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Addressing Students' Anxiety Levels in a High School Mathematics Classroom

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Addressing Students' Anxiety Levels In High School Mathematics Classrooms

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"With the expanding use of computer technology, the need for the understanding of mathematics is critical" (Furner, 2011, p. 2).

-Unfortunately, recently published data shows the percentage of students who choose to pursue an education in mathematics beyond high school is growing smaller and this may be linked to high anxiety levels experienced in the high school classroom.

Research Question

What are the factors that influence students' anxiety in learning mathematics?

Literature Review

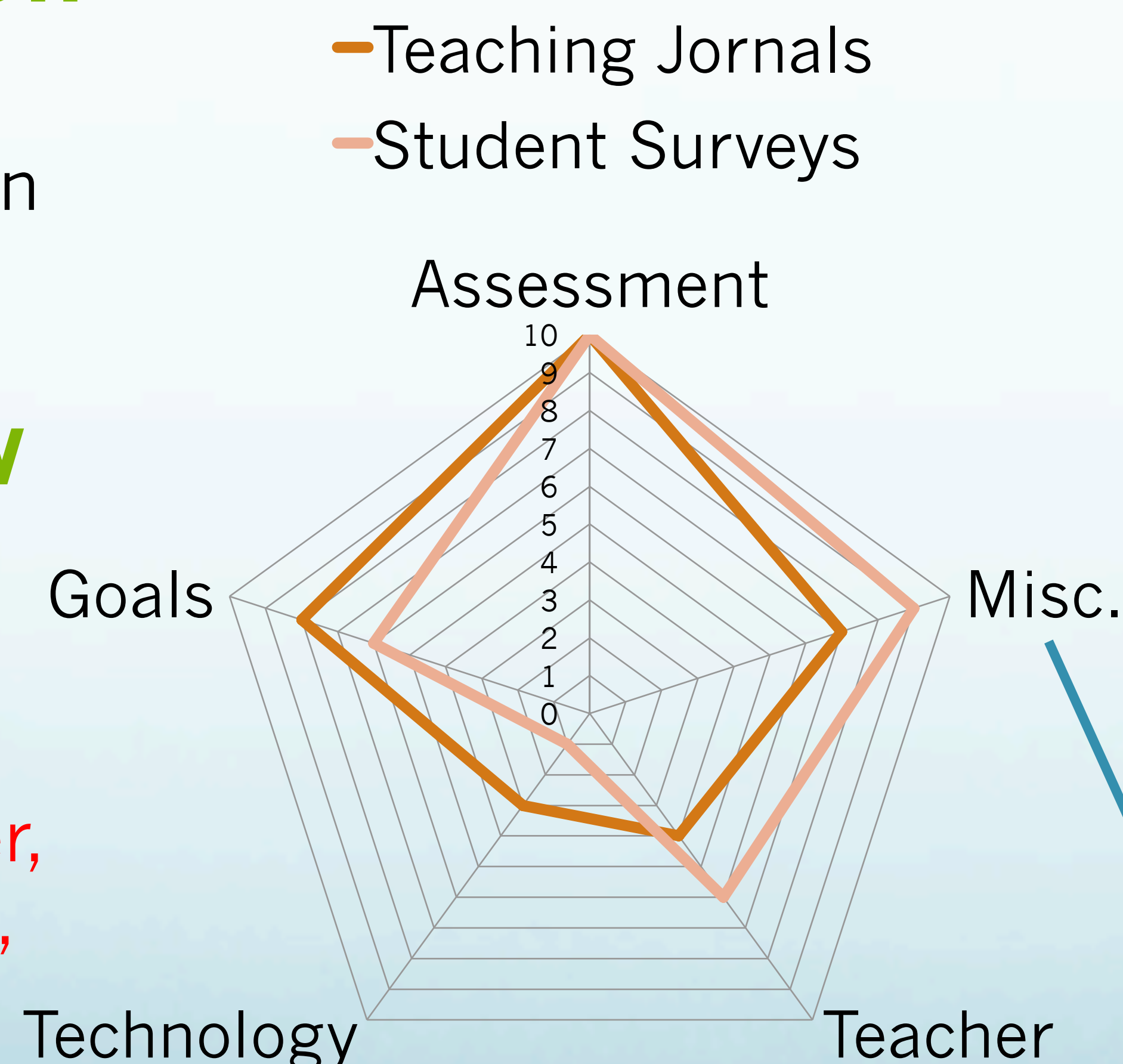
Hembree (1990) conducted an extensive meta-analysis and concluded, from over 170 studies, that the **teacher**, **goal setting**, **technology use**, and **assessments** had the strongest effect on students' anxiety levels in the high school mathematics classroom.

Methodology

- This study took place at a rural high school with 127 students, grades 10-12, in college algebra, pre-calculus, and calculus as participants.
- Teaching journals and questionnaires were analyzed together with current studies on the topic.
- This research also focused on other aspects (i.e., use of mathematics riddles, competitions, and mathematics stories) of a mathematics classroom that affect students' math anxiety.

Results

Figure 1: Summary of results.



Teaching journals were used to record the number of times each of the five aspects visibly affected students anxiety levels (see Figure 1).

Questionnaires contained questions where students identified which of these five aspects affected their anxiety levels (see Figure 1).

The Misc. aspect was a combination of stories told in class and a riddle competition which was started halfway through the semester

Interpretation

In *Figure 1*, the thick orange line represents the number of times each aspect is evident from my teaching journals, while the light orange line represents the summary scores from the student questionnaires. Both of these values have been fit to a standard distribution curve ranging from one to ten with ten being the largest possible number of occurrences.

Conclusion

-Assessments had the largest effect on students' anxiety levels, while technology had the least.

-Hembree (1990) found technology to be a large contributor to student's anxiety levels', analysis of my research data suggested the opposite. This can be attributed to an increase in technology use in the classroom since Hembree's 1990 study.

-The types of goals set also have an effect on students' anxiety levels (mastery vs. performance goals). Similar findings between the miscellaneous category and teacher aspect of the mathematics classroom are evident in the similarity of scores from both data sources.