SIRikt 2015

ZBORNIK POVZETKOV
BOOK OF ABSTRACTS

UČIMO SE **drug od drugega**
LEARNING **from each other**

Mednarodna konferenca **Splet izobraževanja in raziskovanja z IKT**
SIR**ikt** 2015 • Kranjska Gora, 27.–29. maj 2015

International Conference **Enabling Education and Research with ICT**
SIR**ikt** 2015 • Kranjska Gora, 27 – 29 May 2015

Organizatorja konference:

Zavod Republike Slovenije za šolstvo

arnes

Soorganizatorja konference:

CMEPIUS

CPI

Zbornik je nastal v okviru projekta e-Šolska torba.

e šolska torba

REPUBLIKA SLOVENIJA
MINISTRSTVO ZA IZOBRAŽEVANJE, ZNANOST IN ŠPORT

Naložba v vašo prihodnost
OPERACIJO DELNO FINANCIRA EVROPSKA UNIJA
Evropski sklad za regionalni razvoj

Operacijo delno financirata Evropska unija iz Evropskega sklada za regionalni razvoj ter Ministrstvo za izobraževanje, znanost in šport.

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Uvodnik • Editorial

Učimo se drug od drugega #SIRikt 2015

Mednarodna konferenca SIRikt je leto že deveta po vrsti in je **največja konferenca** v Sloveniji s področja **uporabe informacijske tehnologije v izobraževalne in raziskovalne namene**, ki na enem mestu združuje plenarna predavanja, delavnice, predstavitve primerov dobre prakse in sponzorske predstavitve. Na njej sta dva konferenčna dogodka in tako so tudi zbrani povzetki v tem zborniku.

- **Konferenca Arnes 2015 poteka letos na temo *Varna in udobna e-Šolska torba*.**

Obarvana bo bolj izobraževalno, izpostavljen bo pomen varnosti na vseh ravneh, od varnih omrežij do varnega obnašanja na spletu. Na predstavitvah se bodo osredotočali predvsem z izmenjavo aktualnih informacij in izkušenj, kaj smo novega – tudi s projektom e-Šolska torba – pridobili in česa smo se naučili. Ogledali si bomo, kako si lahko delo poenostavimo, in se spomnili, da v šolsko torbo spadajo tudi kulturne vsebine.

- **Konferenca *Na poti k e-kompetentni šoli* z zaključno konferenco projekta e-Šolska torba in nacionalno konferenco eTwinning – dogodek KONFeT.**

Letošnja tema konference *Na poti k e-kompetentni šoli* je ***Učimo se drug od drugega***, zato bomo na njej iskali odgovore na vprašanja:

- Kako se učimo učitelji od učencev?
- Kako se učenci učijo drug od drugega?
- Kako se učimo sodelavci drug od drugega?
- Kako pri tem uporabljamo sodobno tehnologijo ter zbiramo in uporabljamo podatke (*ang. learning analytics*)?

Zbrani prispevki bodo predstavljeni na različne načine, zato so umeščeni v programske sklope glede na obliko predstavitev, in sicer: **Plenarna predavanja, Sejem DajDam, Pod žarometi, e-Šolska torba, Demo: Male tehnoskrivnosti, Učenje brez meja, Delavnice in Sponzorske predstavitve**.

SIRikt že tradicionalno prinaša strokovne novosti iz mednarodnega prostora. Letos poskušamo osvetliti in poglobiti naše vedenje na področju merjenja učenja, poučevanja, sodelovanja in uporabe sodobne tehnologije. Želimo preveriti, ali zbrane podatke v izobraževanju (ang. *learning analytics*) smiselno in kritično uporabljamo pri svojem delu tudi s pregledom različnih praks iz mednarodnega prostora.

V pripravo in izvedbo konference je vložen ogromen trud, hkrati pa je to vsakoletni organizacijski in strokovni izziv. Veliko novih zamisli se porodi ob pripravah ter številnih predavanjih in predstavitvah, ki jih v času priprave na konferenco objavljamo na Facebooku, v času konference pa s sprotnimi objavami – tviti na **#sirikt**.

Želimo si, da bi se na SIRiktu 2015 čim bolj učili in čim več naučili drug od drugega!

Programski odbor SIRikt 2015

Learning From Each Other #SIRikt 2015

This year's international SIRikt conference is already the 9th in a row and is **the biggest conference** in Slovenia in the field of **ICT applied in education and research**, combining plenary talks, workshops, presentations of good practice and sponsor presentations. The structure of this book follows the structure of the conference, i.e. two conference events:

- **Arnes 2015 Conference with this year's theme *Safe and comfortable e-Schoolbag***

The conference will be slightly more educational as usual, emphasizing the importance of safety at all levels, from secure networks to safe online behaviour. The presentations will focus primarily on sharing information on the latest developments and experience gained, also through the e-Schoolbag project, and on what we have learned. We will take a closer look at the ways how to simplify our work and remind ourselves that cultural content also belongs in school bags.

- **Conference *The Way towards e-competent school* with the closing conference of the e-Schoolbag project, and the national eTwinning conference – KONFeT**

This year's theme of the conference *The Way towards e-competent school* is ***Learning from each other***, so we will search for answers to questions such as:

- How do teachers learn from their learners?
- How do learners learn from each other?
- How do we as professionals learn from each other?
- How do we use ICT, gather and use data in the process of learning *(learning analytics)*?

Conference contributions will be presented in different ways – they have been divided into sections according to the form of presentation: **plenary talks, GiveTake Fair, Spotlight, e-Schoolbag, Demo: Little techno mysteries, Learning Beyond Limits, Workshops, and Sponsor presentations.**

Traditionally, SIRikt has been always bringing new ideas and concepts from the international sphere. This year we are trying to highlight and deepen our knowledge about measuring learning, teaching, cooperation and the use of contemporary ICT. We would like to check if the data gathered in the process of learning (i.e. learning analytics) are used in a meaningful and critical way in our everyday practice and if they are supported by international practices.

