



International NSDI Conference
IMPACT OF THE NSDI IN SOCIETY,
CHALLENGES FOR ESTABLISHMENT

Macedonia , Skopje, September 19-20, 2011



nsdi

Implementation of the NSDI into secondary school education

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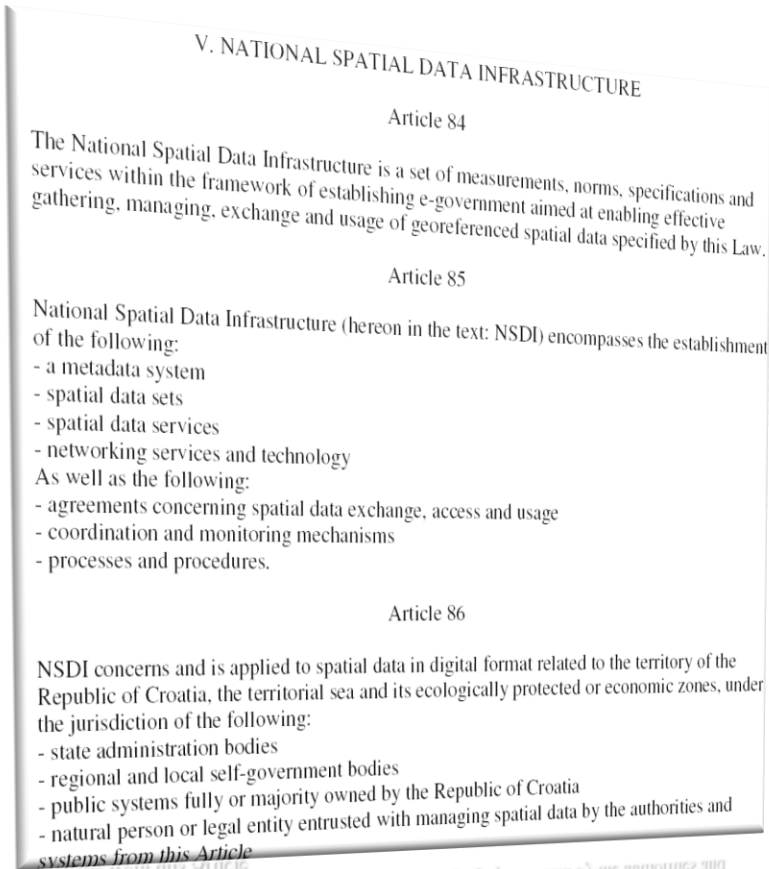
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STATE GEODETIC
ADMINISTRATION

Legal status

Articles (84-94)



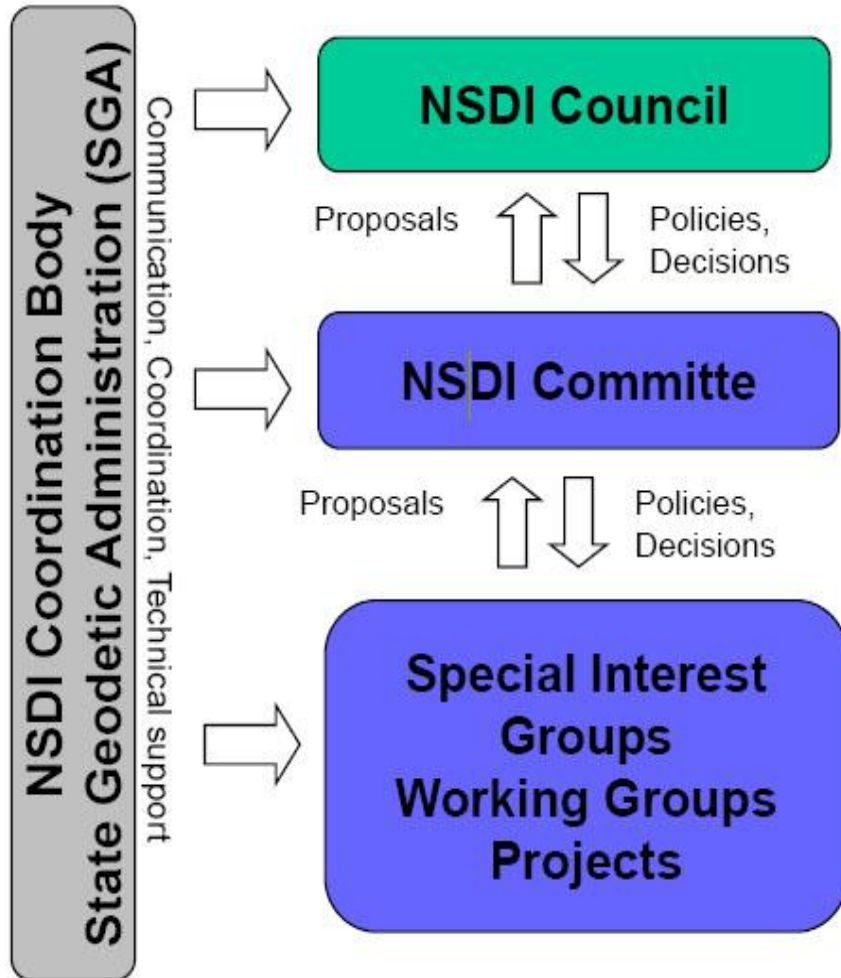
The Law gives a definition of:

