

STUDY ON IMPORTANCE OF THE COMPUTER DATA ANALYSIS IN APPLIED MATHEMATICS

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Abstract:- *The mechanical manufacturing industry has grown to be a foundational sector of the country's economy as industrialization has continued to advance. Since so many professional courses must be founded on sound mathematical understanding, mathematics courses play a crucial role in professional instruction. While there is a significant difference between professional teaching and professional teaching from the viewpoint of professional teaching, students do not need to fully engage in the mathematical teaching goals. This research identifies the gaps and weaknesses in the existing approach to teaching mathematics using a questionnaire survey, a review of the literature, and an analysis of the data. Pupils are not passionate about mathematics, they do not really connect with the topic, and professors are unable to pique students' interest. I'm hoping that this essay may inspire some fresh approaches to teaching arithmetic.*

Keywords: *Mathematics Teaching, Applied Mathematics, Data Analysis, Teaching mode*

Introduction

Information technology is inevitably used by more sectors as it develops. Education illustrates this tendency. Information technology may enhance classroom learning and efficiency. Math professors teach mechanically from the textbooks, and pupils learn passively. This teaching technique prioritizes instruction above comprehension and information, which hurts pupils' essential thinking capacity. So, instructors should apply textbook basic literacy aspects, create teaching techniques, help students comprehend knowledge meaning, master important approaches, and enhance thinking [1].

Mathematical applications. After the 1990s, Chinese educational academics studied "mathematical application". The new curriculum emphasizes mathematical application improvement. The most notable is that in the early 1990s, Beijing and Shanghai academics Professor Yan and Professor Zhang led the way in incorporating mathematics into college admission test questions. Hai and other areas asked for mathematical applied knowledge competitions, which considerably advanced Chinese Applied Mathematics Education [2]. In the mid-1990s, Professor Jiang proposed "the new notion of the major growth of mathematics application in the second half of the 20th century," arguing that mathematics was the platform for application and not to blindly follow the axiomatic system of formalism. Yet, the article "strengthening the application awareness in mathematics curriculum" jointly prepared and published suggests that we should focus on successful implementation and include mathematics application consciousness into instructional materials, teaching, and testing. "On the growth of mathematical application ability" evaluates contemporary mathematics application teaching issues and proposes remedies. Scholars are still studying this issue [3]. In the American education system, one of the course's goals is to deepen the relationship

between mathematics and life and other disciplines and explore mathematical issues connected to real-world applications in mathematics class to develop students' mathematical problem-solving skills.

Around the start of the century, US vocational education began to adopt pragmatism. American professors advocate new vocationalism. They believe the secondary vocational curriculum should be more broad, incorporate the old curriculum, and use innovative talent training methods. These beliefs provide US vocational education excellent curricular integration. [4]. This study examines computer data analysis in applied mathematics in the Internet age. We can sort and analyze useful information from books and literature. In the following, we elaborate the concept of relevant data analysis and applied mathematics, and through questionnaire survey, we conducted a questionnaire survey in a university mathematics major in the author's city to understand current mathematics students' learning situation and propose a feasible data analysis technology-based mathematics application method. using data.

Related Concepts of Computer Data Analysis in Applied Mathematics in the Internet Era

Applied Mathematics

Applied mathematics examines real-world mathematical issues [5]. "Mathematical application" is using mathematical concepts and techniques to grasp scientific facts and explain real-world events, which is reflected in mathematical formula operation, analysis, tabulation, estimate, symbol conversion, optimization scheme, and other features. Humans' "capacity" to do a task smoothly is psychological. Humans' abilities are usually tied to certain

tasks. So, only activities may compare ability. So, the capacity to answer practical issues, which is similar to mathematical skill, is vital. Mechanical engineering students in secondary vocational schools use mathematical formulas to calculate problems, elementary mathematical models to solve problems, ignore secondary factors and process transformation to describe mechanical manufacturing, and analyze and process the original mechanical professional problem. [6].

Modeling

Numerical computation, matrix operations, data regression and fitting, numerical integration and numerical differentiation, as well as the resolution of ordinary differential equations and partial differential equations, are all included in the teaching subject of applied mathematics. Building a model from a mathematical idea to a real-world issue is challenging. Models are often split into two groups:

- (1) Models based on physical theory;
- (2) Models based on strict empirical description (e.g., neural networks).