A huge effort has been invested into the preparation of the conference, but at the same time the conference is a big challenge every year – organizationally and professionally. A lot of new ideas are born during the preparation, as well as numerous talks and presentations which are published before the conference on the Facebook, and during the conference as tweets at **#sirikt.**

We would like all of you and us to learn from each other as much as possible.

SIRikt 2015 Program Committee

Konferenca Arnes 2015

Varna in udobna e-Šolska torba

Arnes 2015 Conference

Safe and comfortable e-Schoolbag

Konferenca Arnes 2015 – Varna in udobna e-Šolska torba

Zdaj bomo torej imeli tudi šolske torbe na elektriko. Dovolj pomemben razlog – ob tem, da je Arnes soizvajalec projekta s takim imenom –, da letošnjo konferenco Arnes v okviru SIRikta obarvamo malce bolj izobraževalno. Poučevanje na vseh stopnjah se z uporabo e-vsebin in e-storitev spreminja ter zahteva prilagajanje učnih metod, hkrati pa je vse bolj odvisno od čim bolj dostopne in prijazne tehnologije ter zanesljive infrastrukture. Pomen varnosti na vseh ravneh, od varnih omrežij do varnega obnašanja na spletu, ob tem stopa v ospredje in zahteva tudi celovit pristop šole.

Na tokratni konferenci se bomo ukvarjali predvsem s praktičnim vidikom: z izmenjavo aktualnih informacij in izkušenj, kaj smo novega – tudi s projektom – pridobili in česa smo se naučili. Ogledali si bomo, kako si lahko delo poenostavimo, in se spomnili, da v šolsko torbo spadajo tudi kulturne vsebine.

Konferenca Arnes je letos bogatejša za kar tri dogodke, saj boste povabljeni na »Kosilo s strokovnjakom«, kjer bomo sodelavci Arnesa v prijetnem vzdušju odgovarjali na vsa vaša vprašanja, hkrati pa bomo dogodek povezali še s podelitvijo nagrad z natečaja o varni rabi interneta in podelitvijo prestižnega priznanja skupnosti uporabnikov Arnesa. Upamo, da se nam boste pridružili tudi letos.

Arnes 2015 Conference – Safe and comfortable e-Schoolbag

So now we will also have electrical school bags. And given the fact that Arnes is also involved in the e-School Bag project, this is a good enough reason to give this year's Arnes Conference within the framework of the SIRikt a slightly more educational bent. Teaching at all levels through the use of e-content and e-services requires teaching methods to be customised in order to become more dependent on accessible and user-friendly technology, as well as reliable infrastructure. The importance of safety and security at all levels – from secure networks to safe online behaviour – is coming to the fore, and also requires schools to take a comprehensive approach.

As usual the Arnes Conference will primarily address the practical aspects at hand by sharing information on the latest developments and experience gained (also through the project) and on what we have learned. We will take a closer look at the ways to simplify our work and remind ourselves that cultural content also belongs in school bags.

The Arnes Conference will host three new events – "Lunch with an expert", where Arnes staff will answer all your questions in a casual atmosphere, the "Safe Internet use competition awards" and the "Arnes user community awards". We look forward to meeting you again.

1.

Plenarna predavanja • Plenaries

Varnejši splet v šolah!
Avstrijski pristop k varnejšim spletnim vsebinam v učilnicah

Safer Internet in schools!
The Austrian approach towards bringing safer Internet topics into the classroom

Barbara Buchegger, Saferinternet.at

Povzetek: Avstrijski izobraževalni sistem nima posebnega kurikula ali predmetov, pri katerih bi učence učili o spletni varnosti, odgovornem vedenju na spletu, avtorskih pravicah ipd., zato ni nobenega jamstva, da so učenci v šoli v stiku s tovrstno tematiko. Portal Saferinternet.at je predstavil vrsto ukrepov, s katerimi bi dosegli ta namen: brezplačno izobraževalno gradivo za učitelje, izobraževanja v šolah (zlasti »Saferinternet.at – Cepljenje«), izobraževanja za učitelje in ravnatelje. S takimi ukrepi je bilo samo v letih 2013 in 2014 mogoče doseči kar 14.000 študentov in učiteljev. Na predavanju bodo predstavljeni avstrijski pristop in nekaj preprostih dejavnosti za v učilnice, namenjenih različnim starostnim skupinam.

Abstract: Currently there are no plans in the Austrian educational system to include any special curriculum or subjects on topics such as online-security, responsible online behaviour or copyright, and so there is no guarantee that the students will encounter such topics during their time at school. Saferinternet.at introduced several measures in order to help change things, e.g. free educational material for teachers, training sessions in schools (especially “Saferinternet.at – Vaccination”), as well as teacher and head-teacher training sessions. Through the implementation of such measures, a total of 14,000 students and teachers were reached in 2013 and 2014 alone. This lecture will demonstrate the Austrian approach and several easy-to-go classroom activities for different age groups.

Da nas električne šolske torbe ne bi preveč »tresle«

How to reduce shock hazards from electrical school bags

Damjan Ferlič, OŠ Franja Malgaja Šentjur

Povzetek: Predstavili vam bomo, kakšne aktivnosti izvajamo na šolah, da bi bila uporaba tehnologije čim bolj udobna in varna, ter kakšne prijeme, orodja in tehnične rešitve pri tem uporabljamo. Ker tehnologija uporabnikov žal ne more obvarovati pred vsemi nevarnostmi, ki na njih pretijo v digitalnem svetu, je treba vedno več pozornosti posvečati izobraževanju učencev, učiteljev in tudi staršev. Stvari ne želimo prepuščati naključjem, skušamo biti pozorni na vse pasti in težave, ki jih prinaša vedno večja uporaba digitalne tehnologije.

