



العنوان:	صعوبات التعلم في مادة الرياضيات وعلاقتها ببعض الأساليب المعرفية لدى تلاميذ الحلقة الثانية من التعليم الأساسي
المؤلف الرئيسي:	عبدالله، عبدالرسول عبدالباقي عبداللطيف
مؤلفين آخرين:	غبرس، كميل عزمي، محمد، ناصر دسوقي، حسانين، عواطف محمد محمد(مشرف)
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مستخلص الدراسة

هدفت الدراسة الحالية إلى :

- التعرف على نسبة شيوع صعوبات التعلم فى مادة الرياضيات بين تلاميذ الصف الثانى الإعدادى ونسبة انتشارها بين التلاميذ والتلميذات والفرق بينهم فى هذه النسبة.
- التعرف على الفروق بين التلاميذ ومتوسط درجات التلميذات ذوى صعوبات التعلم فى اختبار تشخيص صعوبات التعلم فى الرياضيات.
- التعرف على طبيعة العلاقة بين صعوبات التعلم فى الرياضيات والاساليب المعرفية الثلاثة : الاندفاع - التأمل ، وجهة الضبط (الخارجى - الداخلى) ، الاعتماد - الاستقلال عن المجال الادارى.

- التعرف على أثر متغيرى : فئة التلاميذ (عاديون - ذوى صعوبات التعلم) والجنس (ذكر - أنثى) والتفاعل بينهما على الأداء فى الاساليب المعرفية الثلاثة موضع الدراسة. وقد تكونت عينة الدراسة فى مرحلة التشخيص من ٤٣٤ تلميذاً وتلميذة بعد أن تم استبعاد الذين لم يستكملوا الاجابة عن الاختبارات وعددهم (٨٢) تلميذاً وتلميذة وبالإستعانة بمحكى الاستبعاد والتباعد تكونت عينة الدراسة من (٣٨٠) تلميذاً وتلميذة (٢٠٦ تلميذاً ، ١٧٤ تلميذة) وقد اشتملت هذه العينة على مجموعتين: مجموعة التلاميذ ذوو صعوبات التعلم وقوامها (٨٥) تلميذاً وتلميذة (٤٩ تلميذاً ، ٣٦ تلميذة) ولمعالجة بيانات الدراسة استخدم الباحث اختبار "Z" لدلالة الفروق بين النسب المتوية، واختبار "ت"، ومعاملات الارتباط، وتحليل التباين ذي التصميم العاملى (٢×٢)، واختبار نيو مان - كولز

وقد توصلت الدراسة إلى النتائج التالية:

- * توجد فروق دالة احصائياً عند مستوى ٠,٠١ بين نسبة انتشار صعوبات التعلم بين تلاميذ وبين نسبة انتشارها بين التلميذات لصالح التلاميذ.
- * لا توجد فروق ذات دلالة احصائية بين متوسط درجات التلاميذ ومتوسط درجات التلميذات ذوى صعوبات التعلم فى الرياضيات.
- * توجد علاقة ارتباطية دالة احصائياً عند مستوى (٠,٠٥،٠,٠١) بين درجات التلاميذ ذوى صعوبات التعلم فى اختبار تشخيص صعوبات التعلم فى الرياضيات ودرجاتهم فى الاساليب المعرفية الثلاثة موضع الدراسة.
- * يوجد تأثير دال احصائياً لفئة التلاميذ على الاداء فى الاساليب المعرفية الثلاثة موضع الدراسة، بينما لا يوجد تأثير لمتغير الجنس على الاداء فى هذه الاساليب ، كما أظهرت الدراسة وجود تأثير لتفاعل متغيرى الدراسة فئة التلاميذ والجنس على الاداء فى هذه الاساليب الثلاثة.



B- The Children and Adolescent Locus of Control Test (by Magdy Abdel Kareem Habib, 1990)

C- The Embedded Figure Test -Group (by Witkin, translated and prepared by Anwar El-Sharkawy and Solaiman A. El-Sheikh, (1989)

Statistical Treatment :

Statistical treatment of the findings of study was performed using computer. The statistical techniques used included mean, standard deviation, Z- test, T- test , correlation coefficients , analysis of variance and Newman - Keuls test .

Findings of the study :

- 1- There are statistically significant differences ($P > 0.01$) in the ratio of learning disabilities between male and female students.
- 2- There are no statistically significant differences between mean scores of male and female students on the diagnostic test of learning disabilities in mathematics ..
- 3- There are statistically significant correlations between students' scores on the diagnostic test of learning disabilities in mathematics and their scores on the cognitive styles impulsivity/reflectivity, locus of control and field- dependence/independence ($P > 0.01, 0.05,$ and 0.05 consequently) .
- 4- There is a statistically significant effect of student group (normal - learning disabled) on their performance in the cognitive styles examined in the study while sex has no effect on these cognitive styles. Also , there is a statistically significant effect of the interaction between student group (normal-learning disabled) and sex (male - female) on these cognitive styles .

- 4- There is no statistically significant effect of student group (normal - disabled) and sex (male - female), and the interaction between them on their performance in impulsivity/reflectivity.
- 5- There is no statistically significant effect of student group (normal - learning disabled) and sex (male - female), and the interaction between them on their performance in locus of control.
- 6- There is no statistically significant effect of student group (normal - learning disabled) and sex(male- female), and the interaction between them in their performance in field- dependence) independence.