- NSDI services,
- metadata and its content,
- spatial data and subjects obliged to participate in its establishment and maintenance,
- institutional framework

It defines NSDI bodies and their responsibilities

All articles of the Law defining NSDI – fully in line with INSPIRE

Organisational structure



- WG for the NSDI technical standards
- WG for spatial data sharing policies
- WG for linking the NSDI program and e-Government
- WG for establishing a business model for the NSDI establishment
- **WG for building the NSDI establishment capacities**



WG for building the NSDI establishment capacities

Working group

- 10 members representing state, regional and local government, self-government bodies and private sector
- meets on a regular basis every month as of October 2009
- its mission: efficient establishment of NSDI capacity building model - enables adoption of NSDI concept in society and its installation in work processes
- network of GIS/NSDI professionals - accelerate NSDI process

Problems

- readiness of the user community to accept the NSDI concepts and integrate them in their working processes
- lack of GIS/NSDI professionals to provide the necessary expertise in order to implement the NSDI establishment process

Tasks

- to identify weaknesses in capacity building for NSDI establishment and give best practices examples
- to build NSDI capacity building model
- to work on professional literature on NSDI
- to make proposals for NSDI subjects on different educational levels (schools, faculties etc...)
- to establish network and communication between educational institutions in Croatia and abroad

**not enough information and knowledge on the
representation of spatial data in the Croatian education
system**



survey



**included secondary school educational institutions,
faculties and research institutions in the Republic of
Croatia**

Application of spatial data in secondary schools



AIM

- explore the representation of spatial data in the educational system, with special emphasis on the NSDI
- assess the knowledge on the use of spatial data that students receive during their schooling,
- determine whether the curriculum meets modern educational trends
- get teachers' recommendations for teaching improvements in the field of spatial data

Questions in the questionnaire were divided into the following topics:

I. topics related to spatial information in the curriculum

II. using spatial data in:

- a. the teaching activities
- b. extra-curricular activities

III. suggestions for improvement



The questionnaire

- consists of a header with an introduction and instructions, followed by 17 questions of combined type
- still on the webpage of the Croatian State Geodetic Administration (www.dgu.hr) and all Croatian secondary schools are invited to participate

The screenshot shows the top part of the website. On the left, there is a navigation menu with the following items: O nama, Novosti, Ustrojstvo DGU, Središnji ured, Područni uredi za katastar, Usluge i proizvodi DGU, Poslovne informacije, Službeni obrasci, Natječajni, Kontakti, Linkovi, Anketi NIPP (highlighted), Stručni ispiti, and Oglasi. The main header area features the logo of the Republic of Croatia and the text 'Republika Hrvatska Državna geodetska uprava'. To the right of the logo are four small images: a map, a surveying instrument, a map, and a map. Below the header is a search bar with a 'Traži' button. The main content area shows a large image of a technical drawing or map with a grid, and the text 'ANKETA SREDNJE ŠKOLE' at the top and 'NIPP - ANKETA ZA SREDNJE ŠKOLE' at the bottom.