Abstract: We will present the activities carried out in schools to help make technology use as comfortable and safe as possible, as well as the approaches, tools and technological solutions used to achieve this objective. Since technology unfortunately cannot protect users from all the dangers presented by the digital world, more attention should be devoted to the education of students, teachers and parents. In order not to leave anything to chance, we also strive to identify all the potential traps and issues associated with the increasing use of digital technology.

Uporabniki – gonilo razvoja portala in storitev SIO

Users – Driving the development of SIO Portal and services

Janko Harej, ŠCNG, Arnes

Povzetek: Prispevek predstavlja rezultate projekta e-Šolska torba na področju storitev SIO. Predstavili bomo glavne novosti pri posameznih storitvah in razgrnili tudi nekaj podrobnosti, povezanih z njihovim razvojem. Kateri so bili naši glavni izzivi in kako smo jih reševali? Na kaj smo najbolj ponosni? Kaj nas čaka v prihodnosti?

Abstract: The presentation will be focused on the results of the e-Schoolbag project in the field of SIO services. The latest developments in particular services will be presented and some details related to their further development revealed. What were our main challenges and how did we tackle them? What are we most proud of? What will our future look like?

e-Šolska torba: pridobljene izkušnje

e-Schoolbag – experience gained

Tomi Dolenc, Arnes

Povzetek: Projekt e-Šolska torba je bil hkrati izziv in odločen korak v pravo smer, saj smo partnerji – delavci ZRSŠ in Arnesa – sočasno in strokovno usklajeno načrtovali ter razvijali e-vsebine in tudi e-storitve, hkrati pa skrbeli za zagotavljanje potrebne e-infrastrukture. Tak celovit pristop ustvarja okolje, v katerem lahko e-vsebine in e-storitve pri pouku res zaživijo. Med izvajanjem projekta smo se mnogo naučili; med drugim smo občutili ključno vlogo podpore in izobraževanja učiteljev, čemur bi veljalo nameniti več pozornosti. Prav tako smo izpostavili problematiko varne rabe interneta in naprav; ne nazadnje pa smo postavljeni pred izziv, kako zagotoviti vzdržnost razvitega okolja, storitev in vsebin.

Abstract: The e-Schoolbag project was both a challenge and decisive step in the right direction. The e-content and e-services were planned swiftly and professionally, and developed through a coordinated effort between the project partners – The National Education Institute of the Republic of Slovenia and Arnes, setting up at the same time the e-infrastructure required. This comprehensive approach creates an environment that allows the e-content and e-services to become really useful during classes. We have learned a great deal from the project. It has provided us with an insight into the importance of supporting and educating teachers, which is certainly an issue that merits greater consideration. Moreover, various issues related to the safe use of the Internet and devices have been identified, and during the project we were faced with a challenge of how to ensure a sustainable developed environment, services and content.

Kulturnik.si – slovenska kultura na enem mestu

Kulturnik.si – Slovenian culture in one place

Živa Zupan, Ljudmila

Povzetek: Problem slovenske kulture na spletu ni pomanjkanje, pač pa so to razdrobljenost, nepreglednost in otežena dostopnost vsebin. Splošni spletni iskalniki (Google ipd.) ne morejo preiskovati zbirk podatkov skozi obrazce, zato obstaja ogromno podatkov, shranjenih v specializiranih bazah, ki so v iskalnikih nedosegljivi. V društvu Ljudmila zato razvijamo spletno orodje – portal Kulturnik, ki na enem mestu združuje slovenske kulturne e-vsebine in omogoča:

- večjo dostopnost slovenske kulture v spletnem informacijskem prostoru;
- lažje in hitrejše iskanje kulturnih vsebin;
- pomembnejše zadetke od iskalnikov Google ali Najdi.si.

Kulturnik sestavljajo metaiskalnik in dva agregatorja, eden za novice in drugi za dogodke, ki jih zbiramo iz raznovrstnih slovenskih digitalnih virov in zbirk, povezanih z umetnostjo in kulturo. Teh virov je zdaj že več kot tisoč!
Na predavanju vam bomo predstavili možnosti uporabe, vsebino in delovanje Kulturnika.

Abstract: The problem with Slovenian culture on the Internet is not the lack but rather the atomisation of online content, its structural deficiencies and difficulties regarding the access. Since the more popular Internet search engines (Google, etc.) cannot search databases through forms, there is a significant amount of data stored in specialised databases that cannot be reached in this way.

At the Društvo Ljudmila association we have been developing an online tool, the Kulturnik portal, which enables access to e-content on Slovenian culture from a single location and provides:

- better accessibility to Slovenian culture in the online information space;
- a faster and easier way to search for cultural content;
- more relevant hits than those provided by Google or Najdi.si.

Kulturnik includes a metasearch engine and two aggregators, one for current affairs and one for events that are collected from various Slovenian digital sources and databases related to art and culture. We already have over 1,000 sources. We will present the ways in which Kulturnik can be used, its content and how it works.

1ka – nova storitev v federaciji Arnes

1ka – A new service in the Arnes Federation

Barbara Neža Brečko, UL, FDV

Povzetek: Orodje 1KA je odprtokodna aplikacija, ki zagotavlja podporo za spletno storitev anketiranja. 1KA je nova storitev v federaciji Arnes, sam sistem pa je v uporabi in se stalno razvija od leta 2009. 1KA se prilagaja tudi potrebam v izobraževalnem procesu – predvsem hitremu pridobivanju povratnih informacij, uporabi anketnega sistema za standardizirane in anonimne evalvacije ter animaciji učencev z vključitvijo v skupinsko delo, evalvacije in raziskave. Omogoča izdelavo preprostih prijavnih form za šolske dejavnosti in izvedbe dogodkov.

