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‘Rethinking the Enlightenment’

**Investigating Student Understanding: Exploring the Impact of
Scaffolding in Understanding of Data Handling in Grade 2 Math lessons**

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Abstract

In this qualitative case study, I explored in what ways two second grade students respond to independent activities through scaffolding them in their zone of proximal development (Vygotsky, 1978) in a week of Math lessons. I co-constructed questions with the students and scaffolded the learning.

The study took place in a primary school in Azerbaijan. I collected data through semi-structured student interviews, students' artifacts and notes, my recorded notes after each teaching sessions, and audio- recorded classroom observations. I utilized a contemporary interpretive methodology to interpret the data.



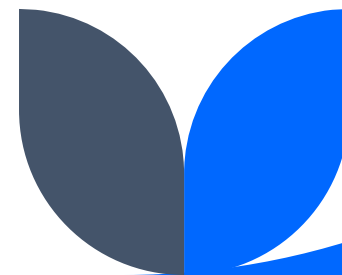
Rationale for the Study

- ✓ Past inquiries show there are number of students who restate memorized knowledge and do not build connections between the learned concepts after teacher scaffolding (Reeder, 2006).
- ✓ Inquiries also show some students become less able to think on their own without scaffolding, and make decisions while it is needed (Alton-Lee, 2003).
- ✓ Minimal studies have explored in what ways teachers might use scaffolding to support the learning within the context of the students' inquiry. This feature will demonstrate how the nature of scaffolding may vary from traditional learning environments. It is the fading of teacher support and transferring responsibility (Brown, 2001).



Purpose of the Study

- This research concentrated on the importance of how to think rather than what to think, how comprehension occurs, and how to reduce unconscious memorization through scaffolding.
- Effective learning occurs when learners actively participate in 'what is going on' as a curiosity - the need to know is the main element of learning (Morgan & Saxton, 1991).
- The essential aim of this study was to investigate the depth of understanding of two Grade 2 students with the same learning abilities after teaching the topic about handling data at an elementary level and their reaction to teacher scaffolding.



A Priori Questions

- In what ways might a teacher scaffold two 2nd graders in student-centered inquiry learning groups in a week of Math lessons?
- How does understanding develop in students with the same academic ability levels?
- In what ways does teacher scaffolding support the learning process?



Theoretical Perspective

- I employed *Social Constructivism* theory as the theoretical framework to analyze the data. In social constructivist theory, teachers facilitate students' learning, therefore, it is essential that they seek to understand students' unique constructions and to see learning through their students' eyes (Vygotsky, 1978).
- Learning is a process of interpretation, where understanding is an ongoing process, rather than a fixed reality (Gallagher, 1992).
- Additional understanding emerges from cycles of interpretation. However, interpretation is always in transition: there may be other interpretations made from the modified stance (Calder, 2011).

Methodology

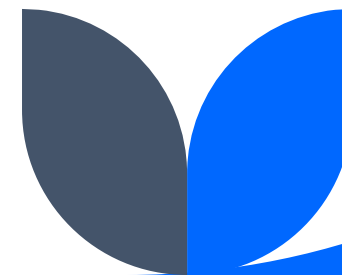
- I employed a qualitative case study method.
- Yin (2009) describes Case studies as investigating a contemporary phenomenon within its real-life context. Yin (2009) also states Case studies offer insights into complex issues that are inherently linked to historical, social, personal and political issues.
- Case methods are appropriate as my aim was to develop a understanding of a current issue set within a particular classroom setting.

Context for the Study

This research took place in a recently constructed elementary school in Baku, the capital city of Azerbaijan, which was designed to support inquiry-based learning. The study focused on a Grade 2 classroom that consisted of students with varying abilities, backgrounds, and nationalities. The classrooms in this school were larger compared to typical classrooms. The participants of this qualitative case study were two second-grade students, aged 6-7.

Study Participants

I conducted this research in grade 2 class with students learn English. Most students were six and seven years old. I implemented a purposeful sampling method to identify two students with similar learning abilities. These two students were my study participants.



Data collection

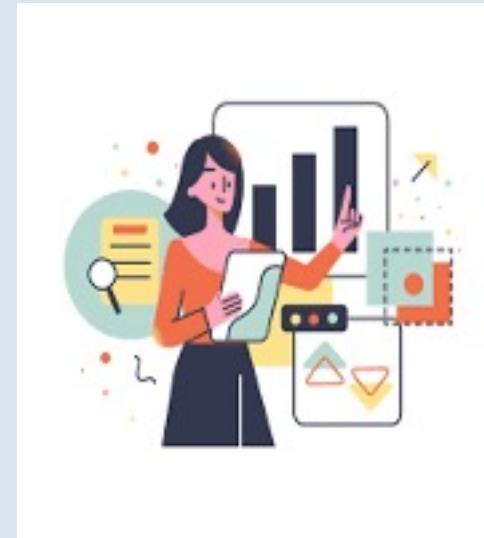
- Semi-structured student interviews
- Students' artifacts and notes
- Audio- recorded classroom observations
- My recorded notes after each teaching session with these two students

Data Analysis

I drew initial themes from preliminary readings of the interviews. Then, I coded data into these draft themes and added some minor modifications to these themes if necessary. I analyzed the data within each theme and across themes for interconnections.

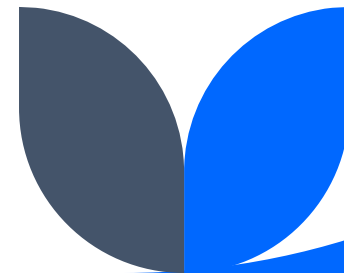
For the purposes of this study, I considered the data in terms of different characteristics of scaffolding. I analyzed the data through the six tutor actions identified by Wood et al. (1976):

- recruiting interest in the task;
- reducing the degrees of freedom (simplifying the task);
- maintaining direction towards the goals of the task;
- marking critical features;
- controlling frustration;
- modelling the preferred procedures by demonstrating



Results

- ❑ The social constructivism theory enabled me as a teacher to offer learning opportunities that helped students generate their unique meaning while introducing new information.
- ❑ Students with the same learning abilities performed at various depths of understanding as the strategies they applied varied.
- ❑ Moreover, the way that students reacted to scaffolding also varied. It is recommended that teachers should focus more on the learning strategies that students apply and employ appropriate scaffolding strategies to motivate learners to comprehend similar tasks in the future better.



Limitations

- *Hermeneutics considerations*
- *Study participants may not have sufficient communicative competence to explain their understanding*
- *My biases towards the benefits and importance scaffolding in student centered approach*



References (some of them)

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Thank you

