STATISTICAL EDUCATION AND A FAIRER SOCIETY

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The mathematical theory of cooperative games or games of weighted voting can be used in the design and evaluation of democratic political systems or boards. Specifically, to measure the ability to influence the members that make up the voting system is very useful the concept of power index. To develop these indices involves statistics tasks as combinatorics, probability, percentages or fractions.

We present an experience that has designed a didactic situation based on a classroom experiment that has passed through different phases: preliminary design, teaching experiments and retrospective analysis.

The preliminary design of new knowledge refers to the use of the concept of power index to detect and to design and, where appropriate, systems of fair power sharing.

The teaching experiment is considered as a task of problem solving in mathematics, and involves an activity made in a close context, namely the composition of the Council of the school, linking different basic content of mathematics.

Retrospective analysis of early results with students at intermediate levels of secondary leads to a refinement of the activity, with more concrete approaches and close to students, and an experiment with high school students of higher level.

The first results show acceptable understanding of the activity, by high school students of both levels studied, with a clear influence of the context where it is observed. For example, students better applied combinatorics in this activity than when formulated in abstract mathematical problems. The primary purpose of this experience is that students know and identify, where appropriate, fair and democratic systems of power sharing that can be found as citizens.

KEY WORDS

Democratic and fair systems, cooperative games, power index, combinatorics and fractions in real contexts.

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