Abstract: The 1KA tool is an open-source application which provides support for online surveys. 1KA is a new service in the Arnes Federation. The system has been used and constantly developed since 2009. 1KA has also been adapted to the needs of the education process, particularly in terms of faster feedback, the use of the survey system for standardised and anonymous evaluations, as well as for piquing the interest of students by including them in team work activities, evaluations and research. It enables us to develop simple application forms for organising school activities and events.

Projekt IR-optika

The E&R optical connectivity project

Katja Telič, DID
Gregor Steklačič, DID

Povzetek: Projekt IR-optika je namenjen reševanju perečega problema optičnih povezav zavodov s področja raziskovanja in izobraževanja v omrežje Arnes, kar je nujno potrebno za njihovo delovanje. Izvaja se v 52 sklopih za 637 zavodov. Izbrani ponudniki v nekaterih sklopih že zaključujejo optične povezave od upravičenih zavodov do Arnesovega vozlišča. Do konca leta 2015 bo imelo v Sloveniji okoli 700 izobraževalno-raziskovalnih zavodov zmogljivo optično povezavo s hitrostjo najmanj 1 Gb/s, s katero bo dolgoročno rešen problem kakovostnih povezav zavodov v internet ter omogočena uporaba najsodobnejših IKT-storitev v izobraževalnih procesih.

Abstract: The aim of the E&R optical connectivity project is to address pressing issues related to the establishment of optical fibre connections between education and research institutions and the Arnes network, which is crucial for their operation. The project is divided into 52 lots involving 637 institutions and is already well underway. The contractors for certain lots are already completing the optical connections running from the eligible institutions to the Arnes node. By 2015 some 700 education and research institutions in Slovenia are expected to have a high-performance optical connection with a minimum speed of 1Gb/s which will provide a long-term solution to the institutions' low quality Internet connections and facilitate the use of the latest information and communication services in the education processes.

O izobraževanju za lažji prehod iz Joomle na splet.arnes.si

Easier migration from Joomla to splet.arnes.si workshop

Simon Gerdina, OŠ Ivana Cankarja

Povzetek: V podporo storitvi splet.arnes.si je nastalo izobraževanje oziroma delavnica Iz Joomle na WordPress. Prepričati in navdušiti smo vas želeli za uporabo splet.arnes.si ter olajšati prehod z obstoječih spletnih strani, postavljenih v Joomli. Splet.arnes.si je v tem trenutku najboljša izbira za postavitev (šolskih) spletnih strani in predstavitev. Vse nadgradnje in posodobitve opravijo na Arnesu, poskrbijo tudi za teme, gradnike in vtičnike. Njihov nabor se sproti prilagaja potrebam. Administratorji se posvetijo prilagajanju videza v okviru danih možnosti in vsebini spletišč. Želimo, da šolske spletne strani iz neposodobljene Joomle, ki pomeni potencialno nevarnost, čim prej preselite na splet.arnes.si.

Abstract: For the purpose of creating a support framework for the splet.arnes.si service, a workshop called “From Joomla to WordPress” has been organised. Our aim is to convince and inspire you to use splet.arnes.si, as well as to help make your migration from the existing webpages you have created with Joomla an easier process. Splet.arnes.si is currently the go-to choice for creating (school) webpages and presentations. All upgrades and updates are taken care of by Arnes, including themes, web parts and plugins. The range of themes, web parts and plugins is constantly being adapted to the needs of users, allowing the administrators to focus on designing the website appearance within the existing possibilities and on its content. Our goal is to persuade you to migrate your school webpages from the non-updated Joomla, which poses a potential threat, to splet.arnes.si as soon as possible.

Arnes učilnice [beta] – Moodle na avtopilotu

Arnes classrooms [beta] – Moodle on autopilot

Martin Božič, Arnes

Povzetek: Moodle je najbolj priljubljen LMS-sistem, ki ga uporablja slovensko šolstvo. Njegovo vzdrževanje je lahko zahtevno, saj terja kar nekaj predznanja iz operacijskih sistemov, spremljanja novoizdanih popravkov, varnostnega kopiranja in upravljanja uporabniških računov. Namen pilotnega projekta učilnice Arnes je bil razviti in ponuditi šolam Moodle kot storitev. V učilnicah Arnes Arnesovi strokovnjaki poskrbijo za tehnično vzdrževanje, tako da se lahko skrbniki učilnic popolnoma posvetijo vsebinam in pomoči uporabnikom.

Abstract: Moodle is currently the most popular LMS system used in Slovenian schools. It can be quite demanding to maintain as it requires certain knowledge of the operating systems and keeping track of the new patch releases as well as backup and user account management knowledge. The aim of the Arnes classrooms is to develop the Moodle-as-service and offer it to schools. In Arnes classrooms, responsibility for the technical maintenance is assumed by Arnes's experts, thereby allowing the classroom administrators to fully focus on the content and user support.

Izrabimo Arnesov GVS do zadnjega bita

Let’s get the last bit out of Arnes’s VPS

Miha Kočar, OŠ Martina Krpana

Povzetek: Večinoma imamo na šolah na GVS-strežnikih postavljene zgolj Moodle in zastarele Joomle, ki bi jih že tako ali tako morali nadomestiti z Arnes spletom. Na predavanju boste zato prek konkretnih primerov izvedeli, za kaj vse še lahko uporabite svoj GVS-strežnik, tudi če posedujete samo »temeljne veščine« osnovnošolskega računalnikarja. Vsi, ki vam je sistemska administracija blizu, boste na predavanju gotovo dobili tudi kako novo idejo, morda pa do nje pridemo tudi v pogovoru ob koncu predavanja.

Abstract: Only Moodles and obsolete Joomlas are installed on VPS servers in most of the schools, just waiting to be replaced with Arnes splet. This lecture will provide you with practical information on the various ways to use your VPS server, even if you have only the “fundamental skills” of an elementary computer user to fall back on. One of the aims of the lecture is to generate some new ideas among all those involved in the system administration through a closing discussion.

