SOME FEATURES OF FUTURE STATISTICS EDUCATION

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This paper is an attempt to suggest features of future statistics education in the light of the emerging paradigms of science, education and mathematics. The paper consists of three sections; an introduction clarifying the context and limitations of the present paper, an explanation of the included concepts and the conclusions about some features of the future statistics education in the light of the studied emerging paradigms. These features included the integration of statistics education through an "applied" approach to problems, rejecting linearity, concentrating on conceptual frameworks and "conditional prediction", and emphasizing the study of probability and the way to deal with the results of statistical analyses.

THE CONTEXT AND LIMITATIONS OF THE PRESENT PAPER:

This paper is an attempt to suggest some features of future statistics education in the light of the emerging paradigms of science, education and mathematics. Basically, these are the paradigms of "complexity", continuous concurrent education, the paradigm shift of mathematics from seeing mathematics as the study of formal systems to seeing mathematics as a living body and the possible interactions between these emerging paradigms. Nevertheless, such interactions must be seen in the light of world changes, regional changes and national changes, keeping in mind that there might be different scenarios for changes at each of these levels as well as the process of "polarization" across the whole world by means of income and the use of technology(3).

HINTS ABOUT THE INCLUDED CONCEPTS:

By complexity, we mean the new changes taking place in science and its methodologies which are characterized by unity of knowledge (transdisciplinarity), non-neutralism, the change in the relation between logic and thought, uncertainty, nonlinearity, cohesion of knowledge and its application … etc(1). These changes have resulted in the fact that the major purpose of science is to achieve "more understanding of reality with the intention of affecting and changing it" (1:56-57), rather than "description, interpretation, prediction and control of phenomena".

Continuous concurrent education refers to the normal case of future education, where education starts from the "birth" of a man until his/her "death", coping and interacting with new developments in all aspects of life, where the basic function of "formal education" is to "teach students how to teach themselves" (4:0,45). While the paradigms shift of mathematics is supposed to reflect in primary school mathematics programmes "from seeing mathematics as a large collection of concepts and skills to be mastered in some strict partial order to seeing mathematics as something people do" (5:3655), and it is reflected in the secondary school mathematics programmes from the "formal" teaching of mathematics to introducing mathematics "as a human activity in order to provide a basic preparation of learners for the full participation as functional members of society" (6:3661).

SOME FEATURES OF FUTURE STATISTICS EDUCATION IN THE LIGHT OF THE ABOVE MENTIONED CHANGES:

We can sum up these features as follows:

- Statistics is most likely to be introduced in the framework of integrated units, at many different study and research levels.

- The major approach of teaching these integration units is the "applied" one, basically practical problems, with a great room for developing creativity (through different suggested solutions).
- The study of "probability" within the above mentioned framework, at different levels, will be essential.
- Paying much more attention to studying interactions among variables at the cost of linear and experimental models.
- The results of statistical analyses and research methods, especially those involving relations among many variables e.g. factor analyses, data mining and canonical correlation, are supposed to be considered as starting points for further discussion and study.
- Concentrating on conceptual frameworks of statistical analyses and the use of technology (at different levels of sophistication).
- The study of "conditional prediction" rather than "prediction" as such. Therefore, much more attention will be paid to studying cases of possible scenarios and alternatives.

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