NORDPLUS

Cooperation to strengthen the citizens' math skills in the context of sustainable development and welfare

Higher math at universities in Latvia

NPAD-2013/10268

MATHPRO

VINTERE

IIPC NVO www.iipc.lv
IZGLĪTĪBAS INOVĀCIJU PĀRNESES CENTRS

LEVEL OF MATHEMATICS' KNOWLEDGE

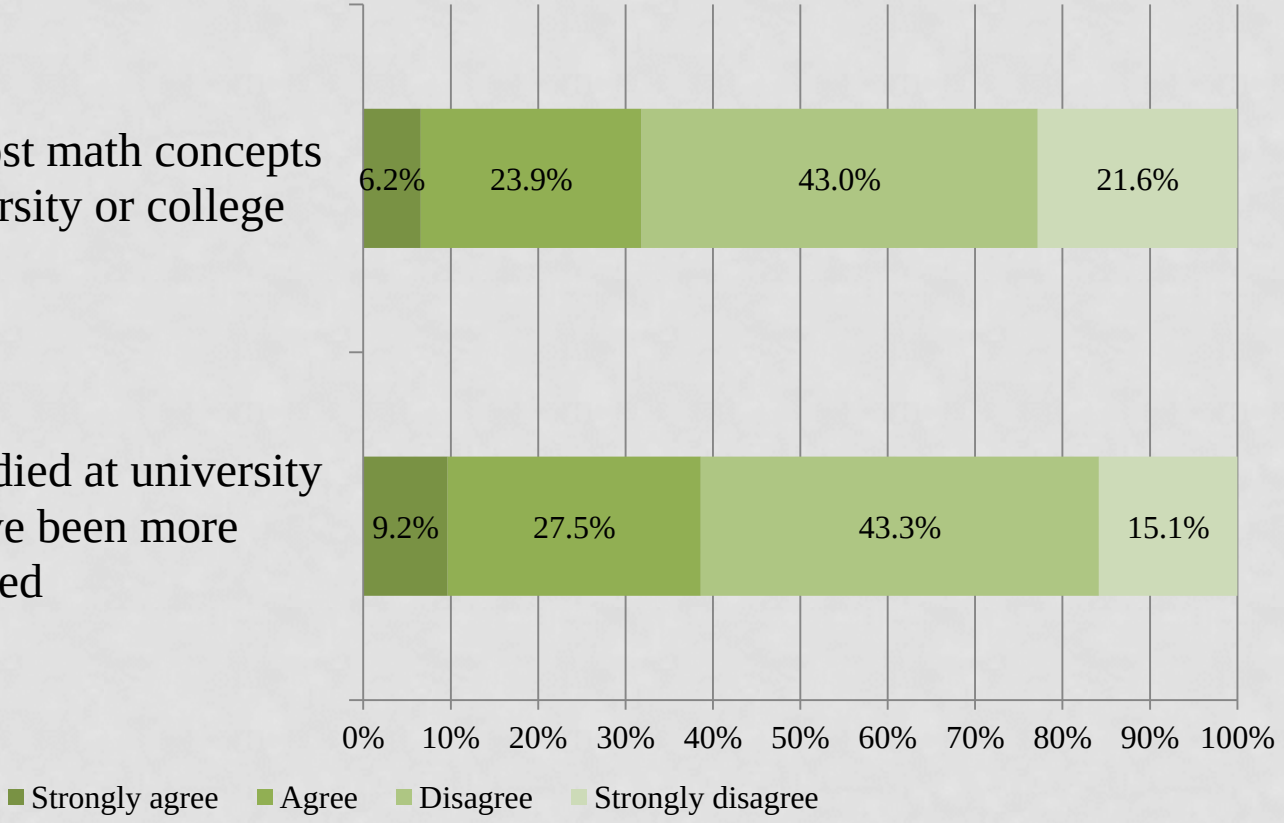
Profession standard gives levels of theoretical and practical background – minimal education, knowledge and skills level. Including in mathematics: insight, comprehension, application