Pregled nalog za Maturoexe.xls

Baccalaureate Test Overviewexe.xls

Tadej Hren, SI-CERT, Arnes

Povzetek: Bančni trojanci, izsiljevalski virusi, napadi na spletne banke, omrežni napadi z izkoriščanjem internetne infrastrukture, ciljani napadi z izjemno sofisticiranim socialnim inženiringom so teme, s katerimi se dnevno ubadamo na SI-CERT. Na predavanju bomo pogledali, kaj je na področju internetne varnosti zaznamovalo zadnje leto, in poskušali ugotoviti, ali bo prihodnost kaj bolj rožnata.

Abstract: Bank Trojans, blackmail viruses, attacks on online banks, network attacks through Internet infrastructure and targeted attacks using highly sophisticated social engineering are the main problems we encounter at SI-CERT every day. We will take a look at the latest developments in Internet security and try to find out what the future holds.

Gradiva za obrnjeno učenje in varne šolske ure

Materials for flipped learning and safe classes

Maja Vreča, Arnes
Ingrid Možina-Podbrščček, Arnes

Povzetek: V širši javnost se počasi širi temeljno zavedanje, da je lahko internet nevaren predvsem zaradi naraščajočega števila različnih prevar in okužb z virusi ali kako drugo zlonamerno kodo. Toda poleg teh nevarnosti se, predvsem z naraščajočo uporabo pametnih telefonov in drugih priročnih napravic, širijo tudi druge neprijetne plati te navezanosti na nove tehnologije. Zlasti pri mlajših se ta navezanost zlahka razvije v različne odvisnosti. Poleg tega nenehna dostopnost spleta otrokom in mladostnikom pogosto omogoča tudi »sodobnejše« oblike nadlegovanja vrstnikov. Táko nasilje se zadnja leta vse bolj razrašča, saj je večinoma skrito pred pogledi odraslih. Če želimo omejiti razrast vseh neprijetnih pojavov, povezanih z rabo novih tehnologij, se moramo posvetiti ozaveščanju. Na konferenci bomo predstavili Arnesova videogradiva za učence in dijake, namenjena uporabi pri učnih urah ali kot pripomoček za t. i. obrnjeno učenje. Arnes je organiziral natečaj za vzorčne šolske ure, pripravljene na podlagi teh videogradiv in risank »Ovce«. Tri najboljše ure bodo nagrajene in predstavljene.

Abstract: The general public is gradually becoming increasingly aware of the dangers the Internet can present, mainly due to the increase in various frauds and viruses or other malware infections. In addition to these threats, the growing use of smart phones and other handy devices is also revealing some of the unpleasant consequences of being attached to new technologies. This level of attachment can quickly turn into various addictions, particularly among young people. In addition, constant access to the Internet gives children and teenagers the opportunity to find new ways to harass their peers. This type of violence has skyrocketed in recent years as it is largely hidden from the scrutiny of adults. In order to prevent the various unpleasant effects related to the use of new technologies, we have to work on raising awareness. We will present Arnes video materials which are designed for use in classes or for “flipped learning” for primary and secondary school students. Arnes has organised a competition for the best sample classes to be prepared using Sheeplive cartoons and these video materials. Awards will be presented for the three best classes devised.

Konferenca Na poti k e-kompetentni šoli –
Učimo se drug od drugega

Zavod RS za šolstvo

Conference Towards e-competent school –
Learning from each other

The National Education Institute
of the Republic of Slovenia

1.

Plenarna predavanja • Plenaries

Kaj sproža učenje

Who presses play for learning?

Pedro De Bruyckere

Povzetek: Prispevek obravnava premik od tradicionalne k sodobni vlogi učiteljev v kontekstu modernih pristopov k učenju in poučevanju. Avtor postavi diskusijski okvir (od tehnokracije do demokracije in od centralizirane do razpršene porazdelitve odgovornosti za učenje) in nato analizira premik vloge učitelja v naslednjih vidikih pouka: načrtovanje vsebine pouka; določanje ciljev pouka in učnih rezultatov; načrtovanje vrednotenja; metode: odgovornost učitelja in učencev za lastne rezultate in napredek. Prispevek se sklicuje na interdisciplinarni učni scenarij in na povratno informacijo učencev in učiteljev nanj, z namenom raziskati prednosti in slabosti sodobnih pristopov k učenju in poučevanju. Obravnavane so sodobne možnosti učenja učencev drug od drugega ter učenja učiteljev od svojih učencev.

Pedro De Bruyckere je od l. 2001 raziskovalec na področju izobraževanja na Arteveldehogeschool v Gentu v Belgiji (www.arteveldehs.be). Kot soavtor nekaterih knjig razkriva popularne mite o generacijah Y in Z, izobraževanju in pop kulturi. Marca 2015 je Academic Press izdal knjigo Urban Myths about Learning and Education [Urbani miti o učenju in izobraževanju], ki jo je napisal skupaj s Paulom Kirschnerjem in Casperjem Hulshofom. Pedro je iskan predavatelj, njegova odlika je, da zabavno razlaga resne teme. Trenutno končuje svojo doktorsko disertacijo s področja zaznavanja avtentičnosti. Decembra 2012 je bil na dogodku 'De Kunst van het Inspireren' v Amsterdamu izbran kot najbolj navdihujoč javni govorec na področju izobraževanja.

Abstract: There are many common myths about how people learn or how we teach, often they are blocking the implementation of real stuff that works. Some of those myths concern the use of technology in education. So doesn't technology make education better by definition, but neither is education without modern technology by definition good. In this talk some of the more common myths about learning and education – such as learning styles and digital natives – will be replaced by new – and old, but too little known – insights on learning with or without technology with specific discussing the personalization of learning. Some examples of the insights that will be presented: personalized review, dual channel theory, etc.

