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# **Using ICT in Informatics Education and Selected Subjects in Primary Education for Developing of Pupils Abilities**

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# Introduction

- Informatics Education in Primary Level in the beginning in Slovakia (since 2008),
  - There are more experiences in informatics education in the lower as well as upper secondary education,
  - Students come into daily contact with ICT and therefore it is necessary to educate them on proper access to them. This problem occurs increasingly in children of preschool age and primary school,
  - The state educational program defines recommendations to address this issue for kindergarten and primary level.
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# Informatics Education according to State Educational Program – ISCED 1 in Slovakia

Informatics education in primary education thus builds a foundation for computer science in lower secondary education.

## **The thematic areas:**

- *Information around us.*
  - *Communication through ICT.*
  - *Procedures, problem solving, algorithmic thinking.*
  - *Principles of operation of ICT.*
  - *Information society.*
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# Informatics Education according to State Educational Program – ISCED 1 in Slovakia

- The base topics of the informatics education curricula contains introduction to the work with computer, the base skills and abilities in manipulation with hardware and software.
  - Pupils need to acquire informational and media literacy, which belong to the package competencies in primary education. In the world of information they need to learn not only skills and work effectively with ICT but primarily to select information and work with them.
  - „Changes in the process of communication, domination of the use of the media in free time over games in the open cause essential changes in the budget of free time, and they influence in a significant manner the behaviour of children.“
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# Developing of the Cross-curricular relationships

- "The aim of informatic on the Primary school is familiarization with the computer and its possible use in everyday life. Through the application appropriate to the age of pupils to acquire basic skills in using the computer. In the context of Cross-curricular relationships the pupils using a variety of applications practice their basic subject matter of mathematics, Slovak and foreign language, acquire knowledge with using educational programs of natural science and geography and develop their creativity and aesthetic sensitivity in different graphic editors."
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# The need for using the ICT in primary education

- know the using of ICT in everyday life,
  - understand, that using of ICT need to have critical and considered approach to available informations,
  - responsible to use interactive media – understand the possible risks they bring,
  - through the ICT realize partial tasks and outputs in the frame of project and cooperative learning.
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# The need for using the ICT in primary education