Qualification	*Insight*	*Comprehension*	*Application*
Programmer		+	+
Engineer of forestry			+
Engineer of wood-working		+	
Engineer of power system in agriculture		+	
Engineer of mechanics			+
Building engineer		+	
Landscape architect	+		
Engineer of land survey			+
Surveyor			+
Engineer of environment			+
Catering organizer		+	
Hotel service organizer		+	
Manager of enterprise or organization		+	

TEACHING OF MATHEMATICS (I)

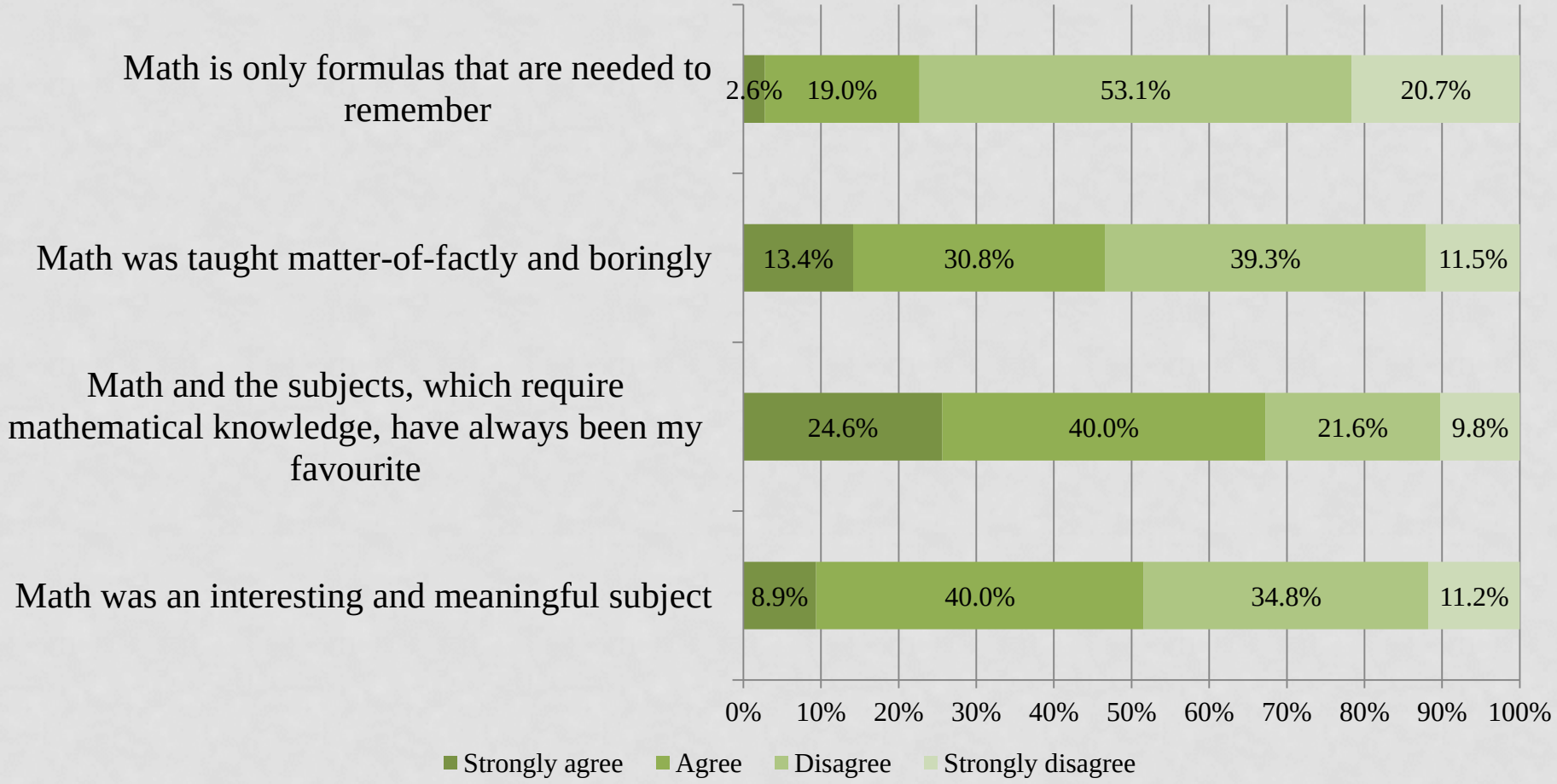
I did not understand most math concepts that I studied at university or college

