

Interim Report

This report is to demonstrate that I have understood a valid number of research papers in the subject of my dissertation.

Auditory and Visual Learning in Primary Grade Children

Budoff, Milton and Donald Quinlan (1964).

Methodology Used: For this paper the research methodology consisted of gaining quantitative data by giving the children a list of tasks to complete. The tasks were explained to the child as a game he would play. The tasks consisted of aural tasks and visual tasks, the objective of the student was to

Objectives: To determine whether children learn better through aural presentation or visual presentation.

Implications: The implications of this paper are that if a child is given a relaxed environment and the correct methods are used, that child would be able to memorize and learn material through aural presentation faster than with visual presentation.

Findings: The children managed to complete the criteria through aural presentation at more than double the speed than that of the visual presentation.

Conclusions: Demonstrated how it is easier for children to learn through audio rather than visually.

Research Questions: Can children learn through the use of Aural presentation? Do children learn topics better through aural presentation rather than through visual presentation?

Children's sense-making of division of fractions

Bulgar (2003).

Methodology Used: Qualitative data was collected through three video cameras which were located in different areas of the classroom. One or two cameras attempted to capture students' work and interactions, the third camera was on the back of the room unmanned and set up to record the explanations by students.

Objectives: To understand whether children were able to grasp fraction concepts prior to the introduction of algorithmic instruction, and to understand the means by which the children solved these problems.

Implications: The implication is that when children are given time and the opportunity to explore mathematical ideas thoroughly in the correct environment, they become empowered to think like mathematicians by collaborating, experimenting and hypothesizing.

Findings: Provided the right environment the students were able to think more independently and solve mathematical problems through logic and cooperation with their peers.

Conclusions: The paper presented an experience of gamification to learn fractions in elementary school. The children were observed working in the role of game designers

Research Questions: Can children grasp fraction concepts prior to algorithmic instructions if they are under the correct conditions?

Deal or No Deal: using games to improve student learning, retention and decision-making

Chow, Alan F, Kelly C Woodford, and Jeanne Maes (2011).

Methodology Used: Quantitative data was collected. A 'Deal or no Deal' type game was played in a classroom where the students had just learned about probability and statistics. Once the topic was completed in class, the teacher took the role as the host while students were the contestants. The students used what they learned in the probability topic to determine whether or not to open a box.

Objectives: To understand whether games can help students to remember information taught to them during lessons and if so then to what extent.

Implications: Games that create a practical use for a difficult topic that students have just learned will help those students understand and retain what they learned during the lessons better.

Findings: They played the game and used probability to determine whether to open boxes or not, and this practical application of their lesson helped the students to better understand and retain the material of the topic. The retention rate for the class that did not play the game was 59% whereas the retention rate of the class that played the game was 95%.

Conclusions: Using the game created for this project the instructors were able to introduce multiple concepts meaningfully and assess student understanding and retention of those concepts. By repeatedly playing a game that students are familiar with, students benefit from the repetitive aspects of the method without the need of pencil and paper exercises. This paper concludes that well made games can be used as a substitute to the usual classroom methods of teaching and yield better results of student understanding and retention of topics.

Research Questions: Can the use of games help students better understand what they learned in class?

Digital badges in education

Gibson, David et al. (2015).

Methodology Used: Qualitative data was looked at. Research papers that involved using digital badges in actual classrooms were looked at to see the whether the effects of using them were positive and if so, to what extent. Also looking at how the students behaved.

Objectives: To understand whether the use of digital badges used in a classroom can improve the educational experience by going through multiple research papers where tests are done in actual classrooms using digital badges.

Implications: When digital badges are used in a classroom the educational experience for the students is improved by propelling motivation and giving the students a sense of status and achievement.

Findings: The research papers read by the author indicate that digital badges used in an educational environment improve the students motivation for learning, provide a certain status to the students that also propels motivation, and give the students a feeling of achievement. All of these things improved the educational experiences had in the classrooms these research papers were carried out in.

Conclusions: This paper defined what digital badges are, gave examples of their use and discussed their educational affordances. The conclusions of this paper are that there is a substantial amount of

research papers that demonstrate the usefulness of digital badges and that their potential seems high for a transformative moment in the use of technology in teaching.

Research Questions: Can the use of games help students better understand what they learned in class?

On difficulties with fractions

Hasemann, Klaus. (1981).

Methodology Used: Qualitative data was collected by giving tasks to the children to answer.

Objectives: Understanding to what extent children grasp difficult maths topics through the traditional classroom style of teaching.