Engineering design uses physical and chemical law-based mathematical models such mass and energy balance, thermodynamics, and chemical reaction kinetics. Empirical models are better when time and resources prevent physical model development [7-8].

Problem definition, model creation, and assessment comprise the model. We must choose issue-related and solution-related aspects during problem definition. To assess the model's structure and complexity, describe the number of independent variables, equations required to solve them, and parameters to be determined. In calculating the equation of

state of gas, two state parameters are determined since pressure, volume, and temperature are connected.

The other parameters are uniquely determined. Hence, gas state has 2 independent variables, 1 equation of state, and 1 variable to solve. Define input and output variables, choose mathematical expressions, and code the model at the design stage. When the model is represented by computer code, the usability of computer software and hardware should be checked, the program algorithm and flow should be constructed, and the program module-structure connection should be specified. Model assessment uses input-output historical data or literature comparisons and follows the definition stage's evaluation criteria and test procedure. Accelerating convergence speed is needed to debug a successful model [9].

Data Analysis in the Application of Mathematical Methods

1. Help students understand the value of data analysis by having them participate in the data collecting process.
2. Improve the educational process and assist students in learning the data analysis approach from many perspectives.
3. Multimedia helped people understand data analysis and feel the unpredictability of data.
4. Encourage students to do real-world research and apply the idea of data analysis [10].

The Practice of Computer Data Analysis in Applied Mathematics in the Internet Era

Respondents

The author chooses a university mathematics major in his city as the study object to ensure timeliness and correctness. The study subjects were 130

students from three courses, 102 male and 28 female, ages 19–21. According to the analysis of the three classes' results, about 40% of the 130 students had scores concentrated in the 40-60% range, indicating that the students' mathematics foundation is weak as a whole, the students with good grades account for a small number, and the students in the third class who participate in the survey are relatively close to each other. Eight male and two female mathematics instructors at secondary vocational schools in our city, aged 28–50, were interviewed.

Questionnaire Content

In this study, a self-designed questionnaire with 10 questions and three survey-related components was used. Its design was based on the mathematics and mathematics application concept issues encountered by mechanical secondary vocational school students.

- (1) Survey of knowledge about mathematics applications, primarily to assess how students see mathematics and the function of applications
- (2) A study on the application of mathematics, which looks at how well students can use the concepts, ideas, and techniques they have learned to address real-world issues related to their major;
- (3) Opinions on the resources, subjects, and methods used in mathematics instruction.

Experimental Steps

The practice is split into three phases: the first phase begins in April and May, at the start of the semester; the second phase is between June and September; and the third phase is in October and December. by means of the distribution of questionnaires in order to comprehend the position of mathematics majors in the application of mathematics, assess the typical issues that

students face, and investigate the causes. The primary goal of the survey of teachers is to gain an understanding of how college mathematics is currently taught, as well as to analyze problems in order to provide effective teaching strategies that will help students develop their ability to apply mathematics. Through this survey, we hope to provide strategies for the development of high-quality applied mathematics talents.

Practical Analysis of Computer Data Analysis in Applied Mathematics in the Internet Era

Investigation on the Degree of Liking Mathematics Courses of the Major

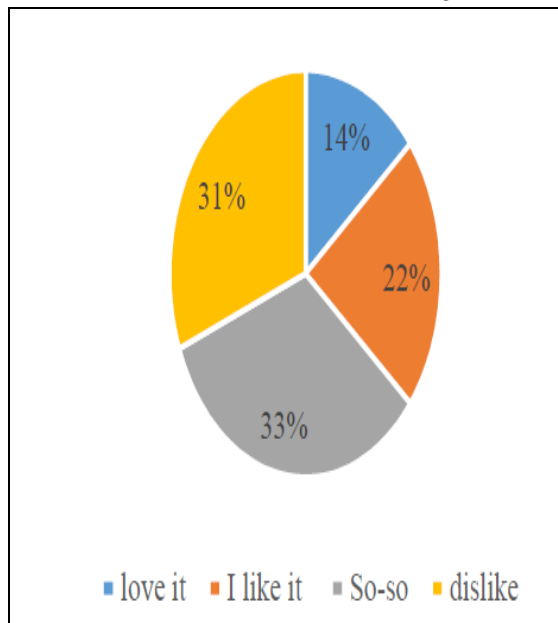


Figure 1. Popularity of Mathematics Courses

Figure 1 shows that just 14% of students really like math classes, and the majority of them choose the choice they don't feel or even like. As a result, it is evident that the rigorous standards of the school, the need to study mathematics, and the students' lack of initiative prevent the performance of mathematics major students from being improved.