I think math which I studied at university or college could have been more complicated

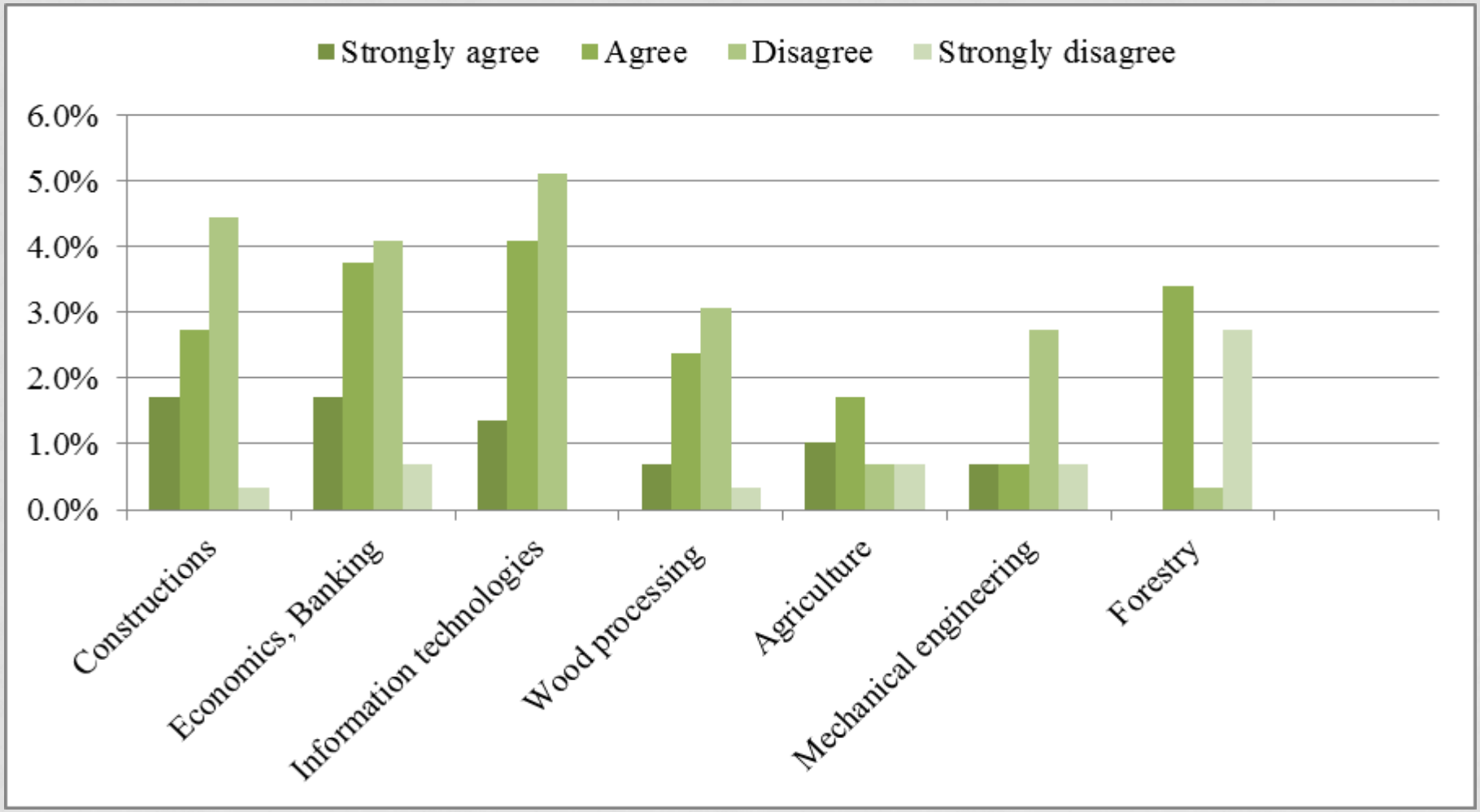