- Three reasons for promoting the integration of ICT in primary education:
  - *Desirability*: In terms of students, the use of ICT may stimulate their motivation and curiosity.
  - *Inevitability*: Many fields of publishing have moved from printing to electronic form.
  - *Public policy*: In Slovak National Curriculum ISCED 1 is defined that Informatics education as a subject belongs to the group Mathematics and Working with Information.
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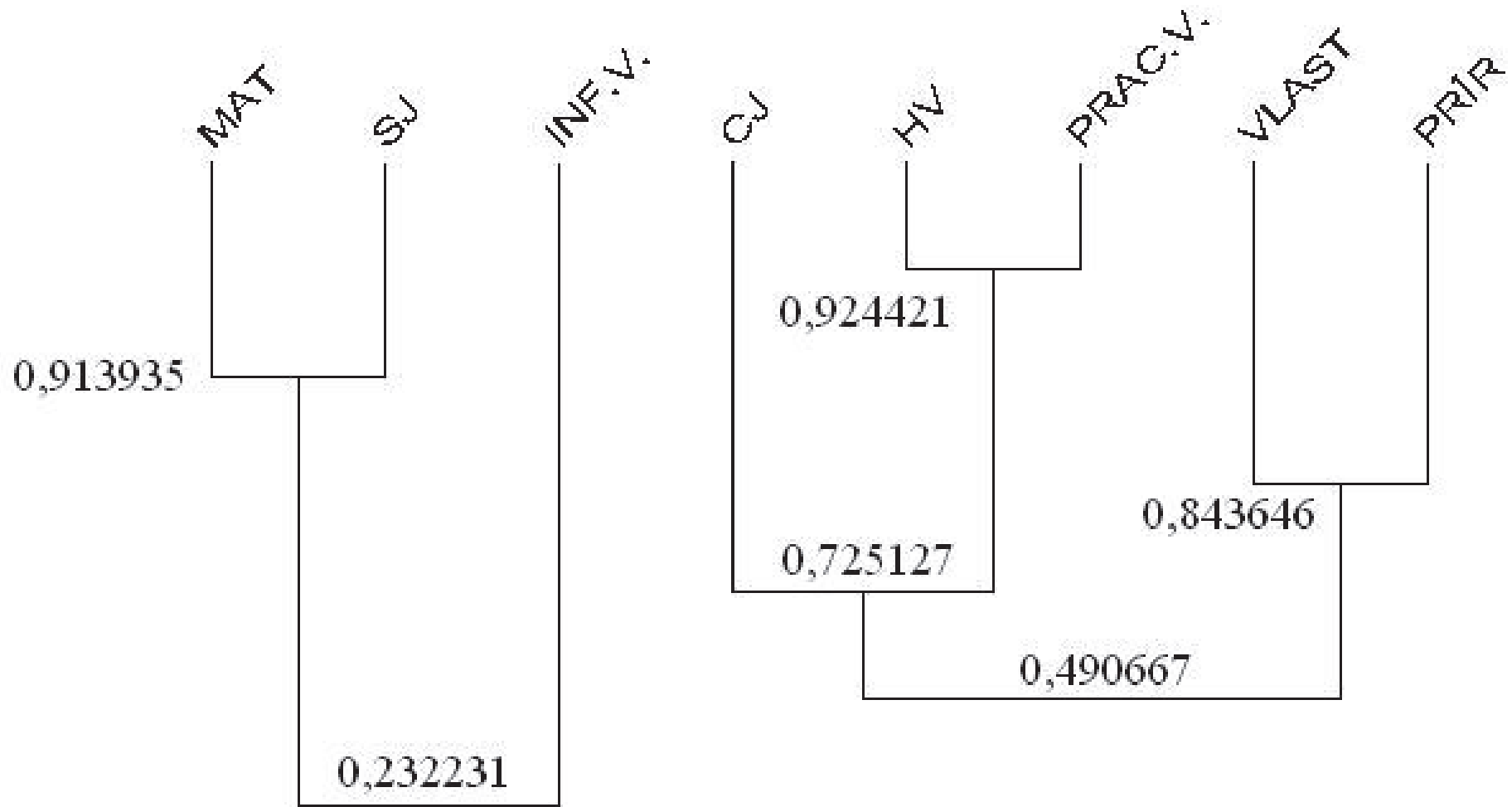
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# Research on the use of ICT by teachers of primary education

