= 12.86
Pre	--	--	--
Post	8.43*	--	--
Sequential	8.10*	.33	--

Discussion

The main objective of the present study was to explore whether there were differences in post – test scores mean between control and experimental groups on Addition skills . The study also examined If the program was effective, if this effect was still evident a month later .

The results of this study as revealed in tables 3 and 5 show that the Touch Math program was effective in teaching the addition skills to children in experimental group, compared to the control group whose individuals were left to be taught traditionally.

Each group received instruction in their respective groups for 18 days. In order to determine the effectiveness of the intervention, pre- post , and follow-up -tests in math were administered to all groups. The math follow-up -test was administered a third time to the Touch Math group approximately two and a half weeks after the post-test. The hypothesis was that students in the Touch Math group would make greater gains on the math post-test than the students in the other group.

Touch Math combines direct instruction, repetition, and hands on sequential learning. It is also a systematic approach to adding, which in turn should lead to effective instruction. There is a paucity of research on the effectiveness of Touch Math or other multisensory approaches to teaching addition. Of the research that is available, none of it consists of studies with experimental designs. Most of the information available is based on single case design or satisfaction surveys (Grattino, 2004; Jarrett & Vinson, 2005; Moustafa, 1999; Rains et al., n.d.; Simon & Hanrahan, 2004; Scott, 1993; Vinson, 2004). The few studies that do exist are either unpublished or the quasi-experimental design did not include comparison and control groups which is required to be considered experimental (Bedard, 2002; Dev et al., 2002; Dulgarian, n.d.; Wisniewski & Smith, 2002).

Experimental group gained better scores in addition test than did control group in post-test though there were no statistical differences between the two groups in pre- test. This is due to the program which met the experimental group's needs and interests. On the contrary, the control group was left to be taught traditionally. This goes in line with our adopted perspective which indicates that traditional methods used in our schools do not direct students as individual toward tasks and materials , and do not challenge their abilities. This may lead students to hate all subjects and the school in general. On the contrary, when teachers adopt an approach (such as Touch Math) that suits students interests and challenges their abilities with its various modalities, they achieve better gains . Worth mentioning is that children in the experimental group retained the learnt information for a long time even after the period of the program finished, and this indicates the training effect.

Limitations

The main limitation of this research is that prior knowledge of the TOUCHMATH program was unknown at the time of this study and with the carry over effects , the potential of this prior knowledge can alter the outcome of the study.

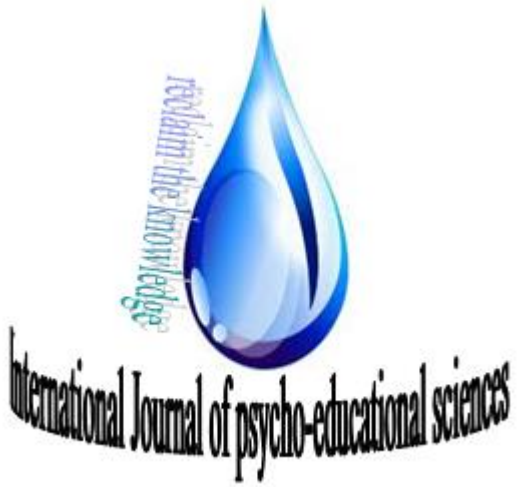
Suggestions for Future Research

Results of this study have been very favourable for the Touch Math method; however further investigation of this program is warranted. The effectiveness of different instructional tools may also provide an avenue of research. As a multisensory approach, the Touch Math method may be supplemented with other sensory experiences. For example, instructors may want to augment the touchpoints on the numerals with fabrics or perforations that students can feel when they touch the dots. This can be done on the number lines or wall posters for an additional

sensory pathway for the student. This tactilekinaesthetic experience may be especially effective in meeting the learning styles of some students.

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Strategies for Textbook Selection and Evaluation in Terms of Four Main Skills for EFL Classrooms

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Abstract

Coursebook evaluation is of paramount importance for the reason that efficient selection of textbooks will increase the proficiency of EFL learners in the classroom. There exist lots of studies conducted about textbook evaluation and selection which cover crucial concepts related to choosing the most appropriate coursebook for EFL learners. Therefore it is important to lay store by English language coursebooks to reach a reasonable decision when choosing coursebook. English coursebooks are regarded as of little importance by many EFL teachers to improve students' abilities in language skills, they are rather beneficial if teachers follow important steps when choosing suitable textbooks for EFL classrooms. In this research paper, it is aimed to determine the instructors' views about fulfilling the essential requirements to attain success in EFL classrooms when evaluating coursebooks. In order to select a suitable coursebook it is a necessity to consider criterias that carry vital roles for increasing efficiency in language skills, therefore this research paper provides information about textbook evaluation and selection in terms of language skills for EFL learners as well as highlighting beneficial criterias to render the evaluation and selection process flawless.

Keywords. English coursebooks, selection criteria, EFL classrooms, language skills

Introduction

Ya-ni (2007) proposes that “As a key area in English Language Teaching (ELT), the significance of material design and evaluation has grown steadily. Evaluation is basically a matching process, which concerns matching learners' needs to available solutions.” (p.1). This is a statement I agree with, for the reason that it is essential to evaluate the language teaching materials considering the needs of the learners to accomplish an efficient teaching process. Teachers of EFL should be considerate and careful about selecting coursebooks.

Inal (2006) emphasizes this point by saying :

...Within the public school system, teachers are not properly trained on how to choose, adapt, evaluate and use their coursebooks. Teachers need to be trained in a way that promotes effective teaching techniques so that students may benefit from their own learning experiences. Suggested guidelines on choosing coursebooks should cover all possibilities and problems, and the teachers should understand the solutions emphasized in the guidelines (p. 21).

Coursebook selection is a process that needs to be dealt with by language instructors diligently. If it is neglected, inappropriate selection of textbooks can result in detrious effects. As Inal puts it,

Most problems in teaching a foreign language are linked to the coursebook selection process. Once a coursebook is chosen, few efforts are made to evaluate the effectiveness of the book. Subsequently, the need to modify the curriculum is often ignored. The traditional system has done little to encourage the necessary training skills needed for coursebook selection, yet has insisted upon heavy workloads for both students and teachers (p. 21).

There exist many crucial factors useful while choosing the most suitable textbook. A coursebook should be evaluated thoroughly to be used in EFL classrooms. Teachers should always select the textbooks which meet the learner needs adequately. Cunningsworth (1995) acknowledges that it is very important to choose suitable criteria, since assessment will show a result of the textbooks evaluated. In many cases, coursebooks which is sufficient about needs and context are best to provide, the concepts related to flexibility and suitability for adaptation are also important. (p. 5).

A coursebook chosen by teacher includes some advantages for the students. Bierstedt (1955) argues that if a teacher selects a coursebook himself-herself, it is most probable for that book to carry a high quality. Since teachers are educated persons, they know their community and features of it like culture characteristics. Moreover teachers can understand their students and differentiate their deficiencies and strengths. (p.173). Therefore, teachers' decisions about choosing coursebooks are reliable in many cases for the reason that teachers are good at determining the best teaching methods and the best coursebook for their students accordingly. Chambers (1995) points out that it is better to choose materials for an ELT class cooperating with as many of users as possible. In this way the feeling of ownership over decision and the wisdom that comes with selection is possible to increase. This kind of selection is much more advantageous than the other types of material and assessment papers selection which are not planned thoroughly. First, it is not unclear. The persons who make decisions get the opportunity of stating their ideas about their criteria and advocating them. Also once they determined their criteria, they know how to prioritize them. In addition, the process of decision making will be easier for it reduce the complexities about thinking. (p.33).

Importance of Coursebooks

It is certain that coursebooks are weighty for language learners, still those books can only be effective as long as they increase students proficiency in foreign language.

For a coursebook to have a desired effect on learners, it is essential for that book to stimulate teacher to make use of it greatly since coursebooks should let teachers reflect on and evaluate their thoughts about teaching and learning through establishing relationship among these factors. James (2001) notes that learner interest is among the main features which render a coursebook fertile, that is to say, productive for students. (p.62). Hutchinson stresses that “ We learn a lot when we are enjoying ourselves. Fun is not just an added extra, it is the lifeblood of effective learning.” (p.1). Here we understand that if coursebooks do not include activities that do not trigger sufficient enjoyment, it is possible for the students to lose their interests which will hinder their learning. Coursebooks should also give the learner the chance of improving their capabilities of conducting a successful interaction with their friends and teachers which will foster language learning.

Choosing the Right Book for the Class

Deciding on appropriate coursebook for the class is not an easy process at all if some essentials that carry importance for choosing textbooks are ignored. The more the students practice speaking especially through dialogs, the more confident they become in terms of using a foreign language effectively. According to Rivers (1978), we must never forget that our aim is to enable our students to communicate comfortably with the other people, to understand what they say in general and to explain what they themselves want to convey, when we choose learning exercises. (p. 3). Coursebooks should be motivating for learners to practice speaking in foreign

language as much as possible. Teachers should choose coursebooks which include activities beneficial for students in terms of increasing their communication powers indispensable for an efficient learning in EFL classrooms.

In the book titled '*At the chalkface practical techniques in language teaching*', Matthews (1985) provides sufficient information about the importance of teachers' awareness of their teaching situation when selecting suitable coursebooks for their students. (pp. 202- 204). Textbooks mainly carry a very important role since, in most circumstances, they act as a main supply for both teaching and learning process. A great deal of tasks for learning are determined taking the coursebooks into consideration, consequently, textbooks come first in importance to be used by teachers while they cover the syllabus of the year. Since many teachers are busy in daily life, It is difficult for them to find enough time to prepare teaching materials other than coursebooks which proves that prepared teaching materials cannot surpass the coursebooks in terms of efficiency (p.202). Teachers' deciding on a suitable coursebook entails some procedures related to defining their teaching situations. Teachers need to dwell on some important points before choosing a textbook. The objectives included in syllabus should meet the needs in terms of functions, topic, vocabulary and four skills. It is illogical to choose a textbook which consist of overloading materials for the available teaching hours. The age of students is also an important factor in determining the topics appropriate for them. In addition , students` interests are vital as textbooks that do not provoke interest would be of no use. Beside these, if the social and cultural elements used in the textbooks are not familiar to the students, they can be perplexing and it result in students' becoming confused.(p.203)

Matthew (1985) concludes that many textbooks are designed for classes of a few students which may cause difficulty to use effectively in larger classes. It is certain that in a language class, there will be learners of different levels, therefore, textbooks should be applicable for all learners no matter how various their learning levels are by providing them with moderate tasks which should not be too challenging or too easy (p.204).

Need For a Checklist

To evaluate and choose an appropriate textbook, teachers need to use a checklist which is useful for them to detect the most essential features of the elements included in coursebooks in a short time and without facing difficulty. Cunningsworth (1995) expresses this need as follows: "As different criteria will apply in different circumstances , it is best to identify your own priorities and draw up your own checklist." (p.2). When preparing or adapting a check-list, teachers should take necessary procedures, that improve the learners' language abilities in all aspects of language learning, into consideration. Teachers should also try to find reasonable answers to the questions prepared to determine the most suitable textbook for an efficient language learning process. Arnold (1985) lists some of the criterias as follows: general impression, methodology, coverage of grammar, four skills, presentation of new language, accuracy and fluency practice, variety, sexism, availability, price (p.206). A coursebook about which teachers reach a conclusion that it is right for students and applicable in an EFL classroom, should fullfil all the criteria existing in the checklist. That is why use of checklist is so important to decide on which coursebook is best for the students.

Peacock (2008) reporting that each year a surprising number of new textbooks show themselves in EFL market worldwide which result in difficulty in selecting suitable book for the students (p.1) emphasizes the need for checklist.

Selecting Textbooks for EFL Classrooms

Selecting textbooks diligently and with great care considering fundamental needs for an effective teaching and learning process will certainly have considerable contributions for both the teacher and the students in EFL classrooms. If a coursebook selected by teacher includes activities which arouse interest in the students, they will be eager to work on the coursebook and gradually their foreign language using skills will improve. Cross (1995) claims that the goal should be providing the learners with the feeling of achievement and a nice learning atmosphere instead of testing them. (p.163). This feeling help language learners gain self confidence and motivation. Besides, students become enthusiastic about challenging tasks included in a coursebook designed well and they they get more and more proficient in language as they achieve their aims. Monotony result in students losing interest, in order to avoid a situation like that, coursebooks should offer variety. Cross (1995) assumes that it is necessary to make use of imagination and a little struggle to provide large- classess with variety, if its usefulness is realised, classroom atmosphere becomes livelier, participation, motivation levels, and learning accelerates through activities. (p.3).

Evaluating Textbooks for EFL Classrooms

Teachers, when evaluating textbooks, should give priority to the learner needs which is the key factor to equip students well with language skills. Campbell (1972) underlines that “the value of coursebooks as a vital learning tool is universally recognized.” (p.7). Yang (2003) indicates that cooperative tasks for learning can help developing coursebooks to motivate the learners to work on tasks with their friends as well as giving them the opportunity of study actively. (p.17). Evaluation of the coursebooks needs great care and analysis should not be completed all at once, otherwise, a coursebook that is, in fact, rather beneficial for the learners, maybe attributed to be of no use. Stevick (1972) asserts that “Sometimes rejection is inevitable, but often it is the result of hasty, or unperceptive or unappreciative examination of the existing book.” (p.102).

Teachers should be encouraged to focus on assessing textbooks in detail and choose the best one for EFL learners. Kuzu (2007) acknowledges that it is a requirement to prove the quality of the coursebooks to use in teaching, as a result of this, evaluation and design of the materials used in education gains a considerable importance. A study conducted recently gives us important clues beneficial for design and assessment coursebooks which aim to encourage authors design course materials with more efficient visuals and to assess coursebooks used currently to determine reliable tools to follow when evaluating coursebooks (p.3).

Criteria for Evaluation

Teachers' struggle for evaluation of a coursebook will be in vain if they do not benefit from the criterias that help them choose the most suitable textbook. Cunningsworth (1995) states that, to evaluate a coursebook for its suitability requires assessment of the book with special criterias like learners' aims and background, available supplies and so on. (p.15).

