How Student Learning Styles Effect Achievement and Participation in Mathematics

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How Student Learning Styles Affect Achievement and Participation in Mathematics

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Research Question
How do students with varied learning styles learn mathematics differently?

Literature Review
- Mokmin and Masood (2015) find that students who are taught with materials that accommodate their learning styles average higher scores in mathematics than students who are not.
- Hanci et al. (2016) conclude that educational activities and curriculum that match up with student learning styles increase learning and long-term retention in students.
- Students typically use more than one sense throughout the learning process, so it is important to create a learning environment that encourages the use of all senses (Ozereem & Akkoyunlu, 2015).
- Dunn and Griggs (1988) state that approximately 70% of students are affected by perceptual learning preferences.
- Students learn best when exposed to multiple learning styles (Ediger, 2013).

Methodology
- My study involved 16 fourth grade students from suburban, low-income school (10 girls, 6 boys).
- I analyzed four data sources: field notes, student anecdotes, lesson plans, and student work samples.
- I used Ryan and Bernard's (2003) theme techniques to analyze my data, looking for repetition, missing data, theory-related materials, and linguistic connectors.

Specific Learning Style Elements

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<th>Visual</th>
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Figure 1. A wide range of learning style elements were represented in my classroom. This shows that students learn in many different ways. The majority of students appear to learn perceptually.

Results and Data Analysis
- I found three prominent learning styles in my classroom: physiological, sociological, and emotional – the majority of my students were identified as physiological learners, which can be seen in Figure 1.
- Physiological learners learned best when exposed to videos, manipulatives, etc.
- Emotional learners needed reminders and personal interactions to stay on task.
- Sociological learners benefitted from group or individual work, depending on the students’ preferences.

Conclusion
- Teachers should certainly take into account their students learning styles when planning curriculum and activities.
- Findings indicate that accommodating student learning styles leads to increased participation and achievement.
- A limitation in this study is the sample size – future research should be conducted with larger groups of students to see if consistent results are produced.