- Research was conducted in the months of May-June 2013. In the research we used selected quantitative and qualitative methods. The aim of the questionnaire in qualitative research was to see the use of ICT by teachers (use of different kinds of teaching techniques and software) across different subjects and stages of the learning process.
  - The research was oriented only to using ICT in selected school subjects and we would like to find the frequency of using selected kinds of didactical technologies and educational software.
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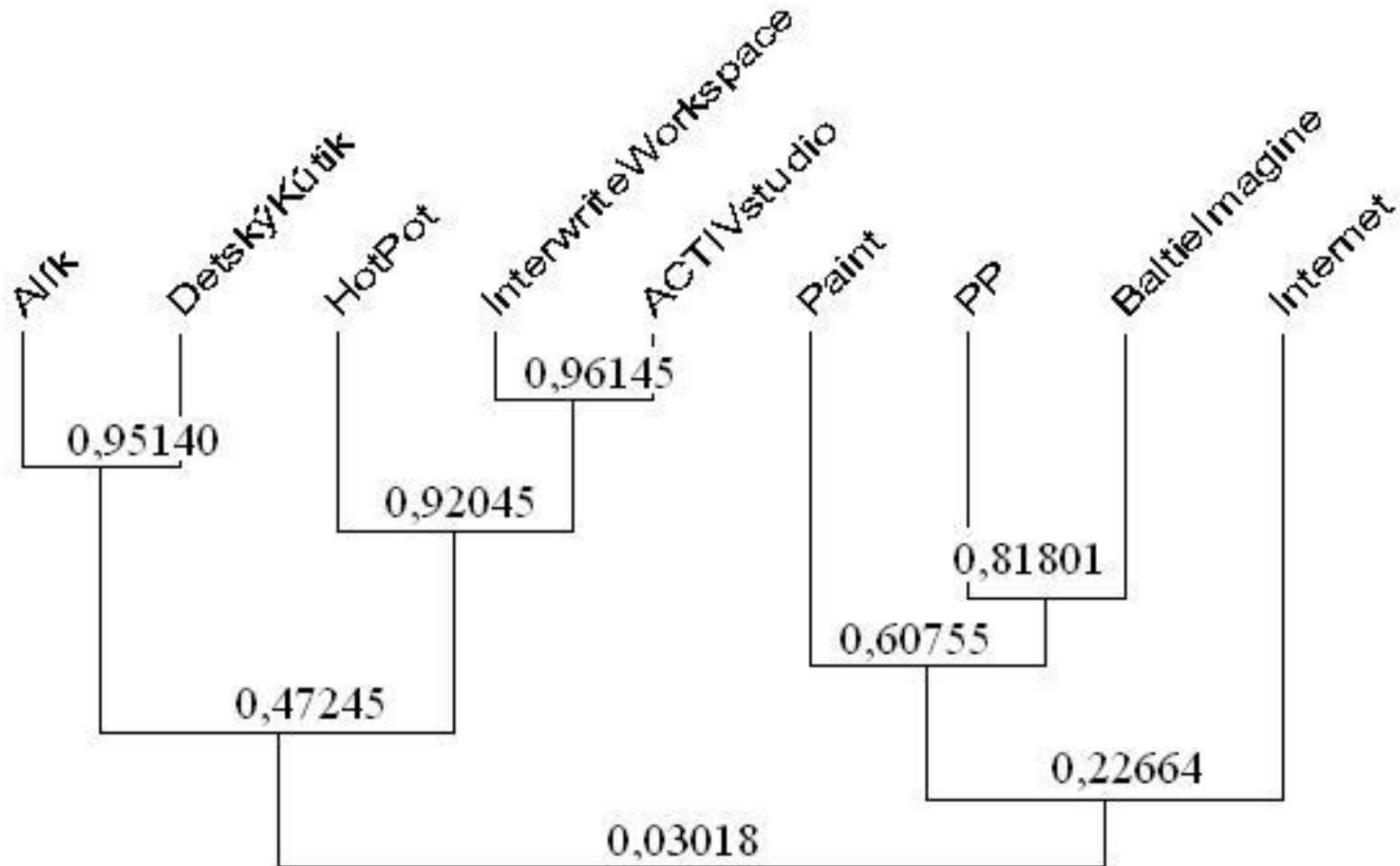
# Use of ICT in different subjects