Pedro De Bruyckere is an educational scientist at Arteveldehogeschool, Ghent Belgium (www.arteveldehs.be) since 2001. He is a co-writer of several book in which he debunks popular myths on GenY and GenZ, education and popular

culture. In March 2015 Academic Press published the book Urban Myths about Learning and Education, a book he co-wrote with Paul Kirschner and Casper Hulshof. De Bruyckere is a highly sought after public speaker; one of his strongest points is that he is funny in explaining serious stuff. He is finishing his PhD on the perception of authenticity. In December 2012 he was titled the most inspiring public speaker on education during 'De Kunst van het Inspireren' in Amsterdam.

Spremenjena vloga učitelja pri sodobnih pristopih k učenju in poučevanju

The shift of teachers' role in modern approaches to teaching and learning

Klemen Slabina

Povzetek: Prispevek obravnava premik od tradicionalne k sodobni vlogi učiteljev v kontekstu modernih pristopov k učenju in poučevanju. Avtor postavi diskusijski okvir (od tehnokracije do demokracije in od centralizirane do razpršene porazdelitve odgovornosti za učenje) in nato analizira premik vloge učitelja v naslednjih vidikih pouka: načrtovanje vsebine pouka; določanje ciljev pouka in učnih rezultatov; načrtovanje vrednotenja; metode: odgovornost učitelja in učencev za lastne rezultate in napredek. Prispevek se sklicuje na interdisciplinarni učni scenarij in na povratno informacijo učencev in učiteljev nanj, z namenom raziskati prednosti in slabosti sodobnih pristopov k učenju in poučevanju. Obravnavane so sodobne možnosti učenja učencev drug od drugega ter učenja učiteljev od svojih učencev.

Klemen Slabina je učitelj sociologije, filozofije in državljanske kulture z mednarodnimi izkušnjami. Trenutno dela na Univerzi v Talinu kot vodja razvoja na Centru za inovacije v izobraževanju. Je eden od ustanoviteljev centra. Na isti univerzi pripravlja tudi svojo doktorsko disertacijo. Njegovo strokovno področje (izvirajoč iz novih pristopov pri poučevanju in učenju) je natančno razvidno iz njegovih rezultatov dela:

- načrtovanje in implementacija novega inovativnega učnega okolja za izobraževanje učiteljev na Univerzi v Talinu;
- mednarodni akademski program Education4Future za vodilne delavce v izobraževanju: član konzorcija Estonije, Nizozemske, Švice in Liechtensteina, odgovoren za vsebino in načrtovanje kurikula, vodenje in usposabljanje.

Abstract: The paper addresses the shift from traditional to modern teachers' roles within the context of modern approaches to teaching and learning. It proposes the framework of discussion (from technocracy to democracy and from centered to disperse distribution of responsibility for learning) and then analyses the shift of teachers' roles in the following dimensions of the lesson: Lesson content design; Setting up the lesson's goals and outcomes; Design of assessment; Methods: Teacher's and students' responsibility for own

outcomes and progress. The paper draws upon an interdisciplinary learning scenario and its feedback from students and teachers to elaborate upon the advantages and setbacks of modern approaches to teaching and learning. Here, the paper discusses the modern possibilities of students leaning form each other, and
of teachers learning from students.

Klemen Slabina is initially trained as a Sociology, Philosophy and Civics high school teacher, with international teaching experience. Currently he works at Tallinn University, Centre for Innovation in Education as the Head of Development. He is one of the founders of the Centre. He is a Doctoral student at Tallinn University.

His field of expertise (rooting of new approaches in teaching and learning) is elaborated upon through his outcomes:

- Design and implementation of the new Innovative Learning Environment for Teacher Education at TU;
- Education4Future International Academic In-service Program for Educational Leaders: member of consortium between Estonia, The Netherlands, Switzerland, and Liechtenstein; responsible.

Učenje s pomočjo družbenih medijev in odprto učenje

Learning through social media and open practices

Gráinne Conole

Povzetek: Novi družbeni in sodelovalni mediji nudijo učencem in učiteljem številne možnosti interakcije z obogatenimi mediji ter komunikacije in sodelovanja. Mobilne naprave pomenijo, da je učenje kjerkoli in kadarkoli postalo realnost. Predstavitev se bo osredotočila na značilnosti digitalnih tehnologij ter na njihove učinke na učenje in poučevanje. Opisala bo okvir načrtovanja pouka, imenovan »7Cs of Learning Design«, ki ga lahko uporabimo kot pomoč učiteljem pri bolj strokovnih odločitvah pri načrtovanju, ki so pedagoško učinkovite in pri katerih so digitalne tehnologije ustrezno uporabljene. Pogledali si bomo odnos med načrtovanjem učenja (Learning Design) in obdelavo podatkov o učenju (Learning Analytics). Opozorili bomo na trenutne raziskave na področju ter ocenili, kakšno bo učenje v bližnji prihodnosti.

Gráinne Conole je od 1. februarja 2015 na Univerzi Bath Spa, Velika Britanija, predstojnica oddelka za izobraževanje. Pred tem je bila zaposlena na univerzi v Leicesteru, kjer je delovala kot profesorica za inovacije v izobraževanju in vodja inštituta za inovacije v učenju. Njeno raziskovalno področje zajema: uporabo, integracijo in evalvacijo informacijske in komunikacijske tehnologije ter e-učenja, raziskovanje odprtih učnih virov (Open Educational Resources) ter masovnih odprtih online tečajev (MOOC), novih pristopov pri načrtovanju učenja, e-pedagogike, družbene medije ter vpliv tehnologij na spremembe v organizaciji. Redno piše prispevke na blogu www.e4innovation.com ter twita (@gconole). Uspešna je bila pri zagotavljanju finančnih sredstev s strani EU, HEFCE, ESRC, JISC ter komercialnih sponzorjev. L. 2012 je dobila nagrado HEA Neational Teaching Fellowship. Je tudi članica EDEN in ASCILITE. Izdala in predstavila je več kot 1000 člankov in prispevkov na konferencah in delavnicah, vključno z uporabo in evalvacijo učnih tehnologij. Pred kratkim je pri založbi Springer izdala knjigo z naslovom 'Designing for learning in an open world', trenutno pa za založbo Routledge pripravlja knjigo na temo praktičnega načrtovanja učenja (Learning Design).