A coursebook should always be evaluated making sure that the language learners get the opportunity of using the skills practically to improve their language abilities. Inal (2006) lists the important criterias as follows: subjects and contents of the tasks' relevance to aims, students' finding the tasks interesting, language relevance to the tasks, variety in the tasks, task authenticity, tasks providing students with training, texts or tasks' increasing the students general

knowledge, cultural sensitivities, the objectives of the coursebooks being compatible with the school's language, learning aims, the school's attitude towards language teaching (p.25).

Organization of Coursebooks

Textbooks should be composed diligently and carefully not to decrease efficiency of teaching-learning process in EFL classrooms. Haynes (2001) proclaims that "People's learning style fall into patterns. Knowing these patterns will help you to write books to suit all readers." (p.47). Consequently, in the same way, a teacher should be careful about choosing coursebooks organized appropriately for the learning styles of their students. Haynes (2001) again notes that, Students' learning show a tendency to begin with easy and structured tasks. (p.59). Coursebooks should not be a burden for the learners, instead, they should be organized so well that students will begin to learn a language through easy tasks and activities and gradually they will face more challenging tasks in the coursebooks, which is an effective technique for EFL learners. Razmjoo (2007) points out that, "the major parts of high school English textbooks are as follows: word study (new words and expressions); reading comprehension: "speak out"; "write it down"; "language function" and "pronunciation practice" (p.7).

A well organized coursebook should activate the knowledge of language skills equally by presenting activities relevant to reading, writing, speaking and listening as well as vocabulary pronunciation and grammar. If all those factors mentioned are taken into consideration in a coursebook, proficiency of students will increase. Tomlinson (1998) indicates that it is not very beneficial to iterate the same thing all at once continuously, on the other hand, it is invaluable to allot the repeating process to periods of time for acquisition of language. But we keep on organizing coursebooks into units which depend on a specific language teaching aspect. Although it is known that long term learning requires active engagement we still use texts trivial and neutral for students in the process of reading and listening. (p.). Coursebooks should be organized in a way that, learners do not have to acquire knowledge all at once in a very short time. A teacher should prefer a coursebook which has reasonable goals to make students become successful language learners in EFL classrooms. Williams (1989) argues that "The shortcomings of the older type of integrated course book are that the language of reading texts is highly controlled, the subject matter tends to be rather uninteresting, and there is insufficient variety of text type" (p.24). Aims should be determined considering all of the learner needs, ignoring even one aspect of the needs can result in decrease in the enthusiasm of the students towards learning a foreign language. Yang (2003) suggests some effective aims to accomplish a successful language learning one of which is that the activity should carry an aim and should make sense, in addition, the activity must be authentic and the concepts taught in the activity must match students' needs in terms of their levels, backgrounds and ages and a variety of activities is required (p.17).

Content of Language in Coursebooks

Language content in coursebook mostly deal with concepts taught rather than the way of teaching of them. To find out how appropriate the material for the learners, necessities of the learners can be assessed within the content of language. Cunningsworth (1995) advocates that, language content in coursebooks should show correlation with the needs of the students (p.31). Stevick (1972) points out that when adapting a book, the aim is to provide students with using language communicatively in contexts and language structure that make sense as much as possible (p.118). EFL learners should be encouraged to use the language in a linguistically communicative way.

Grammar

In a textbook grammar is a crucial language component which should not be devalued by language teachers in EFL classrooms. The learners should be motivated to learn grammar rules through activities rather than giving the rules at first, instead their knowledge should be reinforced in the final step explaining the grammar rules after the students complete doing the grammar activities. Hutchinson (1994) states that if children are expected to use English creatively it is necessary to provide them with a little knowledge of grammar. Children are motivated to figure out the rules of grammar as much as possible (p.2). In this way the knowledge of the grammar rules will be durable on the minds of the learners.

Grammar parts can be supported with various activities which arouse interests in the learners. Rivers (1978) remarks that “ Grammar is learned inductively and through action rather than through deductive grammar rules. Discovering the rules through exercises will be beneficial for the creativity of the learners”(p.23). I strongly agree with this statement since it is better to ‘learn’ something instead of ‘memorizing’ in a plain way. Memorizing is not an effective way of language learning for it can result in forgetting knowledge in a rather short time. In order to avoid this situation, coursebooks should include grammar sections developed to encourage EFL learners to figure out and learn grammar rules through activities which arouse interest and enthusiasm. Arnold (1985) asserts that lots of textbooks organized functionally show a tendency to give little importance to the grammar, this carries risks since teaching learners interaction in writing and speaking requires an adequate accuracy. We should not aim achieving a communication which do not have a relevance with grammatical accuracy (p.204).

Vocabulary

Language learning process cannot be complete if vocabulary is neglected. Cunningsworth (1995) reveals that vocabulary was not as popular beforehand as it is for the last few years. With some knowledge of vocabulary, learners can interact better than with the sole knowledge of structures. Choosing vocabulary is not an easy process. Choosing words with relevance to their frequency is not enough for making sure that those words will be useful in the course (p.38).

When selecting vocabulary focusing on just one aspect may not work. Besides providing learners with lots of new words, coursebooks can also be rather beneficial for students in that they improve strategies for vocabulary learning. Williams (1989) asserts that different types of texts help learners develop various reading styles and they get to know different text types. Moreover, vocabulary is developed through this technique (p.22). Learners’ knowledge of the vocabulary needs to be enriched via extensive reading tasks which should be covered in the coursebooks.

Cunningsworth (1995) observes that good vocabulary development activities include the ones that follow:

>semantic relations- word groups according to meaning, synonyms, hyponyms, opposites,

>situational relationships- word sets associated with particular situations, eg. Sport, transport, politics

>collocations- words commonly found in association, eg food and drink, for better or worse, also noun+ predisposition links and phrasal verbs (verb+ particle links), >relationships of

form (often referred to as “word building), eg long, length, lengthen. (p.38). Vocabulary learning should not be neglected in any way.

Four Main Skills

It is better for a teacher to choose coursebooks which include useful activities related to all four skills of language. In the opinion of Hutchinson (1994),It is not sufficient for children to have a sole knowledge of vocabulary and grammar, moreover, making use of that language is a requirement for them. It is essential for them to develop beneficial skills of language (p.2). I strongly agree with this view. A coursebook designed to improve language skills of the student will add quality to the learning process. Hutchinson (1994) claims that,

Pupils need to develop fluency in using the language. They need to be able to listen and read without worrying about understanding every word. They need to be able to speak and write without having to think about every word and structure they want to use. Pupils need to develop language skills both as language users and as language learners” (p.2).

In coursebooks the activities should be allotted equally for the main skills: writing, reading, speaking and listening during a course. Allen (1972) indicates that “Practice of more than one skill will provide the learners with variety and raise interest in the lesson.”

Arnold (1985) asserts that ,

...If you teach in a secondary school, you have little or no way of knowing the purposes for which your present students will need to use their school English- or indeed whether they will ever have a reason to use it at all. It seems sensible, therefore to aim to lay a solid foundation in all four skills from which the students can later proceed according to their individual needs. Many elementary textbooks concentrate heavily on oral and aural skills and neglect the development of reading and writing. It shouldn't be forgotten, however, that in all examinations the students are tested on their ability to read and to write. (p.204).

Students should be equipped with all of the language skills with the help of coursebook which do not ignore the importance of language skills.

Reading

Reading is a skill that requires diligence and attention. Davies (1995) points out that it requires hard effort for people to learn from a text which is usually neglected in many coursebooks (p.9). Reading texts should be enriched via visuals or activities that catch attention of the students, in coursebooks. Besides, students' language levels should be taken into consideration when selecting coursebooks. If a reading passage is far beyond the level of the learners, it is highly possible to lose interest and concentration for them. Again Davies (1995) notes that systematic analysis of needs, perceptions and background of learners should determine the organization of a reading programme, general prescriptions about reading should be avoided and students should be given the chance of working on a variety of reading types for different purposes (p.166). Reading texts should be enriched through visuals or activities that catch attention of the students. Davies (1995) emphasizes this point by saying, “The reading tasks used in the classroom should be activities which encourage active engagement with and analysis of texts rather than be passive ‘testing’ exercises.” (p.166). In this way improvement in reading becomes inevitable since motivating students to participate in the lessons actively will provide

them with a better learning atmosphere. Activities related to reading texts in the coursebooks should motivate students read the passages critically and deeply. Williams (1989) explores that,

With each change of topic there is a process of recycling, as the learner will practice similar reading skills involving similar tasks, but upon different texts. As the programme goes on the texts can become more complex in language and in the way they are developed, so that the learner is going through a real progression (p.22).

In the coursebooks the variety of reading texts make the EFL learners more and more proficient. Cunningsworth (1995) believes that students have the chance of reading texts at their own speed and without stress that is sometimes endured in the process of listening and speaking. In reading, the foreign language learners can maintain their speed which is an important feature, beside these, it is liable to link the reading with the other skills especially writing and listening. There exist textbooks which have reading texts with tape records and expect learners to listen to when they read, this help learners develop their pronunciation and makes the text lively (p. 73).

Writing

Coursebooks should cover writing activities which show variety in their types which help the students use the language they learn actively. Cunningsworth (1995) examines that “The types of writing task given can be quite varied and include writing factual accounts such as a report for a newspaper, filling in grids, writing notes to others, making lists, filling in forms, writing a diary, writing formal and informal letters, summarizing texts, and many others” (p.80).

To make use of a variety of writing styles in the process of teaching a foreign language is extremely effective. As Cunningsworth (1995) advocates, A textbook should include as many different types of writing as possible because of the reason that they show differences in terms of their design and it should be suitable for learners’ aims and levels (p.80).

Listening

To become proficient in language, students, in most cases, need to develop learning strategies peculiar to them. For this reason, students with different learning strategies can face difficulties if they are obliged to do activities in the same way everybody does. Individuality of the students should be taken into account in coursebook. EFL learners’ having lots of problems related to listening tasks may result from their learning styles’ being neglected. Students can be motivated to do listening tasks with their peers collaboratively which give them a chance of being aware of their deficiencies and discovering the best way to become a successful listener. Coursebooks should be organized taking this point into consideration. Djwandono (2006) affirms that teachers can make use of advantageous sides of different learning styles through informing the students about the aim of cooperative listening which is bringing up different learning strategies in order to complement each other instead of regarding the differences in students’ learning styles as obstacle. Therefore, analytic learners can get an idea about types of strategies like guessing, inferring and predicting used by global learners and adopt these strategies to use as well as their own strategies. In the same way, a solitary learner can understand the importance of strategies based on group work via their friends more sociable. The variety in learning styles can be eluded from being a problem if this is applied (p.36).

In the coursebooks, to make listening process effective, students can be asked to do exercises while they are listening to a tape recorder. Hutchinson (1994) notes that when we read

or listen to sth we have an aim. Learners should be provided with a task to do with listening and reading which decrease the difficulty in understanding as it is not necessary to understand everything. It is important for the learners to know what to do before beginning to the task clearly because their listening and reading will improve on the condition that they are given a motive. Consequently, learners should be encouraged to predict firstly what they will hear or read, in this way, they will look for the information besides listening and reading to find out whether their predictions were right (p.3). So, coursebooks should include pre-listening activities as well. Learners' knowledge of the world plays a very important role in terms of their comprehension in the process of listening. Cunningsworth (1995) stresses that,

It is usually impossible to understand much of what is being said because of elliptical references to items of shared information that the outside listener has no knowledge of. We often underestimate the difficulty our students experience in listening to such material, and we should expect the coursebook to give as much background information as possible to make comprehension easier (p.68).

Existence of shared knowledge plays a vital role in this respect.

Speaking

It is better for EFL teachers to choose coursebooks which include activities related to speaking as well as the other skills. Students can be encouraged to speak through dialogues existing in coursebooks. Learners may start a conversation with their friends with the aim of practising the dialogue given. Rivers (1978) emphasizes the importance of dialogues by stating,

Dialogues, which we shall call conversation- facilitation dialogues, are intended primarily to provide students with a stock of useful expressions (cliches of conversation, frequently used expressions, conventional greetings, expletives and rejoinders) with which to practice conversing , while the teaching of grammar proceeds as a parallel but distinct activity (p.25).

The more the students practice speaking especially through dialogs, the more confident they become in terms of using a foreign language effectively. According to Rivers (1978), we must never forget that our aim is to enable our students to communicate comfortably with the other people, to understand what they say in general and to explain what they themselves want to convey , when we choose learning exercises. (p.3). Coursebooks should motivate the learners to practice speaking in foreign language as much as possible.

Validity Of Contents In Coursebooks

Tomlinson (1998) emphasizes the validity of the coursebooks stating that textbook's showing correlation with deeper concerns about education like the importance of learning skills, younger learners' development of concepts, world knowledge are among determiners of validity of concepts in coursebook . In addition it is important to figure out whether the opportunities are adequate to benefit from when using and practising communication styles and skills, moreover extensive reading should be encouraged for a full exposure to language data (p.54). In order to render a foreign language teaching- learning process efficient, the contents included in a coursebook should meet fundamental needs of the learners. Cunningsworth (1995) acknowledges that “ Although the coursebook may not seek to impose a rigid methodology on learners and teachers, nevertheless the way it organizes its material and the kind of activities it promotes can have a profound influence on what happens in the classroom”(p.97).

Authenticity

Authenticity is a rather important factor which should be taken into consideration by EFL teachers when they choose a coursebook. Williams (1989) insists that learners have the chance of benefiting from actual instances of language which make using authentic texts advantageous. If learners are good at working on the text, they experience confidence and success. In addition, if the learners are to face the real language in places other than classroom, to be able to get ready for this situation, inside the classroom use of real language should be encouraged (p.25).

In classroom climates, learners should be motivated to accomplish using real language. Ya-ni (2007) advocates that authentic materials are of great importance in foreign language teaching, language teachers do not use them everyday but those materials show their effectiveness on the objectives and techniques of particular learning situations. (p.28). Coursebooks should be assisted with authentic materials.

Litz (2000) observes that,

... Since the advent of the 'communicative approach' to language teaching in the 1970's and 80's, there has been a growing school of thought that says that authentic reading, speaking, listening and grammatical language models should be used to teach English language skills as long as the activities or tasks associated with them are also authentic and suitably graded to the level of the students with whom they are being used" (p.30).

authenticity helps EFL learners increase their proficiency in English on a vast scale.