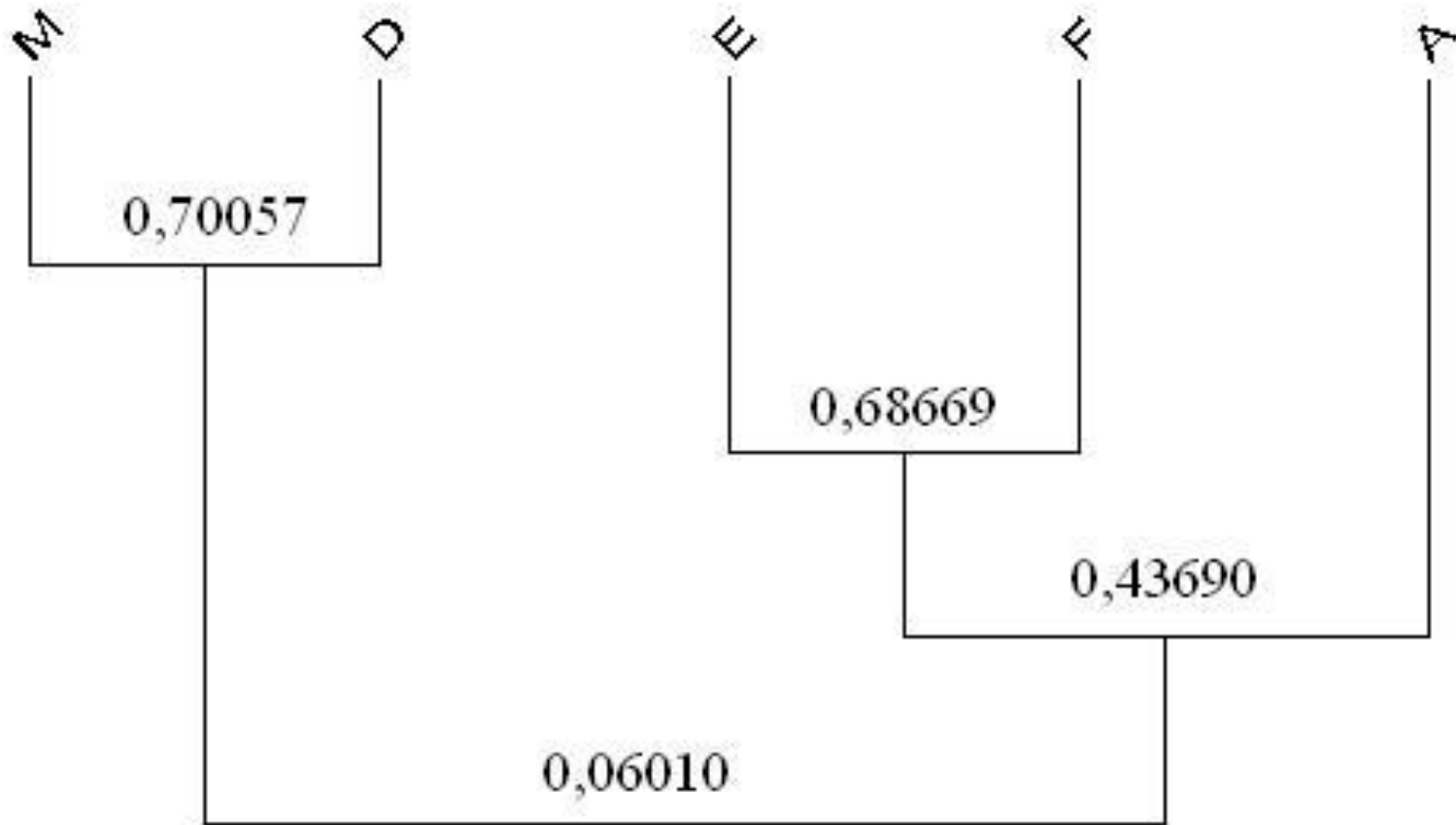
# Use of different types of teaching techniques in teaching

Order	Average	Type of didactic techniques
1	6,30	PC/Notebook
2	5,36	Radio/mp3
3	4,79	Datap projector
4	4,39	DVD player
5	4,01	Interactive whiteboard
6	2,19	Overhead projector
7	1,75	Robotic toys
8	1,65	Voting devices

# Using various educational software in education



# Use of ICT in different phases of educational process



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# Conclusions

- Teachers most often use ICT in education in informatics education, geography education and natural sciences education. Teachers in primary education use less ICT in mathematics, Slovak language, music education and technical education. We observed a shift in the use of ICT in mathematics and Slovak language to geography education and natural sciences education.
  - Frequent software utilities are PowerPoint presentations, as well as electronic materials available on various portals, which are accessible to teachers and created by other teachers.
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# Conclusions

- At universities that prepare teachers for education lacks implementation of these changes in relevant bachelor's and master's programs for primary education teachers. International experiences, which may be helpful for Slovak universities, are valuable.
  - The use of ICT in terms of pupil, brings specific psycho-hygienic problems that teachers should take into account in their practice. Then it is possible to achieve a balanced and effective use of ICT in the educational process.
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Thank you for your attention!

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