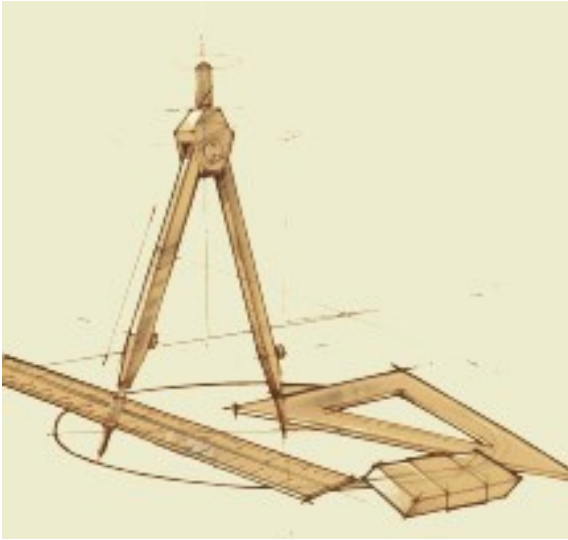


15th International Conference on Computers

Helping People with Special Needs

July 13-15, 2016; Pre-Conference July 11-12, 2016

University of Linz, Austria



EFFICACY OF TABLETS FOR STUDENTS WITH LEARNING DIFFICULTIES STUDYING CONCEPTS IN GEOMETRY

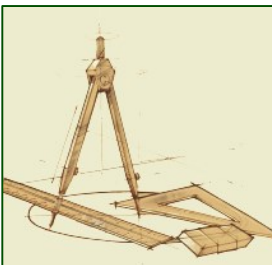
Dr. Betty Shrieber & David Eldar

Kibbutzim College of Education Technology and the Arts
Master of Education (M.Ed.) Technology and Education



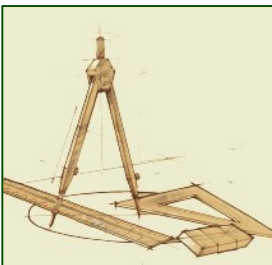
THE STUDY GOAL

The study goal was to investigate the efficacy of tablets as teaching tools for students with learning difficulties attempting to study concepts in geometry.



THE STUDY PARTICIPANTS

Three fifth-grade students studying in a regular class.
Their achievements in geometry fell below the class average.

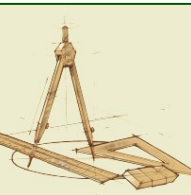


METHODOLOGY

The quantitative analysis was based on **SINGLE-SUBJECT DESIGN- Multiple baseline design**.

This allows for examination of the intervention efficacy using fewer participants with unique characteristics.

Each individual is separately exposed to a series of lessons under control conditions (base line) and a series of lessons under experimental conditions (intervention).

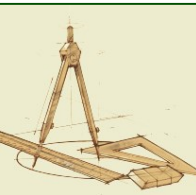


STUDY TOOLS

Throughout the study, data were gathered for each of the three students

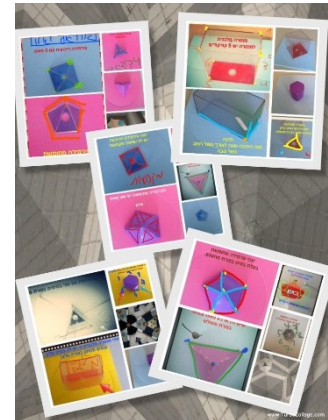
Research tools included student grades:

- mini-test assessments at the end of each class (by google forms)
- final evaluation of all material studied during all 12 lessons



ASSISTIVE TECHNOLOGY

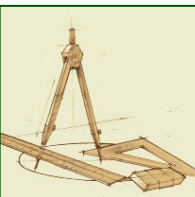
- **The baseline phase** included **traditional materials** :
books, worksheets, and demonstration aids such as playdough, building blocks, etc.
- **The intervention phase** included **IPad with geometry apps**
including the camera and dynamic interactive games:
the Makelt app, a YouTube video, the TinyTap app, recording
apps.



FINDINGS

The average rate of performance

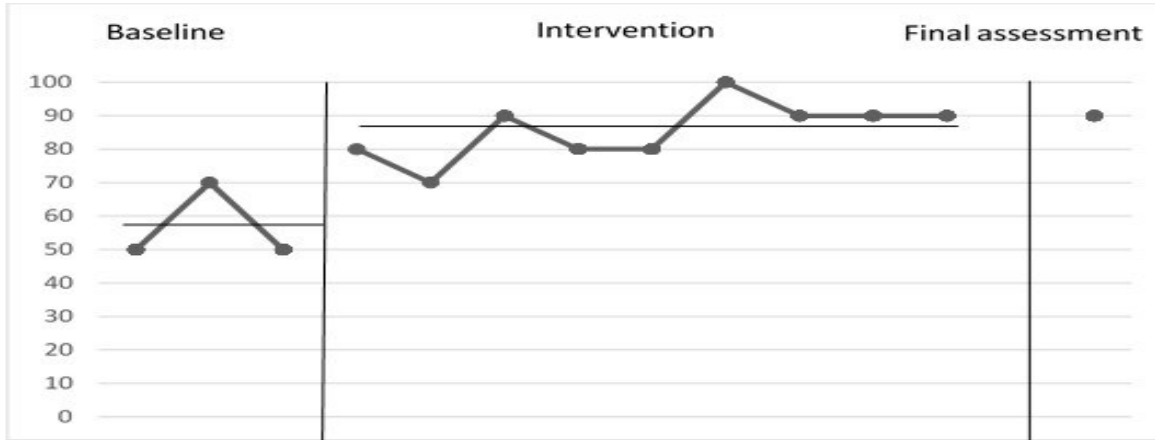
| | Student D | Student A | Student O |
|--|-----------|-----------|-----------|
| Base line (traditional learning) (Mean) | 57 | 60 | 60 |
| Intervention with I PAD (Mean) | 86 | 93 | 86 |
| The final exam grade | 85 | 95 | 90 |