Guidance

There exist crucial points which make a coursebook flawless in terms of EFL teaching on the condition that those points are dealt with carefully. Cunningsworth (1995) states that, presentation of language should be controlled, learners should be encouraged to participate in the lessons actively, activities should not be of the same type, Furthermore objective learning atmosphere ought to be provided and errors should not be treated in a negative manner (p.99). Even a coursebook which completely fulfills the needs of the learners as well as the teachers cannot be effective in an EFL course unless the learners are provided with the opportunities required to use a foreign language which brings minds the concept of 'guidance'.

Learner Needs

Cunningsworth (1995) expresses that five important points have been identified by the authors in terms of the needs faced by students who begin to learn a new language with a instructor and a textbook in classroom which are the need to interact efficiently, having a knowledge about the systems of language, struggling for working on tasks a bit far from their levels, taking more responsibility in the process of learning, having an awareness about culture differences (p.97). Beside these factors, practice in EFL courses ought to be regarded as an important need.

Yilmaz (2005) indicates that practice and instruction should complement each other with the aim of accomplishing aims prepared by the teacher. If the courses based heavily on theory, it is possible for the students to lose their interest (p. 268).

Method

Setting and Participants

A questionnaire about coursebook selection strategies was applied to instructors of preparation classes of language teaching institution at Baskent University on May 12, 2008. Thirty English language instructors who teach in preparation classes were the participants of the research study.

Research Instruments

A questionnaire was conducted in this study to gather data from the teachers of English philology preparation classes. The questionnaire included thirty questions. In this questionnaire, firstly, the participants were informed about the purpose of it. They are asked to give a point from '1' to '3' for each criteria according to their importance. The response options were 'not important', 'important' and 'very important'.

Questions from the first to the third, aim to find the degree of importance given by teachers to layout and design of the coursebooks. The fourth, fifth and seventh questions are directed to learn the distribution of the importance in terms of material organization. Questions from eight to ten were asked to learn about the same objective for proficiency in language, eleventh, twelfth and thirteenth questions were asked for reading comprehension; questions fourteen and fifteen for writing; questions from sixteenth to twentieth were for grammar and vocabulary; ones in twenty one and twenty two for listening comprehension; ones from twenty three to twenty seven for oral skills and lastly the questions twenty eight and thirty were asked to reveal the responses given by English language instructors for exams.

Data Analysis Procedures

This study examined how teachers in philology of English language department at Baskent University perceive the criterias before selecting an appropriate coursebook for EFL learners. The aim of the study is to assess the importance of criterias that need to be followed by EFL teachers. The study addressed the following question:

Before choosing a coursebook what are the most important criteria for EFL teachers or which criterias are of little or no use for them in terms of lay-out / design materia organization, language proficiency, reading comprehension, writing, grammar and vocabulary, listening comprehension, oral skills, content and exam practice.

Results

The results obtained from the analysis of data are presented in percentage in the tables below. Each question will be discussed elaborately in this part of the study.

Table 1. *Layout and design in the coursebooks*

Statement	Not important	Important	Very important
1) appropriateness of layout and design for students	-	43.5%	56.5%
2) pictures' being clear and interesting	16.5%	60%	23.5%
3) pictures serving their aim	-	40%	60%

Considering the three criteria, the majority of EFL teachers regard the appropriateness of layout and design and pictures' serving their aim as 'very important' whereas this is not the case when we see the percentage of the responses given for the criteria which is 'pictures' being clear and attractive ." Table 1 indicates that , although second criteria is perceived as 'important' by many participants, a minority of teachers (16.5%) thinks it is not important at all

Table 2. *Material Organization*

Statement	Not important	Important	Very important
4) materials being clearly organised	-	20%	80%
5) materials' providing a balance and variety of activities	-	26.5%	73.5%
6) clear section headings,indexes, vocabulary lists and other methods of making the material	-	20%	80%
7) sufficient supporting materials (e.g. recordings) that accompany the textbook	-	26.5%	63.5%

Table 2 shows that while distribution of the percentage of the responses given by the participants are approximately equal, coursebooks' including clear section headings,indexes, vocabulary lists and other methods of making the material organisation student and teacher friendly gets the highest percentage, 80%, as being 'very important'.

Table 3. *Language Proficiency*

Statement	Not important	Important	Very important
8)appropriateness of language proficiency for the students	-	13.5%	86.5%
9) tasks' being too difficult at the beginning of the book	-	26.5%	73.5%
10) progression of "new" language being appropriate for the students	-	16.5%	83.5%

According to the results in Table 3, there is nobody among participants who views the criterias asked about language proficiency in coursebooks as 'not important'. On the other hand, the eight criteria is perceived as the most important on efor EFL teachers among others.

Table 4. *Reading Comprehension*

Statement	Not important	Important	Very important
11) textbooks' developing reading skills and strategies (e.g. skimming and scanning), and not	-	30%	70%
12) reading texts being authentic (orauthentic-like) and up-to-date	30%	30%	40%
13) texts being interesting and thought provoking	-	26.5%	73.5%

Table 4 indicates that, responses given the criterias eleven and thirteen (11) textbooks' developing reading skills and strategies (e.g. skimming and scanning), and not just the ability to answer reading comprehension questions and 13) texts being interesting and thought provoking) are very close to each other, 26.5% and 30% percentage of participants regarded those two criteria as 'important' and 70% - 73% responded for 'very important'. When it comes to the criteria twelve which is 'reading texts being authentic (orauthentic-like) and up-to-date' there is not much difference in the responses given by EFL teachers in terms of their level of importance which shows that this criteria do not carry a vital role while selecting a coursebook

Table 5. *Writing*

Statement	Not important	Important	Very important
14) textbooks' giving practice in using language appropriate to, say, a transactional letter, a composition, a narrative on all the different types of topics and language functions	-	43.5%	56.5%
15) providing models of different types of written texts	-	36.5%	63.5%

When we examine the table 5, we see that nearly half of participants support the statements ,fourteen and fifteen, which recommend providing students with a variety of written texts to encourage practice.

Table 6. *Grammar and Vocabulary*

Statement	Not important	Important	Very important
16) books' covering the major grammar areas and essential vocabulary	-	23.5%	76.5%
17) books' focusing attention on potential difficulty areas and common errors	-	26.5%	73.5%
18)providing enough exercises revising grammar and vocabulary	-	30%	70%
19) grammar and vocabulary exercises' providing students with the meaningful context?	-	33.5%	66.5%
20) grammar and vocabulary being practised in an interesting way	-	36.5%	63.5%

According to the table 6 the statement sixteen receives the highest importance,76.5% , by teachers of EFL when compared to the other statements included in the table and especially with the last one, 63.5%, it can be inferred from the results of percentages that in coursebooks it is more important to cover major grammar areas and essential vocabulary than their being practiced in a way that arouse interest in the students.

Table 7. *Listening*

Statement	Not important	Important	Very important
21) technical quality of the recordings	-	43.5%	56.5%
22)listening comprehension exercises' teaching how to extract the main points of information from the	-	30%	70%

Table 7 indicates that when choosing a suitable coursebook, listening comprehension exercises' teaching how to extract the main points of information from the text is more important for EFL teachers when compared to the other statement related to the technical quality of the recordings.

Table 8. *Oral Skills*

Statement	Not important	Important	Very important
23) providing the students with the sufficient speaking practice in expressing their personal views	-	23.5%	76.5%
24)providing sufficient communicative practice, for example, through role- play, pair work or group	16.5%	33.5%	50%
25)speaking practices' being interesting and motivating for students	-	16.5%	83.5%
26)book's teaching everyday English in real-life situations	20%	36.5%	43.5%
27)paying attention to pronunciation in coursebooks	23.5%	36.5%	40%

In the table 8, Although we see that a slight number of EFL teachers consider the statements “twenty four (6.5%) , twenty six(20%) and twenty seven (23.5%) as being ‘not important’, their responses for the option ‘very important’ entails most of the percentage with the twenty fifth criteria being perceived as the most important one by most of the participants.

Table 9. *Content in Coursebooks*

Statement	Not important	Important	Very important
28) appropriateness of the materials in the book for your students' age, background, needs and interests	-	76.5%	23.5%
29) instructions and explanations' being simple and explicit	-	23.5%	76.5%
30)inclusion of exam-like exercises in coursebook	43.5%	36.5%	20%

As can be inferred from the table 9, teachers of English give great importance to the statement related to 'instructions and explanations' being simple and explicit in coursebooks, participants view this statement as being 'important' with a percentage of 76.5% ; and as 'very important' with 23.5% percentage. When we compare this statement with the one in 'twenty nine' the situation for the distribution of response percentages is just opposite which proves that appropriateness of the materials in the book for student's age,background, needs and interests are not perceived as of paramount importance by teachers. Apart from these, the thirtieth and the last statement, 'inclusion of exam-like exercises in coursebook', unlike the previous ones are regarded as being 'not important' by majority of the EFL teachers if we examine the distribution of percentages: '43.5%' for 'not important'; 36.5% for 'important' and responses of a percentage of 20% are given for the option 'very important'.

Discussion

As a result it can be deduced from the results of the questionnaire that EFL instructors,when choosing a suitable coursebook for their students, regards the following criteria as being most crucial which are; pictures serving their aim, clear section headings, indexes, vocabulary lists and other methods of making the material organisation student and teacher friendly,materials being organised clearly, appropriateness of language proficiency for the students, texts being interesting and thought provoking, providing models of different types of written texts, books' covering the major grammar areas and essential vocabulary, listening comprehension exercises' teaching how to extract the main points of information from the text, speaking practice being interesting and motivating for students,instructions and explanations' being simple and explicit.

Stated in the article of Razmjoo (2007), Richards adapts several important strategies beneficial in language teaching as follows:

- *Create opportunities for communication, interaction and negotiation of meaning through activities such as information sharing, problem solving and role play
- *Provide opportunities for learners to experiment and try out what they know
- *Provide opportunities for learners to develop both accuracy and fluency
- *Link the different skills of speaking, reading, listening, and writing
- *Link the learning of grammar to communicative tasks
- *Choose content that relates to students' lives and interests
- *Encourage students to personalize learning by applying what they have learned to their own lives (p.9).

When we examine the strategies mentioned above, it becomes much more clear that an effective language learning-teaching process cannot be accomplished if they are neglected by EFL teachers. Those strategies reveal a considerable degree of correlation with the criteria found as being most crucial to be followed while selecting coursebooks according to the verified results of analysis in questionnaire conducted. As long as these strategies are adopted as being fundamental by teachers, they will get rid of the liability of making inappropriate judgements when selecting coursebooks.

Conclusion and Suggestions

This study was conducted to figure out the features crucial to be considered by English language teachers when trying to select the most suitable coursebook for their students.

In the first part, information about choosing a proper coursebook and its importance for learners in EFL classrooms, main contributions supplied by textbook selection, evaluation process which includes useful criterias and goals to follow as well as information about organization of coursebooks were presented respectively. Next, language content and four main skills besides validity of contents in coursebooks were presented. In the following parts, a method, analysis and results of it were provided.

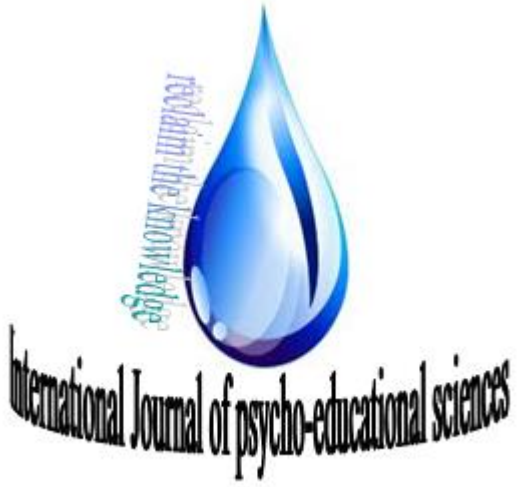
According to the overall results, a teacher should not choose a coursebook without evaluating it thoroughly for the reason that neglecting the important criterias results in decreasing the success of EFL learners. This result proves the how important a coursebook for EFL learners as long as it is selected and evaluated appropriately according to the criterias mentioned previously, therefore a suitable coursebook will certainly make students skillful in using foreign language. We can understand clearly that success will be inevitable when we dwell on the perfect benefits brought by a textbook chosen appropriately.

All in all, it can be said that, textbook evaluation and selection should be a concept that needs to be given diligency and attention by teachers of EFL to accomplish choosing the most suitable coursebook for their students.

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The Relationship Among Self-Efficacy, Self-Esteem and Subjective Well-Being Levels of Prospective Teachers

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Abstract

This research was conducted in order to examine the relationship among self-efficacy, self-esteem and subjective well-being levels of prospective teachers. The research is of descriptive quality. The study group is composed of the first-year, second-year, third-year and fourth-year students of the Department of Elementary Classroom Teaching at the Faculty of Education in Erzinçan University. The “Teachers’ Sense of Self-Efficacy Scale” (TSSES), which was developed by Tschannen-Moran and Woolfolk Hoy (1998) and adapted to Turkish by Çapa, Sarıkaya and Çakıroğlu (2005), as well as the “Rosenberg’s Self-Esteem Scale” (RSES), which was developed by Rosenberg (1965) and adapted to Turkish by Çuhadaroğlu (1985), were administered to the prospective teachers. The Positive and Negative Affect Schedule (PANAS), which was developed by Watson et al., (1988) and adapted to Turkish by Gençöz, was also administered to these prospective teachers. In view of the findings obtained in the research, it was concluded that self-efficacy did not exhibit a significant difference in terms of gender and class level; that no significant difference was observed between subjective well-being and class level; and that there was no significant difference between subjective well-being and gender.

Keywords: Self-Efficacy, Self-Esteem, Subjective Well-Being, Prospective Classroom Teachers

Introduction

Nowadays, teachers are the most important factors in performing the functions of education. This is because teachers have a position to implement and affect the educational policies that can be influenced by the research studies and that are developed as a result of research (Varış, 1973).

Bandura (1986) stated that human behaviors are based on what people believe to be true rather than what is actually true. For this reason, it is very important to understand the ideational processes underlying these actions in order to interpret human behaviors correctly. In parallel, studies on learning domain progress on a line that spans from behaviorism to cognitivism (Ün-Açıkgöz, 2005). In recent years, the focal point of the researches, which examine learning and the factors that affect learning, has gravitated towards the ideational processes underlying these actions rather than observable activities of the individuals, that is to say, their behaviors.