The screenshot shows the questionnaire form. The title is 'NIPP - ANKETA ZA SREDNJE ŠKOLE'. The main heading is 'Prostorni podaci obuhvaćeni nastavnim programom'. The question is 'Navedite kolegije koji obrađuju temu što su prostorni podaci i na koji način se mogu koristiti?'. Below the question is a large empty text box for the answer. The next question is 'U kojoj su mjeri, prema Vašem mišljenju, u nastavnim programu zastupljene informacije o prostornim podacima?'. Below this question is a horizontal scale with five points labeled 1, 2, 3, 4, 5. The scale is currently set to 'Uopće ne' (1) and 'Odlično' (5). The next question is 'Imate li problema sa dostupnošću karata ili drugih prostornih podataka potrebnih za redovito održavanje nastave?'. Below this question is a horizontal scale with five points labeled 1, 2, 3, 4, 5. The scale is currently set to 'Uopće ne' (1) and 'Jako puno' (5). The final question is 'Smatrate li da bi veća dostupnost prostornih podataka doprinijela povećanju kvalitete nastave?'. Below this question is a horizontal scale with five points labeled 1, 2, 3, 4, 5. The scale is currently set to 'Uopće ne' (1) and 'Jako puno' (5).

Spatial data is used in the following subjects:

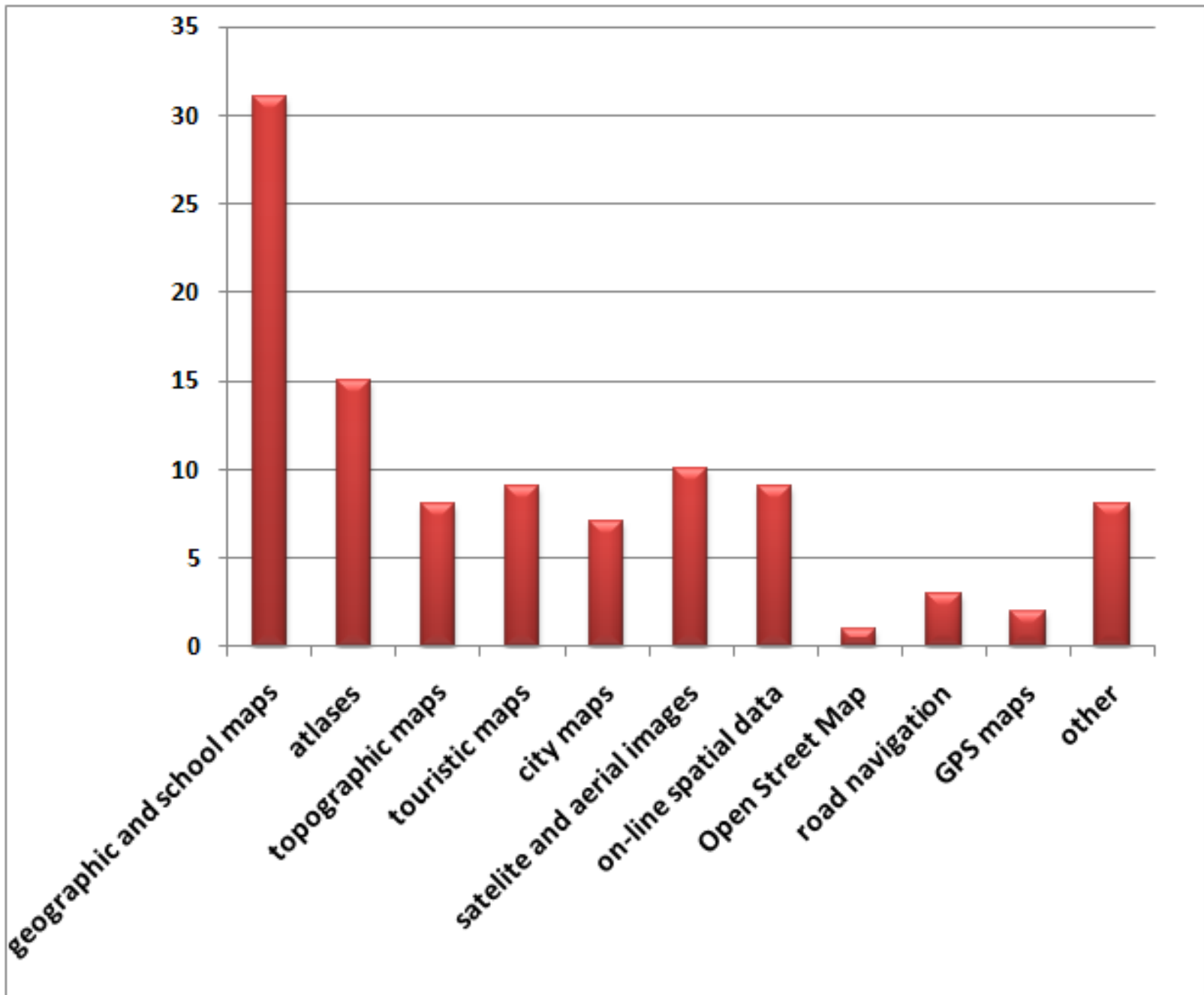
- Geography,
- Biology,
- Chemistry,
- Physics,
- Ecology,
- Geodesy,
- Geology,
- History,
- Biology,
- Croatian Language,
- Art...