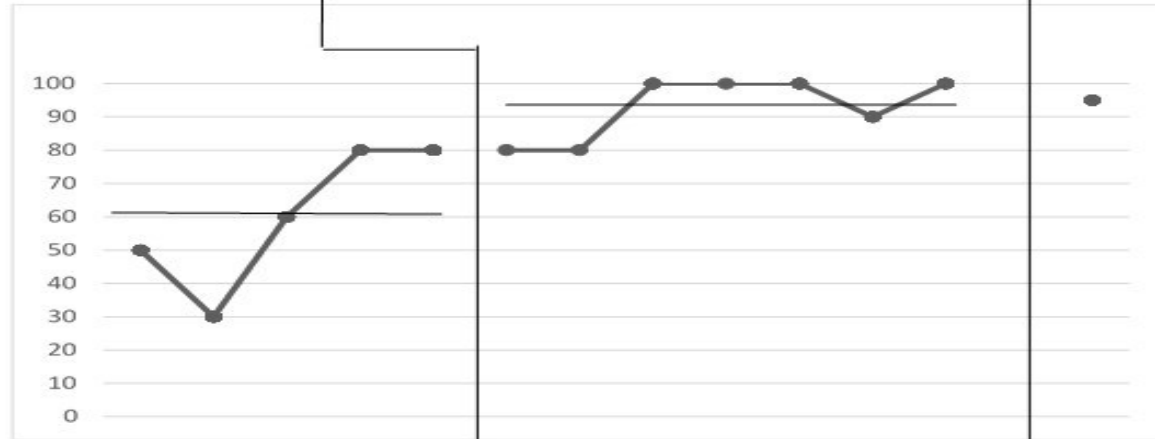
FINDINGS

Multiple baseline design

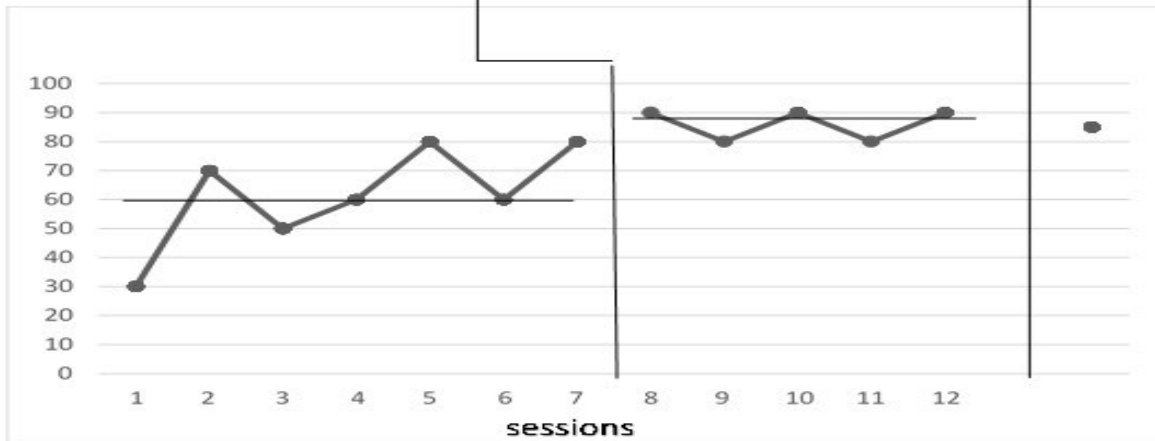
Student D



Student A



Student O



Assessment scores

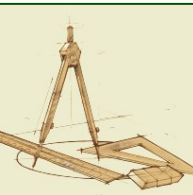
The analysis of multiple baseline data indicates differences in two parameters:

A. Level

the average rate of performance during a phase;

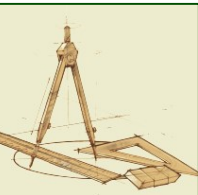
B. variability-

we found a great degree of baseline variation without tablets, and more moderate and stable variation during intervention.



SUMMARY

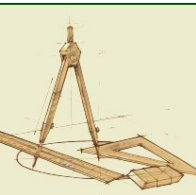
The findings indicate that multisensorial learning using tablets allowed these students to understand the subject matter better, which had been difficult for them previously.





CONCLUSIONS

- It seems that the use of various apps made them feel like they were playing and not "studying."
- Pressing the app icons instigated immediate reaction as the students followed instructions and thus prevented difficulties in task initiation.
- The use of tablets allowed the students accessibility to challenging material.



THANK YOU FOR LISTENING

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