Implications: The research implies that there needs to be a change in how difficult maths topics are being taught to children. Variety of concrete materials are needed to help students grasp difficult concepts.

Findings: The results the students got in the tasks given to them were poor. This finds that students do not have an understanding of the concept of fractions, they learn how to solve problems through repetitive drilling and once they are given a question that is not what they are used to them they will struggle to answer it.

Conclusions: The author states that pupils can only develop rational understanding on a subject by using a variety of concrete materials before forming mathematical concepts. The author goes on to say that after students learn about fractions in primary school, they should keep being taught the subject through grade 5 and 6 for further cement what they learned. He also mentions that the handling of the concept of fractions when the subject is being taught is the reason why students end up suffering with the topic.

Research Questions: Is the traditional style of classroom teaching adequate in teaching difficult mathematical concepts to children?

Teaching Fractions: Strategies Used for Teaching Fractions to Middle Grades Students

Nasier, Emilie A., Wendy E. Wright, and Robert M. Capraro (2003).

Methodology Used: Qualitative data was collected by videotaping students during fractions lessons for four months.

Objectives: Identifying effective strategies used by middleschool teachers in order to find ways to improve fraction instruction.

Implications: The results found by this research imply that fractions lessons are meaningful to students when they are allowed to construct their own knowledge and ideas. Although different methods of teaching fractions were by the different teachers involved, there is something missing from the lessons that could give the students a concrete understanding of the fractions concept.

Findings: The research finds that the 8 teachers involved in this project displayed their own style of teaching fractions. From monitoring the footage and carrying out interviews, it was clear that the students were struggling to thoroughly understand the concept behind fractions and how they really work. The authors go on to say that there needs to be a greater emphasis on fractions and more time should be dedicated to teaching this difficult subject. Using multiple strategies to teach the subject will help the students greatly.

Conclusions: The author states that pupils can only develop rational understanding on a subject by using a variety of concrete materials before forming mathematical concepts. The author goes on to say that after students learn about fractions in primary school, they should keep being taught the subject through grade 5 and 6 for further cement what they learned. He also mentions that the handling of the concept of fractions when the subject is being taught is the reason why students end up suffering with the topic.

Research Questions: Is the traditional style of classroom teaching adequate in teaching difficult mathematical concepts to children?

Investigating the impact of using games in teaching children English

Wang, Yin-Jian, Hui-Fang Shang, Paul Briody, et al. (2011).

Methodology Used: Quantitative data was collected through the use of questionnaires and interviews to explore the effects of using games in teaching elementary school students.

Objectives: To examine the overall effects of using games on the improvement of young children's English proficiency in relation to: Motivation, Vocabulary acquisition, and anxiety due to peer pressure.

Implications: The use of games in lessons can improve students motivation and help to improve the learning experience.

Findings: The results of this paper show that the use of games positively effected the students by improving their motivation, reducing anxiety and helping them with absorbing more information during the lessons.

Conclusions: The findings clearly show how using games may promote children's motivation, vocabulary acquisition, and reduce anxiety from peer pressure. However some flaws were noted in the scenario where children actually enjoyed public speaking as the game reduced opportunities to speak individually.

Research Questions: What is the overall effect of using games on the improvement of English proficiency in terms of motivation, vocabulary acquisition, and anxiety from peer pressure?

What is the relationship between students' English performance and the use of games in learning English?

Is there a significant difference among students with different proficiency levels on the usage of games?

References

Budoff, Milton and Donald Quinlan (1964). "Auditory and visual learning in primary grade children". In: Child Development.

Bulgar, Sylvia (2003). "Children's sense-making of division of fractions". In: The Journal of Mathematical Behavior.

Chow, Alan F, Kelly C Woodford, and Jeanne Maes (2011). "Deal or No Deal: using games to improve student learning, retention and decision-making". In: International journal of mathematical education in science and technology.

Gibson, David et al. (2015). "Digital badges in education". In: Education and Information Technologies.

Hasemann, Klaus (1981). "On difficulties with fractions". In: Educational studies in mathematics.

Naiser, Emilie A., Wendy E. Wright, and Robert M. Capraro (2003). "Teaching Fractions: Strategies Used for Teaching Fractions to Middle Grades Students". In: Journal of Re-search in Childhood Education

Wang, Yin-Jian, Hui-Fang Shang, Paul Briody, et al. (2011). "Investigating the impact of using games in teaching children English". In: International Journal of Learning & Development