Use of spatial data in secondary school curriculum:

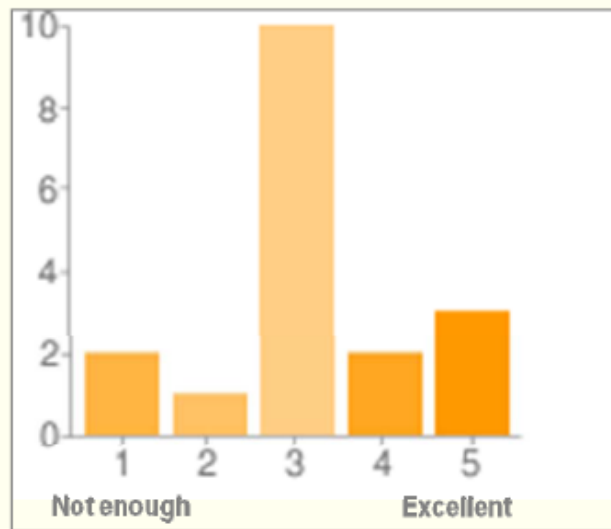
- geography and cartography
- calculating area
- geography of different countries, number of inhabitants,
- historical changes of boundaries, wars, making thematic land covers,
- maps of minerals and mines,
- maps of national minorities and religions in different regions,
- diseases in different regions,
- analyzing mortality and number of births in different regions,
- distribution and concentration of industries
- analyzing the changes of the infrastructure and traffic problems,
- making thematic maps after field collection of data,
- ...