The sample of the research consists of **307** citizens of Latvia

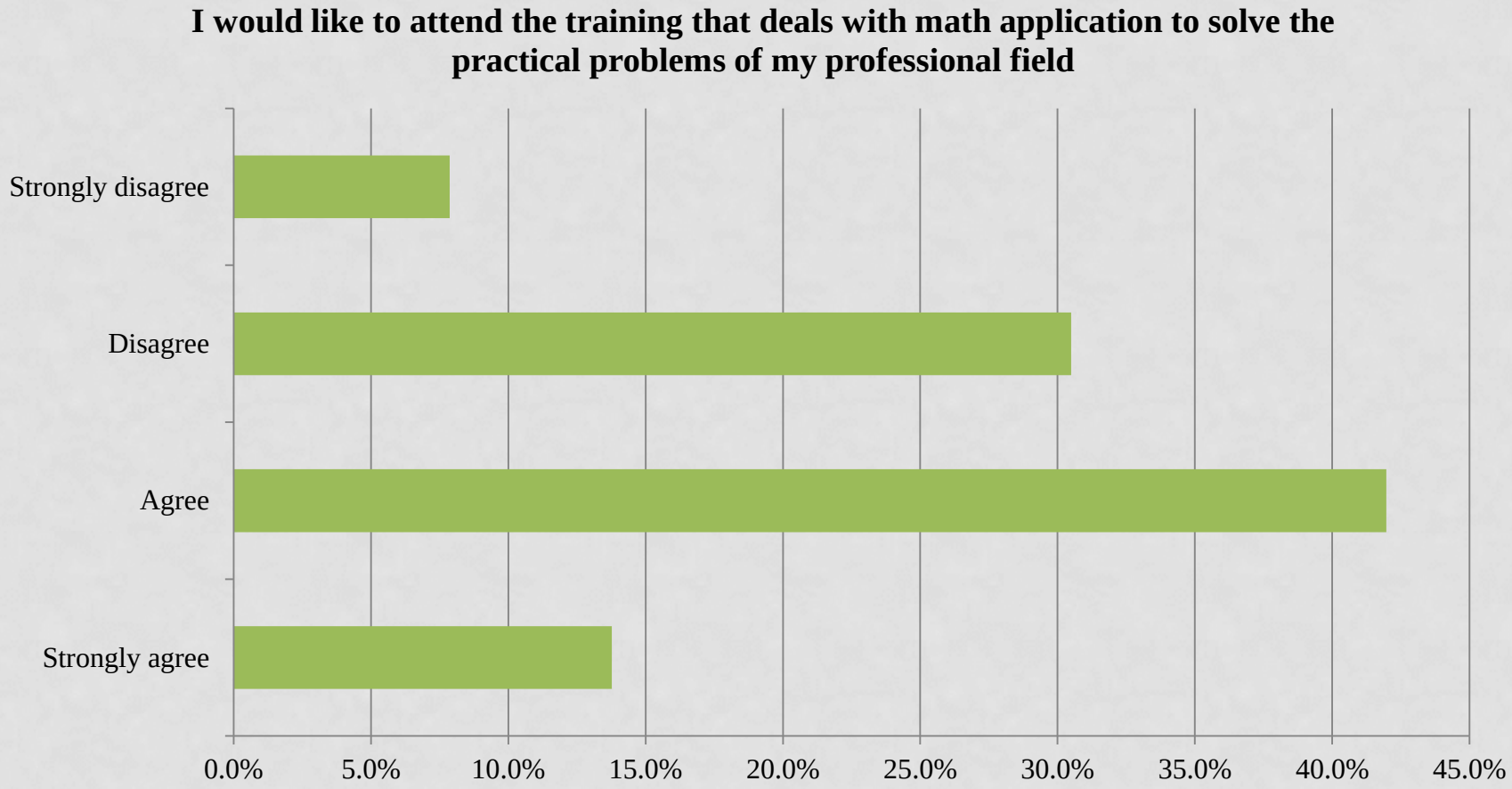
TEACHING OF MATHEMATICS (II)



