

An Optimal Study Group Repartition to Improve its Members Performance in STEM

INTRODUCTION

- The study aims to determine the factors that explain the variation in mathematics performance between genders, and offers two categories of factors: biological/psychological and social/cultural influences.
- Emotional factors in mathematics results are also studied, where grades of students are predicted using attitudes towards mathematics
- A stochastic optimization algorithm (Differential Evolution) is used to address the grouping problem in finding an optimal and gender mixed class/group configuration that leads to improvements in its members' abilities in STEM by identifying clusters by grouping individuals with some similar characteristics but also different features, in such a way that they will/can enhance their potential.

METHODS

- Eligible participants are scholars enrolled in primary and secondary education programs
- Information will be gathered about disposition-related variables and demographic and environment-related variables from approximately 30 participants with similar ages and education stages.

RESEARCH QUESTIONS

- Which facets of students are the most relevant for improving the mathematical abilities of study group members?
- What intrinsic elements in the dataset, that are not visible from exploratory analysis or descriptive statistics, might impact the group's performance?
- Can we draw a bridge between a personal development process, a group behaviour and natural evolution transposed in an evolutionary algorithm?



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