Use of spatial data in secondary school

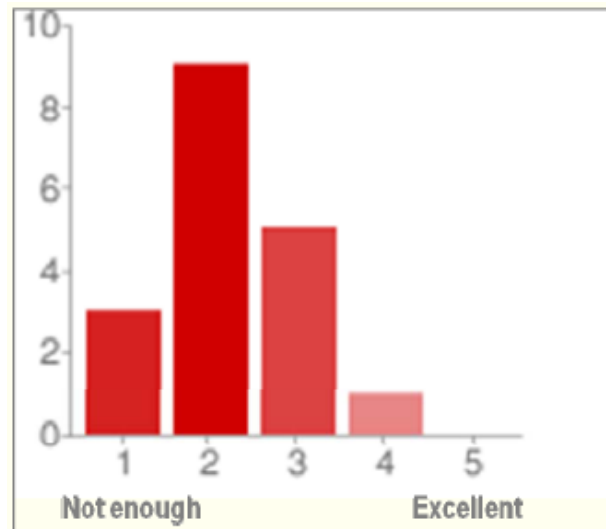


Pupils' knowledge

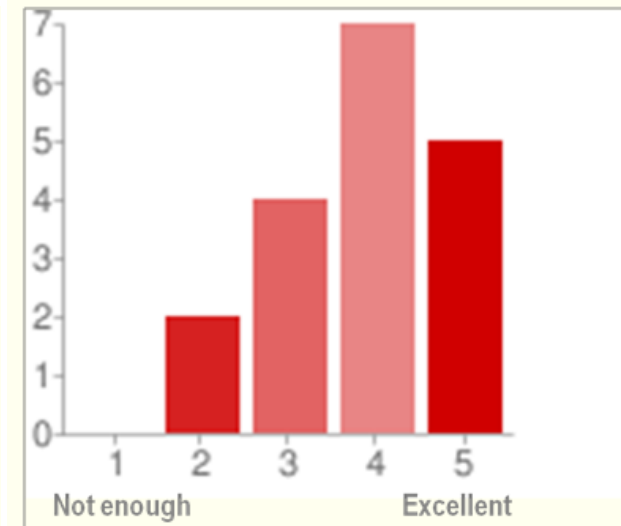
Are pupils educated enough to be able to use maps?



Does education of pupils through regular teaching satisfies pupils' needs in usage of today's navigation tools?

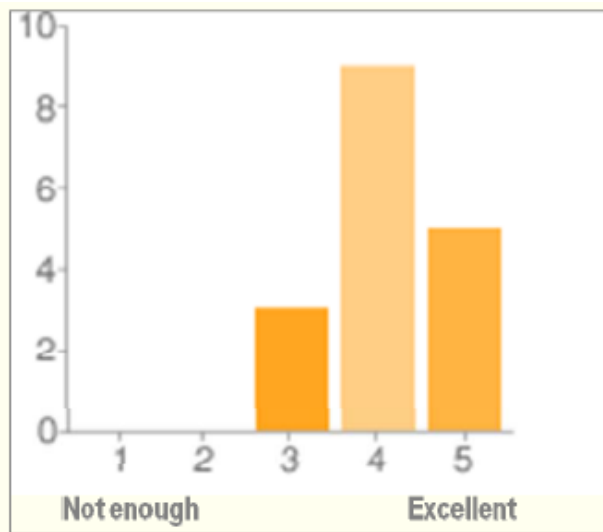


Would higher interoperability of spatial data contribute to higher level of pupils' knowledge?