It was found that teacher behavior affects students’ thinking and decision-making processes, and the behavior exhibited by students at the end of this cognitive process similarly affects teachers’ thinking processes and accordingly their behavior (Doyle, 1986).

Individuals’ judgments on how successfully they can use their competences in line with their objectives were conceptualized as “Self-Efficacy Beliefs” by Bandura (1977). Self-efficacy belief is one of the concepts that have a central importance in Bandura’s social learning theory, and it is defined as “the belief in individuals’ capabilities to organize and successfully perform the necessary activities and actions for demonstrating a certain performance” (Bandura, 1977, 1986, 1995, 1997).

Self-efficacy beliefs mostly emerge in relation to special areas. Teacher self-efficacy is one of the most important examples of these areas. Teacher efficacy is an important construct in teacher education, and it is important to determine how teacher efficacy develops, of which components it consists, what factors contribute to strong and positive teaching efficacy, which

education programs must be developed for improving high-level teacher efficacy and how they must be developed (Pajares, 1997; Zimmerman, 2002). Furthermore, teachers' self-efficacy beliefs stand out as an important variable in creating a productive school or restructuring the schools (Hoy and Woolfolk, 1993; Pajares and Miller, 1994; Ross, 1994). Self-efficacy beliefs act as an intermediary for individuals to determine the aims that they want to reach and to regulate the environment that they experience (Bıkmaz, 2004; Çapari, 2008).

People exhibit positive or negative attitudes towards themselves and other beings in the world that they live in. People's attitudes towards their own selves are called self-esteem. Self-esteem is defined as 'the positive or negative evaluation of the self'. Self-esteem is not a stationary structure, but a dynamic one (Rosenberg, 1965; Baldwin and Hoffmann, 2002; Saygın, Y., Arslan, C. (2009).

Self-respect (self-esteem) is the emotional dimension of the self. Individuals not only have certain ideas about who they are but also certain emotions about who they are. Thus, self-respect becomes the degree to which the individuals appreciate themselves and find themselves valuable (Adams, 1995; Kulaksızoğlu, 2001). People may find insufficiencies in themselves, criticize themselves, but they may also see themselves completely positive and appreciate themselves. People do not have to have superior qualities in order to appreciate themselves or respect themselves. That is because self-respect is a condition of self-contentment without regarding oneself inferior or superior than one actually is. It is to find oneself valuable, positive and worthy of appreciation and affection. It is a state of mind that enables people to accept themselves as they are and as how they see themselves, and to trust their essence (Yörükoğlu, 2000; Aydoğan, 2008).

A field of positive psychology analyzes subjective well-being. Subjective well-being enables people to evaluate their lives cognitively and effectively. This subjective definition about the nature of life is democratic in respect that each individual has the right to state whether or not the life that he/she leads is valuable (Diener, 2000). The focal point of the researches on subjective well-being is about how and with what positive ways life is evaluated (Diener, 1984). Researchers of subjective well-being define it as having two components. One of them is the cognitive judgment that contains life satisfaction whereas the other is the affect dimension that is composed of positive and negative pleasure components. Although life satisfaction measurements are related with positive and negative affect, researches have shown that emotional and cognitive components are different from each other and they have been classified under different relationships with other values in the course of time (Diener, 2000). Emotions, which are labeled as emotions-situations and affect, represent the evaluations of the events that occur in one's life at a given time (Diener, Suh, Lucas and Smith, 1999).

There are several reasons for why emotions are the center of the state of subjective well-being. The first reason is that people feel an emotion at a certain level almost every time. That is because emotions have a great importance in evaluating the subjective well-being. The second reason is that emotions are about one's evaluation of life. The frequency and continuity of positive and negative emotions gain importance when a person evaluates his/her emotions and life satisfaction (Diener and Lucas, 2000).

It is an expected condition within the profession that the prospective teachers have high levels of self-efficacy as well as self-esteem. High levels of self-efficacy and self-esteem create

an expectation that one's level of well-being will also be positive. This research focused on this problem sentence.

Research Questions

1. Do the self-efficacy beliefs of the prospective teachers exhibit a significant difference in terms of class levels?
2. Do the self-efficacy beliefs of the prospective teachers exhibit a significant difference in terms of gender?
3. Do the self-esteem levels of the prospective teachers exhibit a significant difference in terms of gender?
4. Do the self-esteem levels of the prospective teachers exhibit a significant difference in terms of class levels?
5. Do the subjective well-being levels of the prospective teachers exhibit a significant difference in terms of gender?
6. Do the subjective well-being levels of the prospective teachers exhibit a significant difference in terms of class levels?
7. Is there a significant relationship among self-efficacy beliefs, self-esteem levels and subjective well-being levels of the prospective teachers?

Method

Sub-headings of research group, data collection tools and data analysis are featured in this research which is of descriptive quality.

Research Group

The study group is composed of a total of 300 prospective teachers who are the first-year, second-year, third-year and fourth-year students of the Department of Elementary Classroom Teaching at the Faculty of Education in Erzincan University. A total of 130 of the prospective teachers are male whereas 170 of them are female.

Data Collection Tools

The “Teachers’ Sense of Self-Efficacy Scale” (TSSES), which was developed by Tschannen-Moran and Woolfolk Hoy (1998) and adapted to Turkish by Çapa, Sarıkaya and Çakıroğlu (2005), the “Rosenberg’s Self-Esteem Scale” (RSES), which was developed by Rosenberg (1965) and adapted to Turkish by Çuhadaroğlu (1985), and the Positive and Negative Affect Schedule (PANAS), which was developed by Watson et al., (1988) and adapted to Turkish by Gençöz, were used in order to examine the relationship among the self-efficacy, self-esteem and subjective well-being levels of the prospective teachers in this research.

Teachers’ Sense of Self-Efficacy Scale (TSSES): The “Teachers’ Sense of Self-Efficacy Scale” (TSSES), which was adapted to Turkish by Çapa, Sarıkaya and Çakıroğlu (2005), is composed of 24 items. Scale items are graded ranging from (9) “completely appropriate” to (1) “not appropriate at all”. The researchers, who adapted the scale to Turkish, reached the reliability coefficients of .82, .86 and .84 for three aspects.

Rosenberg’s Self-Esteem Scale (RSES): The “Rosenberg’s Self-Esteem Scale” (RSES), which was developed by Rosenberg in 1965 and adapted to Turkish by Çuhadaroğlu in 1985, is a

4-point Likert scale that has 10 items. The internal consistency coefficients of the scale were found as .76 and .85 in the reliability studies of the scale.

Positive and Negative Affect Schedule (PANAS): The Positive and Negative Affect Schedule (PANAS) was developed by Watson et al., (1988) and adapted to Turkish by Gençöz (2000). The scale contains 10 positive affect items and 10 negative affect items. It is evaluated according to 5-point Likert type. Cronbach’s Alpha internal consistency coefficient of the scale was found as .83 for Negative Affect and .86 for Positive Affect (Gençöz, 2000). The positive and negative affect scores within the scale are calculated separately.

Data Analysis

SPSS 18 package program was used for the statistical analyses of the data. The Mann-Whitney U Test and the independent sample t-test were used in order to determine whether or not the prospective teachers’ scores on the “Teachers’ Sense of Self-Efficacy Scale”, the “Rosenberg’s Self-Esteem Scale” and the “Positive and Negative Affect Schedule” differed in terms of gender. One-Way ANOVA and Kruskal-Wallis tests were used in order to determine whether or not the prospective teachers’ scores on the “Teachers’ Sense of Self-Efficacy Scale”, the “Rosenberg’s Self-Esteem Scale” and the “Positive and Negative Affect Schedule” differed in terms of class level. Correlation tests were conducted in order to determine the relationship among the self-efficacy, self-esteem and subjective well-being levels of the prospective teachers. Margin of error was taken as 0.05 in the research.

Results

This research was conducted in order to examine the relationship among self-efficacy, self-esteem and subjective well-being levels of prospective teachers. Research findings are given in the tables below.

The Findings Regarding Whether or Not the Self-Efficacy Beliefs of the Prospective Teachers Differed in Terms of Class Level

Table 1. *Arithmetic means and standard deviations of the self-efficacy beliefs of the prospective teachers in terms of class levels*

Class Level	N	X	Sd
First-Year	171	5.13	1.40
Second-Year	5	4.80	.84
Third-Year	30	5.30	.95
Fourth-Year	94	5.24	1.19
Total	300	5.18	1.29

Arithmetic means and standard deviations of the self-efficacy beliefs of the prospective teachers in terms of class levels are given in Table 1. When Table 1 was examined, it was observed that the average of the self-efficacy beliefs of all participating prospective teachers was 5.18. This average was found as 5.13 for the first-year prospective teachers; 4.80 for the second-year prospective teachers; 5.30 for the third-year prospective teachers; and 5.24 for the fourth-year prospective teachers. According to these results, it was observed that the self-efficacy beliefs of the first-year prospective teachers were close to the general average.

Table 2. *One-way Anova test results of the self-efficacy beliefs of the prospective teachers in terms of class levels*

Source of Variance	Sum of Squares	Sd	Mean Square	F	p
Intergroup	1.901	3	.634	.379	.768
Intragroup	494.379	296	1.670		
Total	496.280	299			

*p>.05

One-Way ANOVA test results of the self-efficacy beliefs of the prospective teachers in terms of class levels are given in Table 2. According to test results, the self-efficacy beliefs of the prospective teachers did not exhibit a significant difference in terms of class levels (F 3-296: .379, p>.05).

Table 3. *The findings regarding whether or not the self-efficacy beliefs of the prospective teachers differed in terms of gender*

Levene's Test for Equality of Variances	
F	Sig.
5.142	.024

According to Levene's Test for Equality of Variances, p significance level was found as .024. Therefore, since p<.05, the independent sample t-test cannot be applied. Kruskal-Wallis Test, which is the alternative of the independent sample t-test, was conducted.

The Findings Regarding Whether or Not the Self-Esteem Levels of the Prospective Teachers Differed in Terms of Gender:

Mann-Whitney U Test results of the self-esteem levels of the prospective teachers in terms of gender are given in Table 4. It was observed that the ranking average of male prospective teachers (151.96) was higher than the ranking average of female prospective teachers (149.39). No significant relationship was found among the ranking averages of the self-esteem levels of the prospective teachers in terms of gender (Z: -.266, p > .05).

The Findings Regarding Whether or Not the Self-Esteem Levels of the Prospective Teachers Differed in Terms of Gender

Table 5. *Arithmetic means and standard deviations of the self-esteem levels of the prospective teachers in terms of class levels*

Class Level	N	Mean	Sd
First-Year	171	4.19	1.21
Second-Year	5	4.60	.89
Third-Year	30	4.13	1.25
Fourth-Year	94	3.93	1.17
Total	300	4.11	1.20

Arithmetic means and standard deviations of the self-esteem levels of the prospective teachers in terms of class levels are given in Table 5. It was observed that the average of the self-

esteem levels of all participating prospective teachers was 4.11. This average was found as 4.19 for the first-year prospective teachers; 4.60 for the second-year prospective teachers; 4.13 for the third-year prospective teachers; and 3.93 for the fourth-year prospective teachers. According to these results, it was observed that the self-esteem levels of the third-year prospective teachers were close to the general average.

Table 6. *One-way Anova test results of the self-esteem levels of the prospective teachers in terms of class levels*

Source of Variance	Sum of Squares	Sd	Mean Square	F	p
Intergroup	5.593	3	1.864	1.302	.274
Intragroup	423.777	296	1.432		
Total	429.370	299			

*p>.05

One-Way ANOVA test results of the self-esteem levels of the prospective teachers in terms of class levels are given in Table 6. According to test results, the self-esteem levels of the prospective teachers did not exhibit a significant difference in terms of class levels (F_{3-296} : 1.302, $p>.05$).

The Findings Regarding Whether or Not the Subjective Well-Being Levels of the Prospective Teachers Differed in Terms of Gender

Table 7. *Mann-whitney u test results of the subjective well-being levels in terms of gender*

Groups	N	Average Ranking	Total Ranking	U	Z	p
Male	130	139.46	18130.00	9615.000		
Female	170	158.94	27020.00		-2.005	.045*
Total	300					

*p< .05

Kruskal-Wallis H Test results of the subjective well-being levels of the prospective teachers in terms of gender are given in Table 7. According to test results, a significant relationship is observed between the subjective well-being levels of the prospective teachers and their gender ($\chi^2_{(3)}$:-2.005, $p < .05$).

The Findings Regarding Whether or Not the Subjective Well-Being Levels of the Prospective Teachers Differed in Terms of Class Level

Table 8. *Kruskal-wallis h test results of the subjective well-being levels of the students in terms of class levels*

Class Level	N	Average ranking	X ²	Df	p
First-Year	171	153.14	2.272	3	.518
Second-Year	5	196.60			
Third-Year	30	147.42			
Fourth-Year	94	144.23			
Total	300				

*p > .05

Kruskal-Wallis H Test results of the subjective well-being levels of the prospective teachers in terms of class levels are given in Table 8. According to test results, the difference between the subjective well-being levels of the prospective teachers and their class levels is not significant ($\chi^2_{(3)}: 2.272, p > .05$).

The Findings Regarding the Relationship Among the Self-Efficacy, Self-Esteem and Subjective Well-Being Levels of the Prospective Teachers

Table 9. *Correlations regarding the continuous variables in the study group*

	Self-Efficacy	Self-Esteem	Subjective Well-Being
Self-Efficacy	1		
Self-Esteem	-.128*	1	
Subjective Well-Being	.197**	.167**	1

** . Correlation is significant at the 0.01 level (2-tailed).

Correlations regarding the continuous variables in the study group are given in Table 9. According to test results, a negative significant relationship was found between the self-efficacy beliefs and the self-esteem levels of the prospective teachers ($r :-.13, p < .05$). There is a positive and considerably significant relationship between the self-efficacy beliefs and the subjective well-being levels of the prospective teachers ($r: .20, p < .01$). There is a positive and considerably significant relationship between the self-esteem levels and the subjective well-being levels of the prospective teachers ($r: .17, p < .01$).