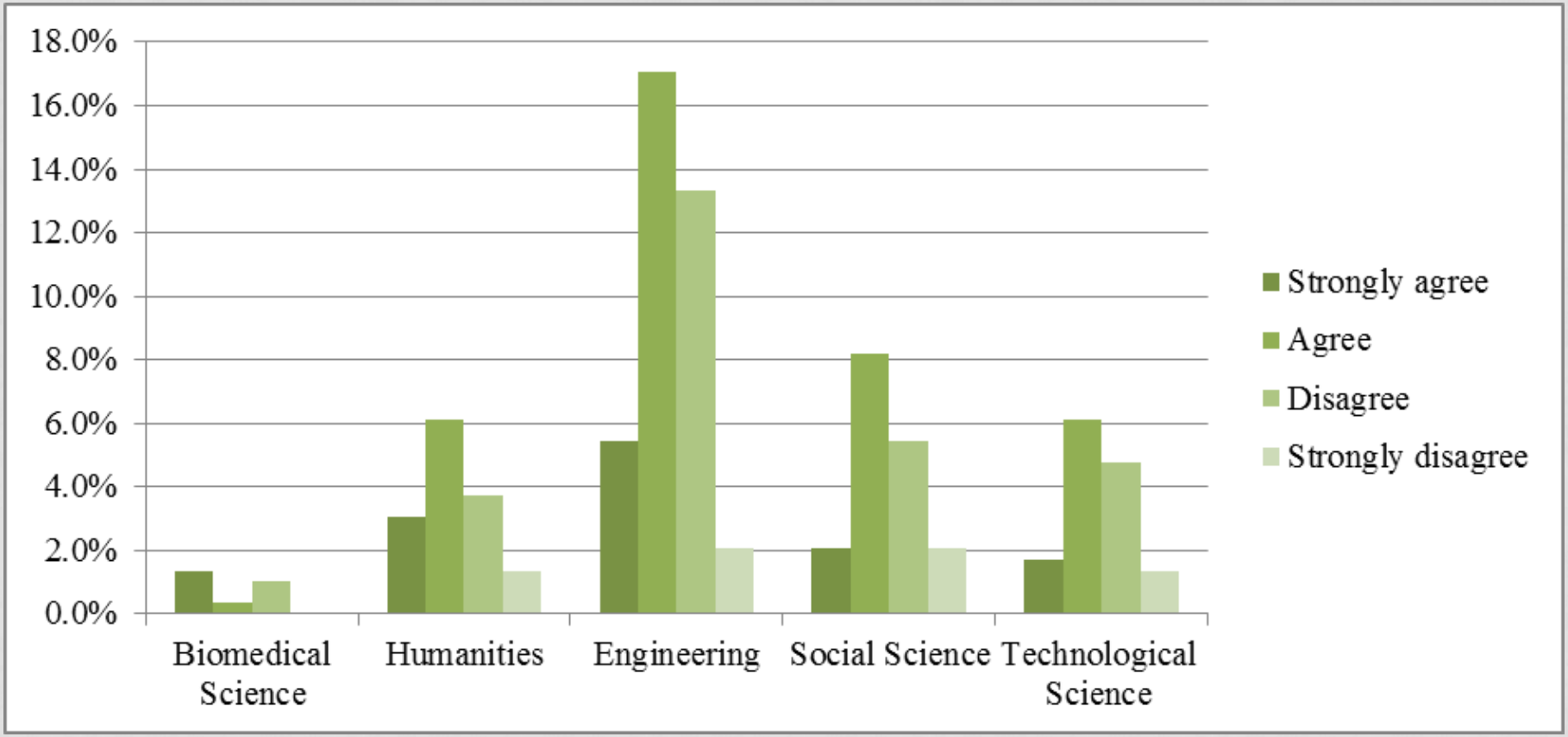
ASSESSMENT OF OPPORTUNITIES TO APPLY THEIR KNOWLEDGE OF MATHEMATICS IN RESPONDENTS PROFESSIONAL ACTIVITIES



