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Curriculum Design Project: Statement of Purpose

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**The Problem**

The skills found in Ohio’s Learning Standards for Probability and Statistics in seventh grade are found in everyday life. Unfortunately, they are easily and often misused. For statistics, according to the *Principles and Standards for School Mathematics*, data is used all the time with business, politics, research and everyday life, statistics are often misrepresented in order to influence public opinion on issues or distorted for a product to suggest quality and effectiveness (NCTM 2000). For probability, games use probability incorrectly by having unfair games which is a disadvantage to particular players. Students need to be able to reason statistically and logically in order to be informed citizens and intelligent consumers. *Principles and Standards for School Mathematics* addresses that “the kind of reasoning used in probability and statistics is not always intuitive, and so students will not necessarily develop it if it is not included in the curriculum” (NCTM 2000). By teaching how to formulate questions, analyze data and evaluate validity, students will have the critical thinking skills needed to apply to their everyday life.

**Needs of the Learner**

Students need the skills of critically analyzing statistics and probability. Instead of hearing a statistic or probability and take it for face value, students need to critical thinking skills to look deeper and seek the validity of these statements. *Ohio’s Learning Standards* states four critical areas for the seventh grade and one of them is: “drawing inferences about populations based on samples” (2010). Students need to acknowledge and internalize when it is appropriate to make generalizations about populations. The National Council of Teachers of Mathematics states that “teachers must help students learn mathematical content while also guiding them in what it means to *do mathematics*” (Koestler, C., Felton, M., Bieda, K., & Otten, S. 2013). Rather than simply absorbing the information, students need to be able to analyze it and use their mathematical thinking skills to determine the truth. When it comes to probability and statistics, the needs of learner are focused on the learner’s ability to apply their knowledge to the real world. In order for deeper mathematics learning, the content must be relevant to students. Therefore, the lessons must have context for students to apply the content to their everyday life.

**Needs of Society**

Since these problems surrounding probability and statistics are all around us, we need this critical thinking students to help shed light on problems within our society. We them to be active citizens, using their mathematical skills to seek and determine truth through the data. In an article, “The Importance of Statistics,” the author stresses the significance of statistics is everywhere we look: form the field of economics to the natural, social and actual sciences to the financial sector to business (2015). No matter where a student goes in their future, their life will be surrounded by statistics and probability. They must have the critical thinking skills in order to use statistics correctly in our society.

**Values of the Subject Matter**

 Mathematics can shed light to the truths of this world, especially in statistics and probability. By studying mathematics, students gain the skills to seek, analyze, discover, and comprehend truth and what it means to them in this intricate world. They gain the ability to make sense of things, problem solve, reason logically, and interpret.

**The Educational Goal**

This unit is designed to educate students on the effective and appropriate ways to use probability and statistics in their everyday life. This unit will provide students with real life and relevant examples that will help them gain deeper learning of probability and statistics. The purpose of this course is to educate students on how to make more informed decisions in their everyday life.

References

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