Abstract: New social and participatory media give learners and teachers a plethora of ways to interact with rich media and to communicate and collaborate. Mobile devices means learning anywhere, anytime is now a reality. The talk will consider the characteristics of digital technologies and

will consider the implications for learning and teaching. It will describe the 7Cs of Learning Design framework that can be used to help teachers make more informed design decisions that are pedagogically effective and make appropriate use of digital technologies. It will look at the relationship between Learning Design and Learning Analytics. It will draw on current research in the field and will extrapolate how the future of learning might look like in the near future.

Gráinne Conole joined the University of Bath Spa on 1st February 2015 as Chair in Education. She was previously at University of Leicester, where she was professor of learning innovation and director of the Institute of Learning Innovation. Her research interests include: the use, integration and evaluation of Information and Communication Technologies and e-learning, research on Open Educational Resources (OER) and Massive Open Online Courses (MOOCs), new approaches to designing for learning, e-pedagogies, social media and the impact of technologies on organisational change. She regularly blogs on www.e4innovation.com and her Twitter ID is @gconole. She has successfully secured funding from the EU, HEFCE, ESRC, JISC and commercial sponsors. She was awarded HEA National Teaching Fellowship in 2012. She is also a fellow of EDEN and ASCILITE. She has published and presented over 1000 conference proceedings, workshops and articles, including the use and evaluation of learning technologies. She has recently published a Springer book entitled 'Designing for learning in an open world' and is currently working on a Routledge book on practical Learning Design.

Odločanje, veščina za življenje

Decision making – a skill for life

Vladislav Rajkovič

Povzetek: Odločanje po navadi razumemo kot postopek izbire različice ali alternative izmed več možnih, in to tako, da je izbrana alternativa tista, ki najbolj ustreza ciljem. Pri tem se srečujemo z bogastvom človekovih vrednot, zanimanj, vedenja, sposobnosti, čustev in strasti. Ni čudno, da pogosto odločamo tako, da ne vemo, kako to počnemo. In vendar je človek tisti, ki vrednoti, ocenjuje in odloča. V tem prispevku izhajamo iz odločitvenega znanja, ki je skupni imenovalec za sprejemanje dobrih odločitev. Gre za znanje o odločitvenem problemu, ki praviloma obsega zanje o ciljih, različicah, kriterijih ocenjevanja in naših preferencah. Temu je treba dodati še znanje o metodah in tehnikah organizacije in izvedbe postopka odločanja. Še posebej pa nas zanimajo mesto in vloga sodobne IKT ter njena dodana vrednost pri odločanju. Pregovor »Več glav več ve« nas nagovarja k odločanju v skupini. Skupinsko odločanje lahko razumemo kot učni proces. Učimo se drug od drugega, zbiramo in uporabljamo podatke z namenom pridobivanja znanja za odločanje. Naravno je, da se pri tem pojavijo različni interesi, ki so pogosto tudi protislovni. Zato se bomo posebej posvetili metodam in tehnikam dogovarjanja pri usklajevanju različnih interesov. Poiskali bomo odgovore na vprašanje, kako sodelovati v odločitveni skupini in si z uporabo IKT pomagati do boljših odločitev.

Dr. Vladislav Rajkovič je zaslužni profesor za področje informcijskih sistemov in predstojnik Laboratorija za odločitvene procese in ekspertne sisteme na Fakulteti za organizacijske vede, Univerze v Mariboru ter raziskovalni sodelavec Odseka za inteligentne sisteme na Institutu "Jožef Stefan". Njegovo področje so računalniški informacijski sistemi s posebnim poudarkom na uporabi metod umetne inteligence v porcesih odločanja ter vzgoje in izobraževanja. Že vrsto let sodeluje pri informatizaciji slovenskih šol.

Abstract: Decision making – a skill for life Decision-making is usually understood as the procedure of choosing a variant or an alternative from several possibilities so that the selection is the one that fits the goals best. In this process, we encounter a wealth of human values, interests, abilities, emotions and passions. It is not surprising that we often make decisions without knowing how. Yet it is people who assess, evaluate and make decisions. This contribution is based on knowledge of decision-making that forms the common denominator for making good decisions. This means knowledge of decision-making problems that typically includes knowledge of the goals, variants, assessment criteria and

our preferences. This should be complemented with knowledge of organisational methods and techniques and the execution of the decision-making process. In particular, we are interested in the place and role of contemporary ICT and its added value in decision-making. The saying “Two heads are better than one” means we should make decisions in groups. Group decision-making can also be understood as a learning process. We learn from each other, and collect and use data in order to acquire knowledge for decision-making. Naturally, different interests emerge, which are often contradictory. Therefore, we will particularly focus on decision-making methods and techniques when coordinating different interests. We will find answers to the question of how to participate in a decision-making group and use ICT to make better decisions.

Vladislav Rajkovič, PhD, is a professor emeritus of information systems and had of Laboratory for Decision Processes and Knowledge-based Systems at the Faculty of Organisational Sciences, University of Maribor, Slovenia. He also works with the Department of Intelligent Systems at the Jožef Stefan Institute in Ljubljana. His research interests focus on information systems and artificial intelligence methods for supporting decision and educational processes. For several years he has been involved in informatisation of Slovenian schools.

