

Review of *Relative Effectiveness of Guided Inquiry and Demonstration Methods on Students*

Performance in Practical Chemistry in Secondary Schools in Osun State, Nigeria

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In this article, the effectiveness of Guided Inquiry Strategy and Demonstration Method teaching methods were analyzed. The researchers measured the performance of students in practical Chemistry. These students were seniors at Osun State in Nigeria. Three different hypothesis were tested:

1. There is no significant difference in the performance of students taught using Guided Inquiry Strategy (GIS).
2. There is no significant difference in the performance of students taught the Guided Inquiry Strategy (GIS) and those taught with the Demonstration Teaching Method (DTM).
3. There is no significant difference in the retention ability of students when GIS and DTM were used in teaching Practical Chemistry (Qualitative Analysis).¹

Each group of students was given a pre-test and post-test to assess student learning based on the strategy used. The results of the study showed that there was a significant different between the two methods of teaching. Student group that received GIS instruction before the post-test had a higher mean than the student group that was taught using DTM. It was over double the mean of the DTM group.¹ Given the results, the researchers maintained their perspectives on a guide inquiry based learning environment including collaborative work and investigation helped to enhance the performance of learners that were taught

within that environment. They concluded that students perform better with they are taught using strategies that incorporate student active participation.¹

Early on in the article, the concept of ZPD (Zone of Proximal Development); Vygotsky developed this concept to explain how there were certain skills that students possessed and then others that were just outside of their knowledge.² Teachers are there for guidance and assistance for the student to reach out and master those new skills. Using GIS is one way of helping students to be self-sufficient in obtaining new skills and applying them without expecting them to become a master on their own.

In the introduction of the article, the authors discussed how important it is to utilize suitable strategies to actively engage students in the classroom. Their results support that there are certain teaching methods that are more effective than others.

Furthermore:

To facilitate meaningful learning, students are supposed to learn for their own sake through hands-on and minds-on meta-cognitive approaches, memorization leads to regurgitation of facts, poor retention ability and non transfer of knowledge all that served as evidence of lack of understanding thus cannot promote self reliance.

Since the researchers found that GIS is a more effective teaching strategy than DTM, it is important to know how to facilitate GIS in the classroom. Irinoye et al. describe this approach as one in which the students are given activities that are “open-ended, student-

centered, and hands-on while the teacher acts as a facilitator.”¹ Group activities with role-playing, feedback opportunities, and knowledge sharing are often utilized in GIS.

With students learning practical Chemistry better through GIS, teachers must attempt to develop lessons with this in mind. For example, when teaching a unit on the states of matter, a teacher could set up stations where students work in a group to analyze a given state of matter.³ The students could be asked to record their observations about the matter (feel, sight, what does it do when it is in a container?, etc.). Each group would then report their findings to the class and determine what state of matter they possess. This would be accompanied by a worksheet and teacher facilitation, but the students would be discovering and analyzing the information in a hands-on, minds-on fashion and work together to draw conclusion and present their findings. A teacher should even choice to create an addition activity where students could observe change in state of matter to drive the information further.

After having read this article and given my own experience, I agree that it is important for teachers to think about how they can make a lesson more interactive and incorporate students more actively. In my experience, I learned more from classes where I was expected to be active in my learning and more hands-on experiences. As a pre-service teacher, I am going to work hard to challenge myself to incorporate GIS whenever possible. I think that with a little bit of work and motivation many topics can be converted into GIS lessons. The example I explained in the previous paragraph is one

that with more thought and planning could be a useful and fun way to teach the states of matter in a classroom. It is my hope to come up with more ideas in the coming years as I become experienced in my classroom.

Bibliography

- ¹ Irinoye, J., Bamidele, E. F., Adetunji, A. A., & Awodele, B.A. (2015). Relative Effectiveness of Guided Inquiry and Demonstration Methods on Students Performance in Practical Chemistry in Secondary Schools in Osun State, Nigeria. *Advances in Social Sciences Research Journal*, 2(2): 21-30.
- ² McLeod, S. (2010). Zone of Proximal Development. *Simply Psychology*. [Website]. Retrieved from <http://www.simplypsychology.org/Zone-of-Proximal-Development.html>
- ³ Blei, I & Odian, G. (2000). General, Organic, and Biochemistry: Connecting chemistry to your life. [Book].