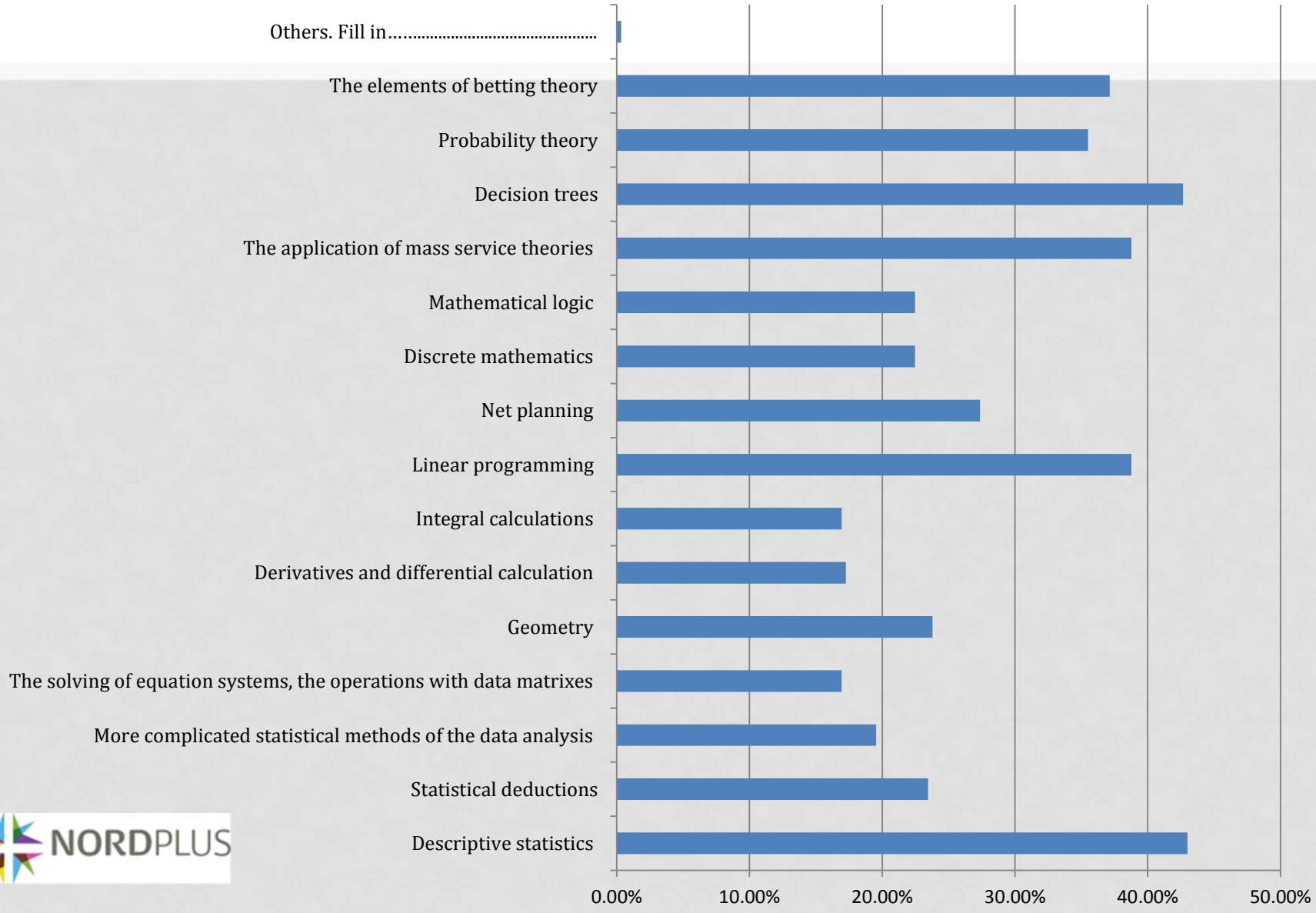
ASSESMENT OF A NEED FOR THE IMPROVEMENT OF MATH KNOWLEDGE (I)