Discussion

In view of analysis that was conducted in order to determine whether or not the self-efficacy beliefs of the prospective teachers in the faculty of education differed in terms of gender, it was observed that there was no significant difference between female prospective

teachers and male prospective teachers in terms of gender. These findings show parallelism with the findings of Çakır, Kan and Sünbül (2006) whereas they differ from the findings of Çelenk (1988), Çakır, Erkuş and Kılıç (2000), Oral (2004) and Çakır (2005). It is known that the positive attitudes of the female prospective teachers towards teaching are higher than those of the male prospective teachers due to the fact that society regards teaching as a more appropriate profession for women and society inculcates women with this idea, considering the social structure of Turkish society. However, when different research findings obtained above are taken into account, it is considered that it will be useful to continue the studies on this variable in different samples.

In this study, a significant difference was found among the subjective well-being levels of the students in terms of gender. This obtained finding shows difference with the results of the conducted studies in the literature (Katja et al., 2002; Melin and Fugl-Meyer, 2002; Mahon and Yacheski, 2005). Based upon the cultural characteristics of the society that the individuals live in, women and men are expected to possess different emotional skills and attitudes in line with social role expectations in gender differences. The fact that the culture that we live in places men in a more valuable position than women causes men to become more active and favored in many fields of life. It is possible that this condition makes people believe that the subjective well-being levels of men are higher than those of women. However, there are serious expectations and responsibilities that the culture that we live in lays on men. It is considered that the responsibilities such as unemployment following the graduation, economic problems, forming a family and undertaking the leadership role might have removed the differences that are expected to exist between men and women in issues such as depression, anxiety, subjective well-being, etc.

A significant relationship was found between the prospective teachers' sense of self-efficacy and their self-esteem levels. Prospective teachers' sense of self-efficacy is one of the qualities of teacher that have the power to affect many of teachers' decisions about classroom activities (teaching method-technique, classroom management approach, etc.) and their classroom behaviors directly or indirectly. The concept of teachers' sense of self-efficacy and self-esteem concept are qualities that affect and shape each other in a cyclic process. This research was conducted in order to examine the relationships between these two important variables in question.

The fact that there was a significant difference between the prospective teachers' sense of self-efficacy and their self-esteem levels set forth a significant difference between the subjective well-being levels of the prospective teachers. This shows that the sense of self-efficacy has a positive effect on the subjective well-being levels and the self-esteem levels of the prospective teachers.

Conclusion

Consequently, paying attention to the prospective teachers' attitudes towards their self-efficacy beliefs and their forms of learning while organizing educational activities in teacher training seems to be important for training qualified teachers. For this reason, it is considered that setting forth different variables and the effectiveness on these variables in the light of further studies will provide great contributions to the literature.

Suggestions

- Self-efficacy beliefs of the prospective teachers were highlighted in this study. Researches must be conducted, which examine the development of teachers' sense of self-efficacy in a longer span (for instance, in a time span beginning from the studentship period in the Faculty of Education to prospective teaching and the first few years of the profession).
- It is considered that it will be useful to evaluate similar further studies in larger sample groups that cover faculties of education and faculties of technical education in different universities.
- Teacher training programs must be taken into account. Learning styles of the prospective teachers must be determined. Educational environments appropriate to their learning styles must be provided.
- Self-efficacy, self-esteem and subjective well-being levels of the prospective teachers were examined in terms of class levels and gender in the study. These can be examined in terms of different variables such as secondary education program of graduation, program type, etc. in a different study.

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Assessing Validity and Reliability of the Social Phobia and Anxiety Inventory for Children (SPAI-C) in a Sample of Egyptian School Children

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Abstract

The purpose of the present study was to examine the factor structure and psychometric properties of the Social Phobia and Anxiety Inventory for Children (SPAI-C), an instrument developed in the United States and applied to a sample of Egypt schoolchildren. The process included the translation of the original material from English into Arabic by the second author . The study was performed using a cross-sectional design and the Arabic version of the SPAIC was applied to a sample of 1000 4th to 6th graders attending public schools in Kafr El Sheikh governorate , Egypt . one hundred subjects were excluded due to an incomplete questionnaire . The final sample consisted of 900 children, 400 girls and 500 boys , ranging in age from 10 to 12 years. The Pearson product-moment correlation showed that the two-week test-retest reliability coefficient was $r = 0.820$. The factor structure was almost similar to that reported in previous studies. The results regarding the test-retest reliability and the factor structure were similar to the findings obtained in studies performed on English speaking children. The present study showed that the Arabic language version of SPAI-C is a reliable and valid measure of social anxiety for Egyptian school children.

Key words: Social assessment, Social phobia, Social anxiety ,Test reliability, Test validity

Introduction

Social anxiety disorder, also called social phobia, is an anxiety disorder in which a person has an excessive and unreasonable fear of social situations. Anxiety (intense nervousness) and self-consciousness arise from a fear of being closely watched, judged, and criticized by others. As a result they tend to avoid social situations or endure them with intense anxiety or distress (APA, 2000). A person with social anxiety disorder is afraid that he or she will make mistakes and be embarrassed or humiliated in front of others. The fear may be made worse by a lack of social skills or experience in social situations. The anxiety can build into a panic attack. As a result of the fear, the person endures certain social situations in extreme distress or may avoid them altogether. In addition, people with social anxiety disorder often suffer "anticipatory" anxiety -- the fear of a situation before it even happens -- for days or weeks before the event. In many cases, the person is aware that the fear is unreasonable, yet is unable to overcome it. Although mid-adolescence had been considered to be the average age of onset, some studies have shown that children as young as eight meet diagnostic criteria for the disorder (Beidel, 1991, Beidel & Turner, 1998).

Social anxiety may take different forms at different ages. Very young children who are socially anxious may appear excessively timid in social situations, cling to a familiar person, refuse to participate in group play and speak rarely. By age 8, children with social anxiety may stop inviting others over, are reluctant to go to parties or outings, won't participate in class, or will only speak to certain people. These early troubles, if not resolved, may evolve into social phobia at later ages. By adolescence, youngsters are confronted with the developmental tasks of establishing social relationships, gaining emotional independence from the family, and forming long-term vocational goals. Basic to the successful mastery of these tasks is a confident sense of self, adequate self-control and Appropriate social behavior.

Social phobia in childhood not only causes internal distress, but is frequently the harbinger of later disorders. Children and adolescents with social phobia are at high risk for

major depression, suicide attempts and substance abuse disorders . In fact, social phobia has been identified as a direct link to the development of alcohol abuse by late adolescence. Social phobia also takes a toll on an individual's social, academic and occupational functioning. It is associated with failure to attain educational goals, resulting in reduced career and vocational options, financial security and the development and maintenance of a healthy lifestyle. Individuals with social phobia have low self-esteem, are highly sensitive to criticism and rejection, and lack assertiveness.

It is also important to remember that the disorder should be identified as early as possible, before it begins to jeopardize the potential of these children. In addition, when assessing children the clinician should be aware of some differences in the clinical presentation of the symptoms when compared with adults. For instance, in children there must be evidence of a capacity for social relationships with familiar people and the anxiety must occur in the peer settings, not just in interaction with adults, or during public performance, for example . Therefore, it is really important to have reliable instruments during the disorder evaluation process.

The Social Phobia and Anxiety Inventory for Children (SPAI-C) has shown initial promise in the assessment of distress in a variety of social situations. is a self-report inventory specifically designed to assess responses that delimit the “social phobia” construct in the three response systems (cognitive, psychological , sociological and motor), as described in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV; American Psychiatric Association, 1994). It is formed by 26 empirically-derived items that measure anxiety in various social situations, including the cognitive, somatic, and motor components of Social Phobia; some items are the result of averaging the scores of the elements or sub items that they contain. Each item is scored on a 3-point Likert scale with 0 = never or very rarely, 1 = sometimes, and 2 = most of the time. Total scores range from 0 to 52 points.

Beidel et al. (1995) performed a confirmatory factor analysis and reported a three-factor model: Assertiveness/ General Conversation, Traditional Social Encounters, and Public Performance. Beidel, Turner, and Fink (1996) identified five factors in a mixed (clinical and nonclinical) sample: Assertiveness, General Conversation, Public Performance, Physical and Cognitive Symptoms, and Avoidance. In an exploratory factor analysis performed on a Portuguese community sample, Gauer, Picon, Vasconcellos, Turner, and Beidel (2005) defined four factors that explained 47.66% of the total variance; the first factor, Assertiveness, explained 13.90% of the variance; the second factor, Avoidance/Social Encounters, explained 11.99%; the third factor, Public Performance, explained 11.74%, and the fourth factor, Physical and Cognitive Symptoms, explained 10.03% of the variance.

Regarding the reliability and validity of scores, Beidel et al. (1995) found an internal consistency coefficient (Cronbach alpha) of .95 and a test-retest reliability of .86 after two weeks and .63 after ten months. Beidel et al. (1996), however, found that the internal consistency (Cronbach alpha) of scores was .92 and built a function to discriminate between children with social phobia and others with externalizing or normal disorders. Finally, Gauer et al. (2005) showed that the internal consistency (Cronbach’s alpha) of scores was .98 and the test-retest reliability was .88 in the following two weeks.

The current study was designed to validate SPAI-C in a different cultural group in order to make this instrument accessible to clinicians and researchers in the Arabic language.

Method

Sample

The initial sample consisted of 1000 Egyptian schoolchildren enrolled in the 4th to the 6th grade attending public schools in Kafr El Sheikh governorate, Egypt. After contacting the school directors and offering a presentation of the project to the teachers, the sample process was started. All students aged 10 - 12 years were chosen to participate. In some cases, the parents had given informed consent for the child to participate, as required by some school principals. Hence, the sample was not randomly selected but rather included all available students. One hundred subjects were excluded because they failed to complete questionnaire. The final sample consisted of 900 children, 400 girls and 500 boys. Two weeks after the initial administration, SPAI-C was readministered to 250 subjects of the original sample.

Social Phobia and Anxiety Inventory for Children

SPAI-C is an empirically derived inventory developed specifically to assess social phobia in childhood and early adolescence, as a screening scale (Beidel et al.,1995). Useful in clinical and research settings, the SPAI-C assesses a range of potentially anxiety-producing situations (reading aloud, performing in a play, and eating in the school cafeteria) and assesses physical and cognitive characteristics of social phobia as well as avoidance behaviors. Each of the 26 items is rated on a 3- point scale (never or hardly ever, sometimes, most of the time or always). Some of the items require multiple responses. SPAI-C uses a Likert scale format that allows an assessment of the frequency with which each symptom is experienced. The maximum score on SPAI-C is 52, which indicates that the child experiences anxiety with a high frequency in a broad range of social settings. In addition to its quantitative score, the scale can be used qualitatively to examine different patterns of responses to various types of social situations (Beidel et al.,1995). Such an examination may assist the clinician in determining the salient aspects of the child's fear, and thus may be important for the development of an appropriate treatment plan. In the initial investigation, SPAI-C had high internal consistency ($\alpha = 0.95$), high 2-week test-retest reliability ($r = 0.86$), and adequate reliability at 10 months ($r = 0.63$) (Beidel et al.,1995). After this initial investigation, other studies have been conducted to determine the reliability and validity of SPAI-C (Beidel et al.,1995).

Assessment

The total length of time necessary to collect the test and retest data was 20 days. After being trained in a small conference to apply the scale, 10 elementary school teachers administered the questionnaire in their classrooms in Baltim Sector. In each classroom, students completed the self-report measure as a group after receiving instructions on how to proceed. For young children, especially those in the 4th year, the teachers read the questions aloud. Teachers circulated among the students during the test session and provided individual help to any student who experienced difficulty. Completion of the SPAI-C took approximately 45 min. After the students had completed the questionnaire, the teachers reviewed them and if anything was missing or a mistake was detected, the questionnaire was returned to the children and they were encouraged to complete it. Since the students were not required to indicate their name and identification number in the questionnaire, they could not be identified after they completed the application. In order to be able to compare the test with retest, the teachers gave a number to the students who participated in the second application.

Data Analysis

Test-retest reliability was calculated (using Pearson's r) with a Arabic language instrument version in a subsample of 250 school children, with a two week break between assessments. The factor structure of the 26-item SPAIC was examined using factorial analysis validation with a varimax rotation of data with the Arabic language instrument version assessed in a sample 300 children.

Results

Test-retest reliability

The test-retest reliability was calculated using the Pearson product-moment correlation. For the total sample of 250 children the two-week test-retest reliability coefficient was $r = 0.820$.

Factor analysis

The factor structure of the 26-item SPAIC was examined using factor analysis validation with a varimax rotation of data in the Arabic version of the instrument assessed in the 900 children. There were four factors with eigenvalues higher than 1. Only items that loaded 0.40 or greater on a factor were retained within a factor. Using this criterion, only one item failed to load on a factor. Taken together, these factors accounted for 47.66% of the total variance. The items and their factor loadings are presented in Table 1. The first factor was labeled Assertiveness and accounted for 13.90% of the variance. The second factor was labeled Avoidance/ Social Encounters and accounted for 11.99% of the variance. The third factor was labeled Public Performance and accounted for 11.74% of the variance. The fourth factor was called Physical and Cognitive Symptoms and accounted for 10.03% of the variance.

Discussion

The results of the test-retest reliability were to some extent similar to the findings in studies performed with children in areas where English is spoken. The data on test-retest reliability obtained by this investigation showed satisfactory Pearson product-moment correlation, confirming the good psychometric properties of the instrument found in previous studies. The factor structure was almost similar, but not identical, to that reported in two previous studies performed with children in the United States (Beidel et al., 1995, Beidel et al., 1996). We detected Assertiveness as a first factor, similar to that observed in previous studies but, in contrast to these studies, we did not find the General Conversation factor. As factor number two we found Avoidance/Social Encounters. It is interesting that the items included in this factor are similar to the Traditional Social Encounters factor found in the first study, and to the Avoidance factor found in the second study, but not in the first. Factor three, Public Performance, was similar to both previous studies. Factor four, Physical and Cognitive Symptoms, on the other hand, was found in the second study but not in the first. Thus, most factors that were found in the previous studies were also found in the present study. Only the General Conversation factor was not found, nor any new factor.