Whether Mathematics Can be Applied in Life

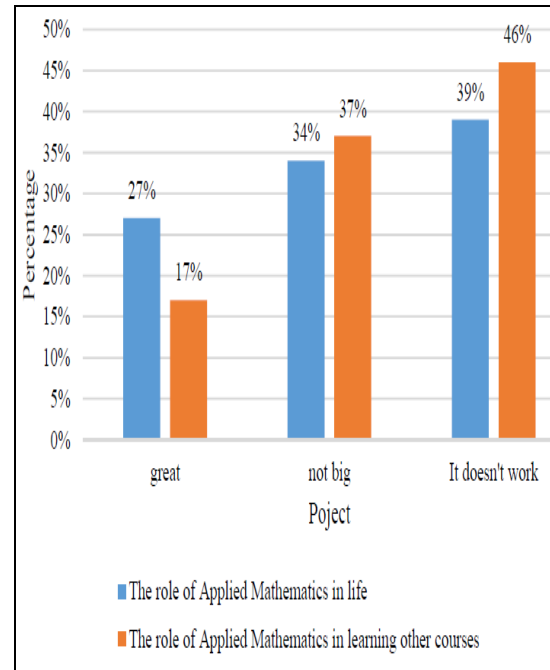


Figure 2. Investigation on the Role of Mathematical Application

Figure 2 illustrates how imperfectly students' knowledge of applied mathematics is understood. Just 27% of students believe mathematics can be used in life, and 39% believe it has no impact. Only 17% of students believe mathematics can be applied in other disciplines, while 46% believe it has no impact. It is clear that the major's students have preconceived notions about how to think about mathematics in the actual world. They are unable to assess the link between mathematics and other professional subjects, accurately appreciate the function of mathematics, or really identify with mathematics. Students can only study mathematics properly and develop a love of mathematics if they are made to truly understand the presence of the aforementioned challenges.

Other Problems

Table 1. Other Issues

Question	What is the applicability of the current mathematical knowledge?	Are you really interested in mathematics?	Do you agree with the mathematics?	Do you like the way teachers teach?
Great	16%	22%	31%	15%
So-so	27%	23%	29%	16%
Bad	57%	45%	40%	69%

Table 1 demonstrates that this table displays the total number of participants for the other surveys. Just 22% of students are interested in whether they are really interested in mathematics; only 31% of students agree with the notion of mathematics; and 69% of students are dissatisfied with the teaching techniques used to teach mathematics at the moment. The findings of the aforementioned study objectively represent the severely pessimistic attitude that college students now have regarding mathematics instruction, and they also show how soon the teaching approach will be changed.

Teacher Questionnaire Survey

Table 2. Questionnaire Survey on Teachers

Question	Do you think students are interested in mathematics?	Current situation of students' Mathematics Learning	The suitability of current mathematics textbooks	Are you satisfied with your teaching methods?
Great	1	2	2	3

Not bad	3	1	2	3
bad	6	7	6	4

Table 2 lists the contents of the questionnaire survey and the positions of the professors. The key topics are broken down into four categories: do you believe that students are interested in mathematics; how about students' learning environments; if they are happy with the teaching materials; and whether they are satisfied with their lesson plans. The scenario for instructors is not hopeful; they do not believe that their pupils like mathematics, thus it follows that they cannot educate students according to their ability in order to fulfill their educational objectives.

Conclusion

The practice of teaching has benefited in certain ways from this study. We may now make the following deductions: The lesson plan has produced some early successes. The mathematics teaching material used to be inconsistent and out of date with professional courses since it was constrained by the conventional teaching idea in the past. The merging of information technology with all facets of modern life is the current trend and serves to further the development of the times. Another unavoidable tendency in the advancement of education is the use of information technology in the classroom. Information technology applied in education may successfully increase students' interest in learning, assist instructors in enhancing lesson plans, overcome tough teaching situations, and boost classroom productivity. As a result, the majority of educational platforms need to actively support the development of information technology platforms. Also,

teachers should adapt to the demands of the modern world, actively study information technology, apply expertise, enhance the creation of instructional materials, and increase classroom productivity.

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