ASSESMENT OF A NEED FOR THE IMPROVEMENT OF MATH KNOWLEDGE (II)



Mark those fields of the deeper knowledge of mathematics that are needed for the specialists of your field to accomplish their professional activities successfully and analyze professional literature



NORDPLUS

Mark those fields of the deeper knowledge of mathematics that are needed for the specialists of your field to accomplish their professional activities successfully and analyze professional literature

	Wood processing	*Forestry*	*Constructions*	*Iinformation technologies*	*Mechanical engineering*	*Economics Banking*	*Services, sales, business*	*Public administration*	*Environment*	*Food Industry*
Descriptive statistics (grouping of the data, the tasks on the calculation of percentages, averages, and errors, estimation of statistical relations, graphical representation of the data and etc)	58.33%	77.78%	75.00%	48.00%	45.45%	72.22%	50.00%	84.21%	100.00%	100.00%
Statistical deductions (application of the sampling method, computing of confidence intervals, testing of the statistical hypotheses and etc.)	33.33%	44.44%	31.25%	52.00%	9.09%	33.33%	35.00%	42.11%	66.67%	33.33%
More complicated statistical methods of the data analysis (market analysis, the mathematical modeling of cause-and-effect of the economic object, the use of dynamic lines and etc.)	41.67%	44.44%	6.25%	44.00%	18.18%	44.44%	15.00%	21.05%	33.33%	33.33%
The solving of equation systems, the operations with data matrixes (computing a demand and supply balance, making a balanced production plan, identifying the productivity of the economic system and etc.)	50.00%	33.33%	25.00%	12.00%	9.09%	38.89%	25.00%	15.79%	0.00%	33.33%
Geometry (the calculation of area and capacity, the determination of the power, that affects the solid, direction, computing the performed work of the power and etc.)	50.00%	55.56%	87.50%	24.00%	72.73%	38.89%	30.00%	26.32%	100.00%	33.33%

DIRECTIONS OF IMPROVEMENT OF TEACHING OF HIGHER MATHEMATICS

EXAMPLE – LV recommendations – how to teach

- **Enhancement of the link between teaching of mathematics and practice.**
  - *The lecturers should explain examples of real life where is used particular teaching substance. It makes easier to perceive and understand the mathematics concepts differently, the question arises whether is it necessary.*
- **Increase students' motivation**
  - *Before starting to learn a particular branch of mathematics, first of all it would be useful how it can be applied in practice in a particular specialisation. It would encourage students' interest and would make easier the process of learning*
- **Lecturers should be more interested in the application of mathematics in the particular area of science.**
- **Learning should be directed towards understanding.**
  - *It is necessary to strive to teach a person to understand mathematics, but not teach him/her only in order to make him know formulas without an opportunity to learn how to apply them in the life.*
- **Links between mathematics and other subjects**
- **To pay more attention to the methods of applied statistics = Not enough statistics in Mathematics study programs!**

Cooperation forms and their impact on mathematics education process development