Results

A paired-sample *t* test was conducted to compare quiz scores from before and after the students were provided with instruction with fingers treatment. The mean quiz score with finger instructions decreased from 8.33 (*sd* =1.55) on the quizz to 7.58 (*sd* = 2.06). The difference between the two means is statistically significant (*t* (11) = 3.00, *p* <.012). These results indicate that average of class' quiz scores decreased after the use of the treatment. The null hypothesis was that there would be no change in scores in the regular instruction and the research hypothesis was that the instructions with fingers would show a positive influence from the treatment. Therefore, the null hypothesis can be rejected, and the research hypothesis can be accepted.

Table 1.1
Group 1 and Group 2 Quiz Scores with Finger Instruction and Regular Instruction

| Participant Number | Group 1 Finger Instruction | Group 2 Regular Instruction |
|---|---|---|
| 1 | 8 | 7 |
| 2 | 7 | 6 |
| 3 | 9 | 8 |
| 4 | 10 | 9 |
| 5 | 10 | 9 |
| 6 | 10 | 10 |
| 7 | 10 | 10 |
| 8 | 7 | 6 |
| 9 | 5 | 3 |
| 10 | 8 | 8 |
| 11 | 8 | 9 |
| 12 | 8 | 6 |

Table 1.2

*Paired Samples Statistics*

**Paired Samples Statistics**

| | | Mean | N | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Pair 1 | Instruction with Fingers | 8.3333 | 12 | 1.55700 | .44947 |
| | Regular Instruction | 7.5833 | 12 | 2.06522 | .59618 |

Table 1.3
*Paired Samples Correlations*

**Paired Samples Correlations**

| | | | | Significance | |
|---|---|---|---|---|---|
| | | N | Correlation | One-Sided p | Two-Sided p |
| Pair 1 | Instruction with Fingers & Regular Instruction | 12 | .924 | <.001 | <.001 |

Table 1.4
*Paired Samples Test*

**Paired Samples Test**

| | | Paired Differences | | | | | | | Significance | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 95% Confidence Interval of the Difference | | | | | |
| | | Mean | Std. Deviation | Std. Error Mean | Lower | Upper | t | df | One-Sided p | Two-Sided p |
| Pair 1 | Instruction with Fingers – Regular Instruction | .75000 | .86603 | .25000 | .19975 | 1.30025 | 3.000 | 11 | .006 | .012 |

Conclusion

These results indicate students after the quiz scores with finger instruction for group 1, it showed a decline in student averages as opposed to when they took the quiz with just regular instructions, which was Group 2. This study was done with second-grade students which included general education and special education students. The research did indicate that finger-counting should be used at ages 4-8/4-11 and perhaps longer with kids with special needs. Some of the research leaned in favor of there not be any age limit when it comes to finger-counting. Some researchers believe that it can be used in first and second grades but should be abandoned in third grade. Otherwise, it could turn into something permanent. (2020).

Finger-counting, therefore, should be seen as a transition process rather than an obstacle to the development of mental arithmetic skills because people abandon finger-counting strategies once they develop cognitive and affective skills. 2020). Growing evidence of research shows that finger-counting is beneficial, and it involves cognitive skills as well. There are a lot of factors that should be considered like age of students, the developmental stages of learning and Fine Motor Skills of students. Particularly in the previous research of Dinehart & Manfra has reported an association between FMS and broader mathematical skills in preschool and primary school children. (2013).

Using manipulatives whether fingers, buttons, or blocks is based on the belief of children's thinking being concrete in nature. McNeil and Jarvin support this in their research even though the use of such objects has been mixed, with some studies reporting benefits and some reporting and some reporting no benefits and some reporting disadvantages. (2007).

Within this study, it can be concluded that finger-counting and conceptual drawing instruction are beneficial to students' performance and achievement.  There are other concerns that we must consider like guidance and timing.  Horan & Carr in their experimental study asked the question when teachers should provide guidance and when they should allow students to practice alone without teacher help. (2018).  The literature did not specify.  A recommendation for further study on guidance and timing and the effectiveness should be further explored.