Subjects of the study :

The preliminary sample of study included (434) students (males and females) . Those who have not completed the tests were excluded (N= 82) . After administering the involved 380 students (206 males & 174 females) . According to the criteria of discrepancy and exclusion the sample was divided into two subgroups:-

- 1- Students with learning disabilities in mathematics (85 males & 36 females) .
- 2- Normal group of students including (157 males& 138 females).

Tools of the study :

Two types of tools were utilized in the current study :

- 1- Tools used for identifying learning disabilities in mathematics included:
 - A-Diagnostic Mathematics Learning Difficulties among second prep. Graders Test (prepared by the researcher).
 - B- Illustrated Intelligence Test (by Ahmad Zaki Saleh, 1978)
 - C- Motor Visual Gestalt Test (by Loretta Bender ,translated into Arabic by Moustafa Fahmi and Sayed Ghoneim,n.d.)
- 2- Tools related to the cognitive styles considered including :
 - A- The Impulsivity/Reflectivity Scale(by Hanem Abdel Maqsood, 1987)

personality that transcend the traditional taxonomies. Hence, they help understand many factors affecting the learning process and product.

Significance of the cognitive styles of the learning disabled students stems from the fact that they help teachers handle the individual differences among their students, and match the learning tasks and the cognitive styles preferred by those learning disabled students.

The current study is particularly significant as the cognitive styles considered have not received attention of researchers in the area of learning disabilities .

Limitations of the study :

- 1- The researcher used only the criteria of discrepancy and exclusion in identifying the learning disabled students.
- 2- The current study was limited to only three cognitive styles: impulsivity/reflectivity, locus of control and field- dependence/ independence .
- 3- The sample of the study was restricted to second preparatory graders in Sohag Directorate .
- 4- The researcher used the descriptive approach that is based on the statistical quantitative study of the reciprocal relationships of various phenomena.

Hypotheses of the Study :

- 1- There are statistically significant differences in the ratio of learning disabilities in mathematics between second preparatory male and female students.
- 2- There are no statistically significant differences between mean scores of learning disabled male and female students on the diagnostic test of learning disabilities in mathematics .
- 3- There is a statistically significant correlation between student scores on the diagnostic test and their scores in the cognitive styles: impulsivity / reflectivity , locus of control and field - dependence / independence .

Problem of the study

The problem of the study can be stated in the following questions:-

- 1- What is the ratio of frequency of learning disabilities in mathematics among second preparatory graders and does this ratio differ according to the sex factor?
- 2- Are there statistically significant differences between the mean scores of learning disabled male and female students on the diagnostic test of learning disabilities in mathematics ?
- 3- Is there a statistically significant correlation between learning disabled students scores on the diagnostic test of learning disabilities in mathematics and the cognitive styles investigated in the study?
- 4- Is there a significant effect of both the type of students (normal - disabled) and sex (male - female), and the interaction between them on the cognitive styles considered?

Objectives of the study :

- 1- Identifying the ratio of learning disabilities in mathematics between male and female learning disabled students.
- 2- Identifying the difference between mean scores of learning disabled male and female students on the diagnostic test of learning disabilities in mathematics .
- 3- Identifying the correlation between learning disabilities in mathematics and cognitive styles: impulsivity/ reflectivity , locus of control, field-dependence/independence.
- 4- Identifying the effect of both student group (normal - disabled) and sex (male - female), and the interaction between them on performance of cognitive styles considered.

Significance of the study :

It is obvious that learning disabilities constitute an intricate problem experienced by a large number of students at all stages of education . The present study provides a procedural way of identifying learning disabilities in mathematics. Moreover, cognitive styles are important variables in the cognitive processes as they represent cross-sectional dimensions of

Summary of the Study

Introduction

Academic learning disability in general and maths learning disability are a problem experienced by a large number of students along the educational ladder. This problem got more complicated with the radical changes in society that affected the nature of life and its effects on the relationships at home, school and life in general.

The learning disabled children are in great need to love and guidance based upon understanding on the part of parents and teachers. Punishment of children is very detrimental as it creates a sense of failure and despair resulting in behavioral and emotional disorders. Besides, this may inculcate internal fear and tension which, in turn, hinder the learning process.

Scientists find great difficulty in diagnosing learning disabilities as it is troublesome to identify the overlapping of the functions of the brain. However, the classroom may provide valid data on learning disabilities such as skills, symbolic memory, inability of performance as well as integrating audio and visual functions. Diagnosing learning disabilities can be based on such factors as motivation, inattentiveness, verbal and nonverbal induction, memory disorders, poor mathematical skills and abilities.

One of the intriguing phenomena is that learning disabled students are often endowed with average or above average mental abilities. Besides, they suffer no health or physical handicaps. But, they cannot perform the instructional tasks assigned to them. This may be traced back to a mismatch between the learning tasks required and the cognitive styles used.

Consequently, it is so vital that learning disabilities in mathematics be diagnosed and the cognitive styles preferred by those disabled students, the styles that set them apart from normal students.

To identify the learning disabled students the researcher utilized the criteria of *exclusion* and *discrepancy*, selecting three cognitive styles closely related to academic learning disabilities in general and mathematics learning disabilities in particular. These cognitive styles are: impulsivity vs. reflectivity, locus of control, field-dependence vs. field independence.