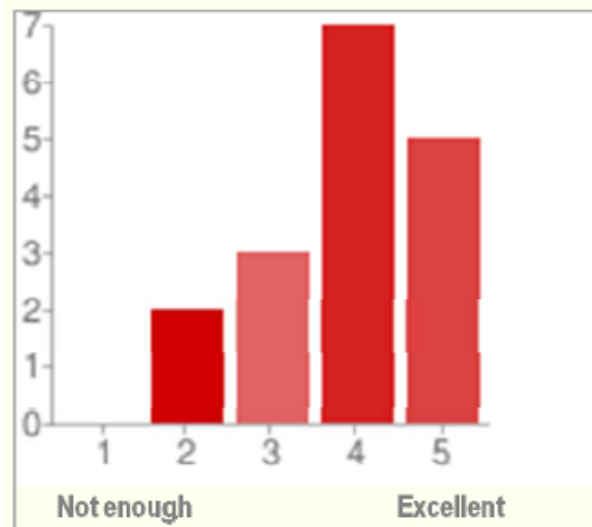


Teacher education recommendations

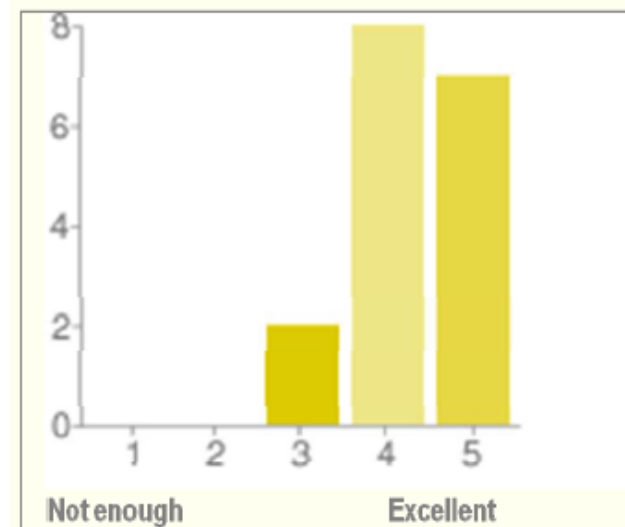
Would usage of spatial data and NSDI teachers' educational portal raise the quality of education?



Would guest lecturing as part of regular teaching on the subject of usage of spatial data and NSDI be useful for teachers and pupils?



Is it necessary to better inform teachers about spatial data and its usage?



Teachers' recommendations

I. Education of teachers and pupils

- organizing practical workshops of experts in the NSDI fields,
- extending Croatian national e-learning portal using games, exercises and presentations on the NSDI topics
(<https://lms.carnet.hr/lms/login.jsp?dd=1307379393696>)
- updating teachers with new sources of information of NSDI development
- organizing field education for teachers

II. Connection of Internet pages (teachers/NSDI)

- making Internet link to teachers' educational Internet pages www.skole.hr

The screenshot shows the homepage of [skole.hr](http://www.skole.hr), a portal for schools. The header includes navigation links like 'Forum', 'Popis škola', 'FAQ', and 'Zanimljivi linkovi'. The main content area is titled 'Nastavni materijali' (Teaching Materials) and features a section for 'Digitalni nastavni materijali' (Digital Teaching Materials). This section includes a list of subjects under 'Predmeti' (Subjects) such as English, Physics, Geography, Music, Croatian Language, Informatics, Visual Arts, Mathematics, German Language, History, Nature and Society, Technical Culture, Physical Education and Health, and Science. Below this, there are three featured articles with images and titles: 'Igra asocijacija - Europa', 'Književnopovijesna razdoblja od staroga vijeka do humanizma', and 'Druga jedinica učenja vrinog odbijanja lopte: Od suigrača podbačenu loptu odbij vrinom'. The bottom of the page has a search bar and a link to 'Iz baze digitalnih nastavnih materijala'.

Nastavni materijali

Materijali po predmetima

Predložite materijal

Autori materijala

Pretraživanje

O digitalnim nastavnim materijalima

- connecting the NSDI portal with the national e-learning portal

Show services for Schools Pupils Teachers Faculties Students Professors Member institutions

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HOME SERVICES USERS NEWS

Nacionalni portal za učenje na daljinu "Nikola Tesla"



PRIJAVA



Upute za prijavu | Popis tečajeva | Demo lekcije |



III. Higher interoperability of spatial data

- making available spatial data to teachers and teaching processes
- enabling higher interoperability of spatial data through Internet and other media
- ensuring lower prices of maps and navigation tools for schools

IV. Extension of curriculum

- introducing NSDI as a new subject in the curriculum

V. Cooperation between schools and teachers with NSDI institutions and experts

- ensuring better cooperation between teachers, secondary schools and NSDI institutions and experts

Conclusions and future work



- experience of teachers directly involved in the educational system of future GIS and NSDI specialists - great benefit (guidelines and recommendations)
- preliminary survey processing results show clear need for:
 - education of teachers,
 - higher spatial data interoperability,
 - cooperation
 - connection of internet pages on spatial data topics.
- recommendations and proposals for the introduction of courses at Geoinformatics and other secondary school programs at different educational levels,

Thank you for your attention!



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