These small differences are perhaps due to the fact that the previous studies mixed small samples of patients and normal controls whereas we conducted an epidemiological study on a non-clinical sample. Some limitations of the present investigation should be noted. First, the extrapolation of the present findings to clinical samples is limited by the non-clinical nature of the present sample. Second, the construct validity of SPAIC with other measures of social

anxiety (convergent validity) and the comparison of social phobic children with other disorders (discriminant validity) must be evaluated for this population. Assessing an instrument's construct validity is a constant process requiring multiple efforts over time. Despite the fact that we still have a few more steps to go, the results of the present study have shown that the Arabic language version of SPAI-C is a reliable and valid measure of social anxiety for Egyptian children and, because of its appropriate psychometric properties, it can be used in clinical as well as in research settings.

Table 1. *Factor analysis*

Item number and content	Factor loading
Factor 1 - Assertiveness (14.40%)	
2. Scared when becoming the center of attention	0.52
10. Scared if someone starts arguing	0.68
11. Scared if someone asks me to do something that I don't want to do	0.61
12. Scared in an embarrassing situation	0.67
13. Scared if someone says something that is wrong or bad	0.58
18. Scared when ignored or made fun of by others	0.79
Factor 2 - Avoidance/Social Encounters (10.81%)	
6. Scared at parties, dances, school... And go home early	0.42
7. Scared to meet new kids	0.48
9. Scared in the school cafeteria	0.59
14. Scared when I start to talk to someone	0.56
15. Scared if I have to talk for longer than a few minutes	0.68
19. I avoid social situations (parties, school, playing with others)	0.54
20. I leave social situations	0.75
Factor 3 - Public Performance (12.54%)	
1. Scared when joining a large group	0.55
3. Scared when I have to do something while others watch me	0.68
4. Scared when speaking or reading in front of a group	0.64
5. Scared when answering questions in class or at group meetings	0.61
8. Too scared to ask questions in class	0.67
16. Scared when speaking in front of class	0.59
17. Scared when in a school play, choir, music, or dance recital	0.52
Factor 4 - Physical and Cognitive Symptoms (12.57%)	
21. Before going to a party, I think about what might go wrong	0.58
22. My voice leaves me or sounds funny when I am talking to others	0.65
24. When I am with other people, I think "scary" thoughts	0.64
25. Before going someplace, I feel (somatic symptoms)	0.64
26. When I am in a social situation, I feel (somatic symptoms)	0.61

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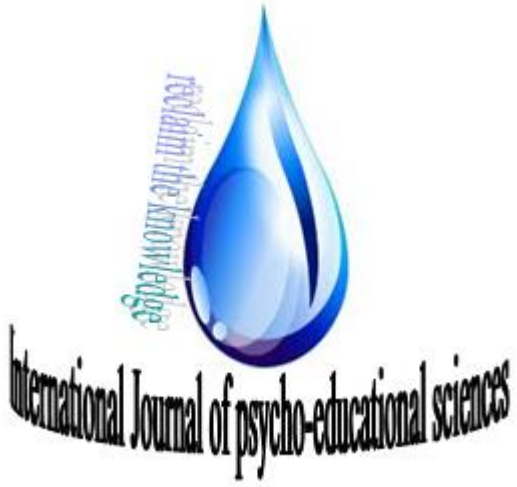
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The Effect of the Jigsaw Technique Implementation on Prospective Teachers' Academic Achievements

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Abstract

This study investigated the effects of the jigsaw technique on the achievements of sixty-four freshman students in an Educational Psychology course. The jigsaw method is a cooperative learning method that was applied to the experimental group, while the traditional learning method was applied to the control group. The subjects were all prospective teachers taking the Educational Psychology course in Turkish Language Education department in a public university in Turkey during the second term of the 2008 -2009 academic year. According to the results of the study, the test group appeared to be more successful than the control group in terms of post-test and knowledge retention scores.

Key words: Jigsaw technique, educational psychology, cooperative learning, prospective teacher

Introduction

Individualized learning practices have been utilized for decades at all levels of education, from primary grades to higher education classes. Intellectual ability is seen as a characteristic of the individual, according to both Piagetian and behaviorist theory. However, in recent years a greater emphasis has been placed on the social development of the individual. Research findings show that social interaction within learning environments has a great effect on cognitive development (Hill & Hill, 1990).

Cooperative learning is not a new phenomenon and much has been written about the effects of it on student achievement, student motivation and attitudes. We understand from the overwhelming studies of D. Johnson, Slavin, Farivar, Holubec, Hollifield, Schmuck, Sharan and Aronson (cited in De Ligny, 1996) that cooperative techniques positively affects the acquisition of knowledge, the development of social relations of students and improves self-esteem What is cooperation? Cooperation in the learning environment is the interaction of at least two individuals, to achieve the same goals. In this interaction, positive interdependence and goal similarity are the two key essentials (Hill & Hill, 1990). Cooperation or cooperative skills can be learned by engaging in a process that allows groups to reach common goals and to understand that they will be more successful if they work together. As Gillies explains (2007), the cooperative learning process requires that students work together to accomplish common goals.

This process facilitates socialization of the learner from kindergarten through university. In the learning-teaching process, when techniques and methods to make students participate in the lesson are used, the students learn in the best way, and they remember more fully and enjoy what they do. The cooperative learning method, which was developed from theoretical and applied surveys (Oral 2000), facilitates student participation.

The cooperative learning method is defined as a learning approach in which students form small mixed groups to help each other to learn an academical lesson; they share identical aims, and the success of the group is awarded in different ways (Gömleksiz, 1997). The group members cooperate by teaching each other or doing a part of the work. This is called “subordination of the inward” or “subordination of purpose.” Each student’s learning in the group is affected by the learning or the endeavors of the other students in the group. Because of this, everybody in the group is responsible for each other’s learning, and abilities can be shared (Açıköz 1993). This

style provides an alternative to decrease the weight of traditional, teacher-based teaching methods (Sharan & Sharan, 1999).

According to Gillies (2007), the success of the cooperative learning method depends on the group's possession of positive interdependence and cooperation, individual accountability, promotive interaction, and ability to evaluate and improve. Johnson, Johnson, and Smith (1998) further explained these crucial factors: each member must be consciousness of his/her responsibility for the learning of the others. Every student in the group must be aware of the fact that his/her own effort is beneficial to everyone in the group, and also that every other member's effort is beneficial to him/her. The success of the group depends on each one of the group members striving to fulfill their common learning aims. Slavin (1990) states that all studies on cooperative learning indicate the importance of team rewards and individual accountability. The theory is that positive interdependence motivates the whole group to do the best they can. The most important aim of the cooperative learning groups is to ensure that each member is accountable for his/her behavior, performance, and success. All learners in groups are responsible to try to do their best. Each member of the group should also be aware that unique contributions are important. Group members should explain to each other how they solve the problems that they face, discuss the ideas that they get, and encourage, support, and help one another. They help to promote and to improve their mutual success through continuous interaction. One of the goals of cooperative learning is that the learners' social skills will increase in such an atmosphere. The last element of cooperative learning is group processing. This allows group members to obtain self-evaluation skills. Such evaluation not only helps the group members to work with maximum efficiency in their learning activity, but also further encourages the habit of working together in groups.

Student teams and success divisions, team-game-tournaments, cooperative integrated reading and composition, team-supported individualization, "let's ask and learn together," integration, and mutual questioning can be regarded as techniques of the cooperative learning method (Baykara 2000).

Jigsaw method

One of the most effectively used cooperative learning techniques is the jigsaw method. It was originally developed by Elliot Aronson and his colleagues, specifically to solve the school desegregation problem. The interaction problem between the black and white students was solved through Jigsaw by placing students in small heterogeneous groups and assigning tasks so that students could make their own contributions to the groups with extreme interdependence (Abrami et al., 1995; Kagan, 1997).

The technique requires that every student in the group share knowledge in every part of the course. Also, students in each group should feel responsible for the success of the other members. It is possible to generate cooperation between individual Jigsaw groups. A key feature of this technique is pointing out that the students' individual grades depend on each member's performance. Therefore, there is no group award for success. Though members of a group, each student is personally responsible for studying the whole lesson (Knight & Bohlmeier, 1990).

Although the Jigsaw approach has been flexible in its implementation, all learners who work in small groups must understand that mutual trust is required in this approach. Every learner in the group becomes an expert on the topic studied and contributes by helping his/her classmates. The name Jigsaw reflects a metaphor that means putting all the pieces a puzzle

together to see the whole picture. Although the Jigsaw approach can be applied flexibly in learning environments, it has four major stages in all applications (Clarke, 1999):

Introduction stage: The teacher organizes the students into heterogeneous original groups. Then s/he introduces the theme and the rationale of the theme to be studied. It is crucial to generate interest in the lesson among the students. Learning and assessment procedures are finally explained.

Focus group stage: New focus groups are organized by the students from the original groups to study and learn the specific topic in detail. In this stage, the teacher encourages the students by allowing them to think out loud in a free atmosphere. The students are directed to explore the main ideas and the ideas of others in the focus groups.

Reporting and reshaping: The students return to their original groups to explain what was learned and generated in the focus groups. Discussing, asking questions, interacting, and explaining are encouraged by the teacher. Thus, the students begin to understand the topic as whole, as they understand the work done by their peers.

Integration and evaluation: The students are encouraged to design an activity in their original groups to demonstrate what they have learned from others.

Aronson's original model was redesigned by Slavin (1990) and his colleagues in what they called Jigsaw II. In this model, the students should revisit the studied material 'through the lens of different perspectives to deepen conceptual understanding of significant themes, frameworks, or central ideas' (p. 37). In Jigsaw II, the extrinsic reward structure is also benefited. Heterogeneous teams generated on the basis of their performance levels teach each other and are assessed individually by means of quizzes on all the themes. The scores from these quizzes are averaged into one team score. Then, the winning teams are declared, to build a competitive spirit among the teams and to encourage them to cooperate to increase their team scores (Slavin, 1990). Although several variations were created by educators within the stages of the method (Kagan, 1997; Reid, Forrestal, & Cook, cited in Clarke, 1999), the idea of highlighting the cooperation, contributions, and peer teaching remains the same.

Research on cooperative learning and Jigsaw

Theory and experimental studies conducted in learning environments suggest that cooperative activities should be taken into consideration if educators wish to enhance the intellectual and social development of students. Twenty-one of the twenty-six studies conducted by Johnson and Johnson that investigate academic achievement clearly show that co-operative learning activities overwhelmingly promote higher academic achievements more effectively than other training methods. In addition, according to a meta-analysis by Johnson, Maruyama, Johnson, Nelson, and Skon on 122 cooperative learning studies conducted between 1924 and 1981 (1981, cited in Hill & Hill, 1990), the overall trends clearly indicate that cooperative learning methods generate higher academic achievements than individualized learning experiences.

In response to this meta-analysis, Slavin compiled and investigated 46 studies on cooperative learning activities which measured individual achievement and concluded that a vast majority of the studies showed positive effects on achievement. Slavin also found that increase in self-esteem was another crucial achievement of cooperative learning activities. Johnson and Johnson's analysis of a further study showed that positive interdependence, which means

interacting with and depending on one another to be successful, is the key requirement in cooperative activities, rather than simply rewarding individualistic behaviors (Aronson & Patnoe, 1997).

A team of educators launched a longitudinal project to restructure the teaching and learning process to reduce the competitive ethos based on the “win” or “lose” concept that was pervasive in schools in 1972. They attempted to develop equal opportunities and to support an affective environment through more collaborative work, interaction, and mutual trust (Clarke, 1999). The Jigsaw technique was originally developed to bridge the gap between different ethnic groups of children. However, its results are not limited to multicultural learning environments. Aronson and Patnoe (1997) stated that while individualized instruction benefits from independent activities, developing the social skills of the child is neglected. Employing jigsaw activities in a learning environment may provide a balance against the competitive classroom environment. It is a way of building a classroom community where all learners feel valued (Clarke, 1999).

After a full-scale jigsaw study, Aronson and Patnoe (1997, p. 92) concluded that “a strong, positive pattern of behaviors, feelings, and abilities could be attributed to jigsaw groups.” They also found a difference in performance between jigsaw and competitive classes in favor of jigsaw classes, after an experimental study.

There are many additional studies on the positive effects of cooperative learning in the academic success of learners throughout the world (Açıkgöz, 1993; Avşar & Alkış, 2007; Baykara, 2000; Bilgin & Geban, 2004; Cooper & Mueck, 1990; Delen, 1998; Dougherty, et al., 1995; Doymuş, Şimşek, & Bayrakçeken, 2004; Erdem, 1993; Gömleksiz, 1993; Gömleksiz & Onur, 2005; Gömleksiz & Tümkaya, 1997; Gömleksiz & Yıldırım, 1996; Johnson, et al., 1981; Johnson & Johnson, 1974; Karaoğlu, 1998; Kıncal, Ergül, & Timur, 2007; Leung & Chung, 1997; Oral, 2000; Öner, 1999; Özder, 1996; Özkal, 2000; Pala, 1995; Potthast, 1999; Quarstein & Peterson, 2001; Sarıtaş, 1999; Sezer & Tokcan, 2003; Slavin, 1990; Sharan, 1980; Tarım & Akdeniz, 2008; Tok, 2008). But few studies have been conducted on Jigsaw as a cooperative learning method. The achievement rates of students in Jigsaw classrooms are higher than those in traditional instruction classrooms (Avşar & Alkış, 2007; Beckett, 2009; Frazee, 2004; Gencdogan, 2007; Kılıç, 2008; Stepka, 1999). Most of the studies in the literature on cooperative learning are quantitative. However, there are some qualitative studies reflecting the effect of the cooperative learning techniques. For example, Jefferies (1987) contends that students enjoyed learning through planned student interaction, especially peer teaching in a qualitative investigation.

On the other hand, the results of a study (De Ligny, 1996) showed that although the Jigsaw technique did not have a significant impact on the achievements of students, a significant improvement was observed in peer respect, motivation, positive interdependence and self-esteem. Regarding changing the attitudes and achievement, Webb’s (1992) study clarified that Jigsaw did not significantly reduce prejudicial attitudes, and did not increase academic achievement in college students.

As seen in the literature, most of the studies are related to secondary school level and few of them are administered at higher education level. After all, there are numerous of studies approving the positive effect of the cooperative techniques on student achievement, and a few studies that did not create any difference on student achievement or on their attitudes. The literature show that cooperative learning strategies generally result in positive affective and

cognitive outcomes. On the other hand, some studies run contrary to previous researches. For example, Anderson (1985) found that although further research is suggested to determine the reliability, the attitudes and achievement of the students did not significantly change after an experimental study involved Jigsaw technique. As parallel to this finding, Webb (1992) concluded that the Jigsaw did not significantly reduce prejudicial attitudes or increase the academic achievement of college students.

The purpose of this study is to investigate the effects of the Jigsaw cooperative learning method on the academic success of prospective teachers.

Research question

Is there a significant difference in the academic achievements of prospective teachers who are taught according to the Jigsaw cooperative learning technique and the traditional methods and techniques?

Method

Research Design

A pre-test/post-test, control grouped quasi-experimental design was used in this study (Büyüköztürk, Çakmak, Akgün, Karadeniz, and Demirel, 2008). Two randomly selected groups were employed as the study groups. One of these was designated the experimental and the other the control group. The experimental group received the Jigsaw cooperative learning method of instruction, and the control group received the instructor-based traditional method. In order to avoid researcher bias, different instructors delivered the instructions in both groups. At the beginning of the academic year, both researchers were trained in the delivery of the course in two different ways while preparing the outline of the course. In the study, quantitative data were collected, and statistical analyses were performed.

Study Group

This study was conducted with 68 freshman students of the Turkish Education Department enrolled to the Educational Psychology course at Atatürk University in the 2008 - 2009 academic year in Turkey. Group A was the experimental group (received Jigsaw technique), while Group B (received traditional lecture technique) was the control group. Each consisted of 34 students, selected randomly.

Data Collection Procedures

In the study, both the experimental and control groups received two weeks of instruction (six hours) about “contemporary teaching strategies.” In order to evaluate their initial knowledge of the subject, a pre-test with 25 multiple choice questions was administered. Beginning the week after the pre-test, both groups were trained for three hours a week over two weeks. At the end of this period, a post-test containing 25 questions was administered to both groups. In order to prevent the students from studying for the post-test, they were not informed that the test would be repeated. Three weeks after the post-test application, in order to evaluate their retention of the acquired knowledge, the same post-test was given as the retention test again. The steps of the jigsaw technique that was used in this study are described below:

The classroom was divided into seven groups, each one containing five students. There were four students in one of the groups. Each group was assigned one of the seven subjects of the overall educational psychology lecture course. Then that group was named after the name of the subject it received. In each group, a leader was chosen to learn and teach the subject to that group. Each member except the group leader was sent to the other groups for two classes, in order to learn the other subjects. So new groups were formed, but the group leaders were fixed. The group members who learned the subjects of the other groups returned to their own group at the end of the course. Each group member who came back to his/her own group explained the subjects that s/he learned to the other members of the group. Seven different subjects of the Educational Psychology course were studied in this way during two weeks.

Results

The standard deviations and arithmetic means derived from the pre-test, post-test and retention test are given in Table 1.

Table 1. *Pre-test, post-test and retention-test mean scores and the standard deviations of the experimental and control groups.*

	N	Pre-test		Post-test		Retention	
		X	sd	X	sd	X	sd
Experimental	34	60.35	12.78	74.88	9.25	72.06	8.53
Control	34	57.88	13.00	65.18	11.03	63.41	10.89

As can be seen from the table, while the mean score of the experimental group in which Jigsaw instruction employed was 60.35; this mean score increased to 74.88 in the post-test and found to be 72.06 in the retention test. The mean scores of the control group in which traditional methods employed were 57.88, 65.18 and 63.41 respectively. According to these findings, pre-test and post-test mean scores increased both in experimental and control groups. However, considering the retention test scores, some decreases were observed in the mean scores of the candidate teachers after the administration of retention tests in both experimental and control groups after three weeks. In order to understand whether pre-test, post-test and retention test mean scores of the prospective teachers in both groups were significant, 2X3 two-way ANOVA for mixed measures was done. The results are presented in Table 2.

Table 2. *ANOVA results for the experimental and control groups concerning the pre-test, post-test and retention-test scores*

Source	Sum of Squares	S.D.	Mean Squares	F	p
Between groups	16566.352	67			
(Group) Jigsaw / Traditional	2457.176	1	2457.176	11.494	.001
Error	14109.176	66	213.775		
Within Group	15037.333	136			
Measurement (Pre-Post-Retention)	4501.451	2	2250.725	29.660	.000
Group * Measurement	519.176	2	259.588	3.421	.036
Error	10016.706	132	75.884		
Total	31603.685	203			

The results show that there are significant differences before and after the treatment program among the pre, post and retention test scores of the candidate teachers ($F(1-66)=11.494$, $p<.05$; $\eta^2=0.078$). This finding shows that the mean scores of prospective teachers in the experimental and control groups differentiate regardless of considering pre and post measurements. Related to the measurement main effect, it can also be understood from the table that there was a significant difference between the mean scores of the candidate teachers in both groups from the beginning to after-treatment ($F(2-132)=29.660$, $p<.05$). These findings show that there is a significant difference between the mean scores of two groups without making group and measurement separation.

It is also observed that the attitude mean scores of the subjects participating in two different treatments, Jigsaw and traditional, significantly differs from the beginning to after-treatment. So, this finding indicates that being in different treatment groups and repeated measure factors have significant common effects on the human rights education attitudes of the prospective teachers ($F(2-132)=3.421$, $p<.05$). This finding shows that the changes in the test mean scores of the candidate teachers in the experimental group in which Jigsaw technique employed were significantly different from the changes in the test mean scores of the candidate teachers in the control group in which traditional lecture technique employed. So, receiving cooperative (Jigsaw) and traditional instructions have different effects on increasing the achievements of candidate teachers. However, the Jigsaw instruction is more effective in retention of the knowledge gained in teacher training process, than traditional instruction.

Figure 1 briefly shows and summarizes the effects of treatment program with regard to pre-test, post-test and retention scores of the prospective teachers.

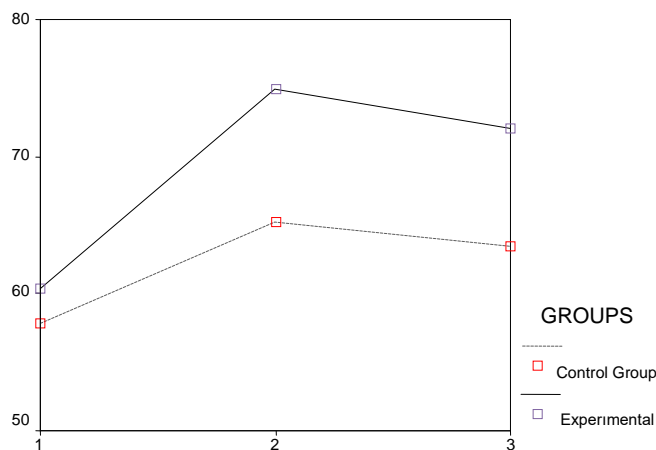


Figure 1. *Changes of the pre, post and retention scores in the experimental and control groups*

Discussion

In this study, the experimental group which was trained with the jigsaw technique was more successful than the control group trained with the traditional teaching-learning methods. This suggests that the jigsaw technique allowed the students to reach a maximum level of learning, by participating in the learning-teaching process personally and teaching each other.

This conclusion supports the findings of a majority of other studies that show the jigsaw technique affects students' academic accomplishments positively (i.e., Avşar and Alkış, 2007). Jigsaw technique was also implemented in different courses and settings. In the Oscoz's (2003) study, the Jigsaw task produces significantly more accurate language and negotiation of meaning than free discussion. In the study of Wang (2006), students learning cooperatively had higher final course grades and made more integrative statements on the measure of orientation toward learning English than students who learned using the traditional Chinese methods. In a very different learning setting, Frazee (2004) found that students in the Jigsaw class perceived more strengths and fewer weaknesses with the WebQuest than the No Jigsaw class. They also shared more positive and fewer negative remarks regarding overall satisfaction with the WebQuest experience.

Literature indicates that the educators aware of the impact of cooperative activities in schools. For example, in the study of Basamh (2002), the overall attitudes of principals and teachers towards implementing cooperative learning methods were positive. The majority of the principals evaluated cooperative methods as a beneficial, %87 were willing to implement cooperative methods, %83 believe that their teachers could implement such methods, and most of them would support the implementation of cooperative learning methods.

Although the applications of the post-test and retention-test period seem to be short, a significant difference was found between the knowledge retention mean scores of the two groups in this study. Therefore, it can be concluded that although the jigsaw technique has a positive influence on the learning of materials in the educational psychology course, and it does have a more effective influence than the traditional method on retention of knowledge level of the prospective teachers. However, it is suggested for the future researchers that the period between the post-test and retention test should be longer.

Conclusion and implications

Educators throughout the world accepted the positive effects of the cooperative instruction especially on learners' social skills, as well as achievements. Many studies showed its effect on student achievement, and most of the studies specifically focused indicated its effect on the attitudes and appreciation process in learners. According to these results, jigsaw technique is suggested as a useful cooperative learning method for teaching the subjects comprising the educational psychology course, as well as other teacher training courses. But, the method may only be effective if the teachers know the cooperative learning- specifically the jigsaw technique well, and the physical educational setting is suitable to apply this technique. Since the researchers had certain difficulties with transforming the traditional environment into the cooperative one, the learning environment should be designed around the cooperative learning requirements to be more effective prior to instruction.

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Effect of Multisensory Approach on Increasing Math Skills Children with Mild Intellectual Disabilities

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Abstract

The purpose of this study was to explore effect of multisensory approach on increasing math skills of children with mild intellectual disabilities. A total of 38 children with mental disabilities from three Fekrya schools in Kafr EL Sheikh Governorate; namely Kafr EL Sheikh Fekrya School ,Baltim Fekrya School, and Disouq Fekrya School(Schools for those who have intellectual disabilities)participated. T-test Analysis was employed for data analysis. Results. Findings from this study indicated the effectiveness of the program employed in math skills in the target children . Discussion. On the basis of the findings, the study supports the idea of Touch Math as a powerful intervention for children.

Keywords. *Multisensory approach, Touch Math , children with mental disabilities, Math skills .*

Introduction

Students with intellectual disabilities frequently have difficulties with mathematics , including basic skills (Nesbitt-Vacc & Cannon, 1991; Podell, Tournaki- Rein, & Lin, 1992; Van Luit, & Naglieri,1999;Young, Baker, & Martin, 1990),money applications(Test, Howell, Burkhart, & Beroth ,1993; Fredrick-Dugan, Test, & Varn, 1991; Sandknop, Schuster, Wolery, & Cross, 1992), and problem-solving activities (Mastropieri, Scruggs, &Shiah, 1997; Morin & Miller, 1998). For example, students with intellectual disabilities are less proficient and use less effective strategy instruction in completing and solving mathematics problems than their “typically” functioning peers(Goldman, Pellegrino, &Mertz, 1988). However, performing basic computational mathematics is essential for student success and to foster independent living skills. Acquiring these computational skills for many students with intellectual disabilities may require the use of manipulatives.

Touch Math is multi-sensory manipulative system (Bullock, 2005) approach, which utilizes the corresponding number of dots on numerals 1-9 to help students remember the numeral’s value when computing basic math concepts. This approach can be used in solving addition, subtraction, multiplication, or division (Scott, 1993; Wisniewski & Smith, 2002). Touch Math is beneficial for many struggling students because other traditional math strategies have failed them and because of its use of auditory, visual, and tactile strategies to reinforce the counting technique. In both studies, all students involved improved their math computation time and accuracy considerably. Scott (1993) also cited that Touch Math is useful because of its use of a variety of learning styles and modalities in teaching math.

The *Touch Math technique* appears to teach addition according to the same strategies that students naturally develop to solve addition problems. The system offers a method for teaching addition that involves *count-all* and *count-on* strategies, but does not require the *retrieval of stored facts from memory*, an area of difficulty for many students with intellectual disabilities. Students are encouraged to repeat their answers to problems aloud when using the Touch Math technique; it is expected that addition facts will gradually be stored in a student’s long-term memory. A study conducted by Marsh and Coke in 1996 proved that the repetition of visual materials aided retrieval from the memory. The Touch Math technique also has the advantage of being a multisensory method, as it involves the use of auditory, visual, and tactile information. The use of multisensory approaches in teaching the basic concepts of mathematics has been

supported by many researchers (Scott, 1993; Thornton, Jones, and Toohey, 1983). Furthermore, the technique assumes less prior knowledge of arithmetic on behalf of the learner. This knowledge involves remembering and counting numbers from 1 to 20, and to count-on from the largest number when adding and to count-down when subtracting (Calik & Kargin, 2010, P.197)

Scott (1993) determined the effectiveness of TouchMath to teaching three skills (a) single and double column addition with regrouping, (b) two-digit subtraction with regrouping and (c) three-digit subtraction with regrouping for students with moderate intellectual disabilities. Three fourth grade students with learning and intellectual (mild and moderate) disabilities and IQ are from 44-92 participated in the study. The dependent variable was the percent correct of problems on a paper and pencil worksheet. The worksheet consisted of column addition, double-digit and triple-digit subtraction problems with regrouping. There were four probe periods with four intervention training sessions lasting fifteen to thirty minutes the special education in the resource room. Results indicated that all three participants were able to master all skills at 85% or higher quickly after training sessions were complete.

Bedard (2002) investigated a dot notation system's effect on addition facts achievement with elementary regular and special education students. Six first grade classrooms containing 110 students participated in the quasi-experimental non-equivalent group pretest-posttest design. Four self-contained classrooms and two inclusion classrooms were utilized. The control group (52) and treatment group (58) were described as low-income white students ranging from 6-7 years old. The independent variable was the dot notation system TouchMath and the dependent variable mathematic achievement in addition facts. The control group was instructed with the Harcourt Brace (2000) workbook and objectives. Both pre and post measures contained 49 addition problems with sums between two through ten. Instruction took place in the regular education classroom for 45-minute sessions over a week. The results showed a significant difference between pretests and posttests with the TouchMath group based on t-test statistic despite the brevity of the study (1 week). The control group did not demonstrate a significant difference though actual raw data demonstrated minimal changes between groups.

Wisniewski and Smith (2002) explored a touch point system implementation into a math curriculum to increase student achievement scores for students with intellectual and learning disabilities. Four participants in 3rd and 4th grade were categorized as other health impaired, mild intellectual disabilities, or learning disabilities. A decrease in time to complete the worksheets was the desired result of the TouchMath application. Participants were only tested once and then determined that the students had mastered the TouchMath procedure without visual notation system displayed. The multisensory method was applied to boost percent correct and decrease the number of minutes required to complete the assessment. Mad Minute addition tests were employed as the pre and posttest measures consisting of addition facts and 30-40 double digit addition problem with and without regrouping. Instruction took place in the special education resource room during 20-minute sessions. Student four significantly increased percent correct and decreased completion rate by half. Student one was the only participant that did not decrease completion rate but increase percent correct. Student two scored lower on posttest but required less time to complete the measure.

Cihak and Foust (2008) used an alternating treatments design with students classified with autism to investigate the use of TouchMath to teach single digit addition problem-solving skills versus a number line approach. Three seven and eight year old elementary students with IQ ranging from 40-50 and diagnosed to have severe (2) and average (1) levels of autism

participated during the regularly scheduled resource class time. The dependent variable was if there was a functional difference between the two methods to solve addition problems. The percentage of single-digit addition math problems was assessed. Two different probe worksheets with ten single digit addition problems were used to assess math skills. Instruction was based on a least to most prompt hierarchy to guide students to the correct answer as well as an adapted model-lead-test procedure to teach both methods across seventy-four sessions. Testing sessions last from 5-20 minutes. Touch points were found to be more effective and preferred by the participants. There was enough evidence to support a functional difference between the two methods. For two participants the touch point system demonstrate much higher gains but one student showed similar increases in percent problems correct for both methods employed.

Calik (2010) investigate the effectiveness, generalizability, and the permanency of the instruction with the touch math technique. Direct instruction was used to the instruction of the basic summation skills of the students with mild intellectual disabilities. A multiple probe design across the subjects was used in this study. The participants included three students with mild intellectual disabilities in inclusive classrooms. They were second grader and their ages were 7-8 years old. The results of the study show that the use of touch math technique, based on direct instruction approach is effective in teaching the basic summation skills to the students with mild intellectual disabilities. The social validity results demonstrated that all the teachers have positive views towards the touch math technique and express that they would use this technique in their classes.

Despite evidence indicating that mild intellectual disability is the most common developmental disability, research related to mathematics development concerning children with mild intellectual disability is sparse. The few published research studies that have included this group of children are primarily related to teaching and learning, and are limited by (a) small sample size (i.e., less than four participants); (b) failure to randomly assign students to study conditions; and (c) limited scope. The scope of studies that include children with mild intellectual disabilities have focused on instruction related to teaching students how to count money (Cihak & Grim, 2008; Stith & Fishbein, 1996), learning mathematics facts (Bouck et al., 2009; Geurts, 2006; Hayter, Scott, McLaughlin, & Weber, 2007; Zisimopoulos, 2010) and mathematics strategies (Creekmore & Creekmoore, 1983).

This study aims to further explore the effect of Touch Math as a multisensory approach on increasing math skills in children with mild intellectual disabilities. this study seeks to give answer to the following question :

- 1- Are there differences in post–test scores mean between control and experimental groups on Math Skills Test ?

Method

Research Design

The pre-test post-test equivalent groups design was adopted for this study. Equal number of subjects group from Fekryas Schools, were randomly assigned to control and experimental groups, in order to eliminate all the threat to internal validity .Thus, any difference between experimental group and control group are due to the treatment. The pre-test post-test design was

employed to study the effectiveness of the Touch Math Program on increasing math skills of children with mild intellectual disabilities

The participants

Three Fekrya schools in Kafr EL Sheikh Governorate; namely Kafr EL Sheikh Fekrya School ,Baltim Fekrya School, and Disouq Fekrya School(Schools for those who have intellectual disabilities) were approached by the first researcher. There were two classrooms for those who have mild intellectual disabilities in Baltim Fekrya School .One classroom had 10 children(8 boys , and 2 girls) , and the other one had 9 (all were boys); with total number of 19 children (They were assigned to be the experimental group).Those children had IQ ranging from 69 to 74 (Mean IQ= 72) as indicated in their files(Before entering the school , the child's IQ was assessed using an Intelligence Test by a psychologist),and they aged from 6 to 8 years old (Mean Age= 7 years old).While the control group was drawn from two other schools ; namely Kafr EL Sheikh Fekrya School(n=12 children; 9 boys and 3 girls),and Disouq Fekrya School (n=7 children, 6 boys and a girl).Those children had IQ ranging from 69 to 74 (Mean IQ= 73) as indicated in their files(There , they follow the same procedure) ,and they aged from 6 to 10 years old (Mean Age= 8 years old).Parents and school personnel were informed about the study and agreement was sought .

Materials/Instrument

The TouchMath system (Bullock, 2005) was the intervention utilized during the treatment phase. It was based on the placement of dots on numbers (1-9). The student was asked to state the number aloud. The student was expected to count aloud as they make contact on the points. For subtraction, the students must be able to count backwards from 20.

The Math Skills Test . The researchers developed a 20-items test . It has five subtests; *Tracing The Numbers* (5 items) , where children are asked to trace the number and draw a ring around the number of objects to match the number (the right answer is given 1 mark) , *Missing Number* (5 items),where children are asked to write down the missing number(the right answer is given 1 mark),*Single-Skills Computation*(5 items),where children are asked to do simple addition problems (the right answer is given 1 mark), and *Quantity Discrimination*(5 items), where the children should identify the number or quantity in the set with the highest value(the right answer is given 1 mark).

Procedures

All instruction, training, observations and probes occurred during the regular school day. The data was collected in three phases.

Phase I: Pre- Test

The pre-test was administered on the total of 38 subjects from 3schools.The subjects were allowed sufficient time to complete the test. No time limit was set for completion of the test. On an average the subjects took 40 minutes to complete pre- test.

Phase II: Treatment

38 subjects were randomly divided into two groups; namely the experimental and control Group. Each group constituted of 19 students each. Subjects in the experimental Group were

exposed to the Touch Math Program by the first researcher. Experimental group and the control were taught math skills simultaneously in their class-room.

The Experimental Group learnt math skills using the Touch Math program. The intervention lasted for 12 sessions , 15- 20 minutes each. Those children in the experimental group were given following instructions: “Today I am going to teach you a new method to do additions. This method is called Touch Math. First we will learn to use it on numbers 1 to 9. The colour dots on each number tell us the “Touch points” and you can count the Touch Points by using your finger or a pencil. “Like this is number one, number one has one touch point now touch and count the number of points on this number :one”

The subjects counted numbers 1 to 5 aloud as they touched the single touch Points. For numbers up to 5 the subjects had to touch at the points only once where as for numbers 6 to 9 each point had to be touched while counting the points for each number. To ensure that subjects arrive at the right twice; subjects had to follow a pattern answer, that the subjects were constantly reminded to follow the sequence of pattern for each number. The researcher each group and immediate feedback was given to the subjects. The subjects practiced touching the Points of the numbers in the correct sequence till they attained mastery in counting each number. After the subjects attained mastery in counting the touch Points, the subjects learnt addition .The content included one digit to one digit with and without carry-over, two digits with two digits with and without carry-over, and three digits to three digits with and without carry-over.

Phase III Post test

The Post test was administered on all the students of Control Group and Experimental Group at the end of 12 sessions. Responses were carefully recorded and scored.

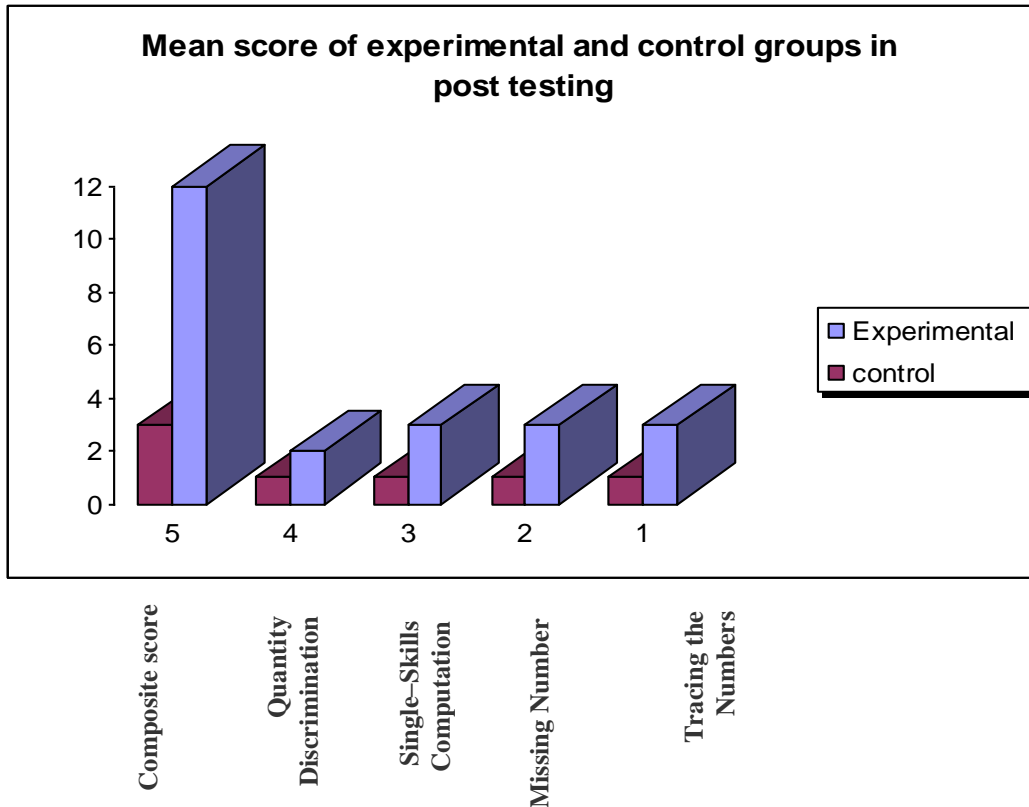
Results

Table 1. shows T. test results for the differences in post- test mean scores between experimental and control groups in Math Skills Test ;subtests scores and the composite score .

Table 1. T- test results for the differences in post- test mean scores between experimental and control groups in Math Skills Test; subtests scores and the composite score

Tests	Group	N	Mean	Std Deviation	T	Sig.
Tracing The Numbers	Exp.	19	3.05	2.4	12.02	0.01
	Cont.	19	0.789	6.3		
Missing Number	Exp.	19	3.21	3.4	12.02	0.01
	Cont.	19	0.947	5.8		
Single-Skills Computation	Exp.	19	3.00	3.0	10.48	0.01
	Cont.	19	0.894	5.3		
Quantity Discrimination	Exp.	19	2.68	2.5	9.62	0.01
	Cont.	19	0.789	5.7		
Composite Score	Exp.	19	11.94	1.17	14.09	0.01
	Cont.	19	3.47	2.34		

The table shows that (t) values were as follows: 12.02 for *tracing the number*, 12.02 for *Missing Number*, 10.48 for *Single-Skills Computation*, 9.62 for *Quantity Discrimination*, and 14.09 for the *Composite Score*. This values all are significant at the level (0.01) in the favor of experimental group.



Graph1: Mean scores of Math Skills Test in the post-test obtained by experimental and control groups.

Discussion

The main objective of the present study was to explore whether there were differences in post-test scores mean between control and experimental groups on Math Skills. The results of this study as revealed in table 1 and supported by graph 1 show that the Touch Math program as a multisensory approach was effective in increasing math skills of children in experimental group, compared to the control group whose individuals were left to be taught traditionally.

This study supports and extends the literature regarding students with intellectual disabilities and math skills (Amaal, [this volume]; Bedard, 2002; Cihak & Foust, 2008; Calik, 2010; Scott, 1993; Wisniewski and Smith, 2002).

Touch Math is a concrete means of solving addition problems that does not rely on memorization of facts and does not require the use of physical manipulatives such as fingers, counters, or blocks. Thus, the student with poor memory abilities is able to advance with their

math skills while still appearing more like their classroom peers. The discreetness of the touching and counting of touchpoints is important for a child who is mainstreamed into a regular classroom in order for them to feel and appear more like their classmates. Hanrahan et al. (1993) suggested that many intellectually handicapped would prefer to guess incorrectly that count with visible objects, such as blocks or fingers. In addition to this being a concrete and discreet method of solving problems, the Touch Math program, as a multisensory approach, is able to accommodate the learning styles of most students.

This allows the students to be successful with one approach and, as the program has been developed for addition through to complex division, the students can continue developing their math skills using the same general method.

Experimental group gained better scores in addition test than did control group in post-test though there were no statistical differences between the two groups in pre-test. This is due to the program which met the experimental group's needs and interests. On the contrary, the control group was left to be taught traditionally. This goes in line with our adopted perspective which indicates that traditional methods used in our schools do not direct students as individual toward tasks and materials, and do not challenge their abilities.

Limitations

Some limitations of this research that are thought to have an effect on the results of the research are as follows: a) The number of participants makes it difficult to support arguments for generalization to other populations. This study contained a population selected based on availability and does not represent the characteristics of typical school populations. So, larger samples must be investigated before broad conclusions can be made, b) Second, prior knowledge of the TOUCHMATH program was unknown at the time of this study and with the carry over effects, the potential of this prior knowledge can alter the outcome of the study.

Suggestions for Future Research

Results of this study have been very favourable for the Touch Math method; however further investigation of this program is warranted. Results from a study investigating the effectiveness of this program for a group of students with intellectual handicaps would provide more practical implications for the classroom. Observations of the Touch Math class that the subjects participated in suggest that this program is effective in a group setting. However, a more thorough investigation is needed.

This study also raised questions of generalizability that researchers may want to investigate more thoroughly. The possibility that some children with intellectual handicaps may not generalize the use of this method to different settings or with different instructors is very important when determining the effectiveness of the approach. The ability to implement the method when the subjects are presented the numbers in a different mode or in a different setting is essential if the program is going to be of any value to the student. The subjects in this study did demonstrate some generalizability, and investigating ways of increasing this generalization is also important.

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