Podrimo stene in zgradimo mostove!

Breaking down walls and building bridges!

Diana Bannister

Povzetek: Izziv za veliko učiteljev je prepoznati, da se izobraževanje ne dogaja znotraj štirih sten njihovih učilnic. Karkoli se dogaja v enem razredu, bi moralo biti del širšega razvoja šole in končno tudi izobraževalnega ekosistema. V predstavitvi bo predavateljica podala nekaj svojih izkušenj iz projektov Living Schools Lab in Creative Classrooms Lab, v katerih je bila odgovorna za spremljavo in dokumentiranje inovativnih praks pri uporabi tehnologije v šolah širom Evrope. Predstavila bo, kako lahko šole dokaze iz enega razreda uporabijo za obogatitev prakse na celotni šoli.

Diana Bannister je direktorica razvoja učnih tehnologij na Pedagoški fakulteti Univerze v Wolverhamptonu, Velika Britanija. Svojo kariero je začela kot razredna učiteljica in namestnica ravnatelja, a se je l. 2001 preselila na univerzo, da bi vodila projekte s področja tehnologije in izboljšave šol. Leta 2009 je začela sodelovati s šolami po Evropi, in pomagala učiteljem učinkovito uporabljati tehnologijo v podporo učenju in poučevanju. Redno izvaja izobraževanja s področja strokovnega usposabljanja za vodstvene delavce šol in učitelje, pri čemer raziskuje strategije za razvoj šole. Delala je s šolami v več kot 30 državah, kjer je opazovala in dokumentirala prakso, da bi laže razumela, kako spremembe frontalno uvajati v šolah.

Abstract: The challenge for lots of teachers is to recognise that education is not contained within the four walls of their own classroom. Whatever happens in one classroom should be part of the wider school development and ultimately the 'ecosystem' of education. In this session, she will share some of her insights from the Living Schools Lab project and the Creative Classrooms Lab project where she has been responsible for the observation and documentation of innovative practice on the use of technology in schools across Europe. She will explore how schools can use the evidence from one classroom to inform practice across the school.

Diana Bannister is the Development Director for Learning Technologies in the Faculty of Education, University of Wolverhampton. She started her career as a Primary teacher and Deputy Headteacher, but then moved in 2001 to the University to lead projects on technology and school improvement. In 2009 she began working with schools across Europe, helping teachers to make

effective use of technology to support learning and teaching. She regularly leads professional development sessions with school leaders and teachers exploring strategies for school development. Diana has worked with and visited schools in over 30 countries observing and documenting practice understanding how to mainstream change in schools.

Razvijanje učnih predmetov z učenci: anketiranje in eksperimentalni projekti

Developing the teaching subjects with the learners: conducting surveys and experimental projects

Maria-Christina Nimmerfroh

Povzetek: Po navadi poučujemo tisto, kar zelo dobro poznamo, pri čemer verjetno enako dobro poznamo tudi rezultate projektov učencev in v kakšno smer bodo šle njihove razprave. Drugi način bi bil izvajanje pouka v razredih, kjer ne vemo, kaj se bo zgodilo – učenci raziskujejo in analizirajo svet z metodo empiričnega raziskovanja in ustvarjajo popolnoma novo znanje. Učenci za svoje raziskovanje dobijo idejo iz trenutnih aktualnih tem v razredu in pripravijo raziskovalni instrumentarij – kot so npr. ankete, fokusne skupine ali celo eksperimenti. Naslednji koraki so zbiranje in analiza podatkov ter prikaz rezultatov. Ta način poučevanja ima veliko prednosti: Učenci morajo raziskati različne vidike problema zelo natančno, zbiranje in analiza podatkov pa sta zanimiva, tudi če niso sicer ravno navdušeni nad temo, učenci pa so po navadi zelo ponosni na rezultate. S pridobivanjem prvih izkušenj pri načrtovanju empiričnih projektov, zbiranju podatkov kakor tudi analiziranju in dokumentiranju učenci pridobivajo pomembne metodološke spretnosti. Glavni namen prispevka je predstaviti ta način poučevanja ter ponuditi praktične nasvete za njegovo izvedbo v različnih učnih okoljih. Ta metoda združuje dva vidika učenja od učencev in uporabo podatkov v procesu učenja.

Maria-Christina Nimmerfroh je diplomirala s področja psihologije organizacij na Goethejevi univerzi v Frankfurtu ter opravila specializacijo iz klinične psihologije/psihoterapije.

Predava in izvaja izobraževanja na različnih univerzah in drugih institucijah.

Na Goethejevi univerzi v Frankfurtu deluje na Inštitutu za psihologijo, Oddelek za metodiko psihologije, evalvacijo in raziskovalno metodiko. Ukvarja se z računalniško podprtim delom ter e-učenjem v empirični psihologiji.

Abstract: Usually you teach something you know very well, you probably know the results of learners' projects and what the discussions would be like. The other way would be giving classes in which you don't know what will happen – the learners explore and analyse the world with methods of empirical research and create completely new knowledge. The students get an idea

for their research from the current issues of the class, preparing the research instruments, e.g. surveys, focus groups or even experiments. The next steps are collecting and analyzing the data and present the results. This teaching method has a lot of advantages: The students have to examine the aspects of the issue very carefully, collecting and analyzing data is interesting even if you are not enthusiastic about the topic, and the students are usually very proud of the results. By gaining first experiences in planning of empirical projects, data acquisition as well as analyses and documentation, students acquire important methodological skills. The main goal of this speech is to present this method of teaching and give practical advices for implementing it in various learning settings. This method combines the two aspects of learning from learners and the using of data in the process of learning.

Maria-Christina Nimmerfroh holds BA in psychology from Goethe-University of Frankfurt. She specialized in industrial/organizational psychology and clinical psychology/psychotherapy.

She works at the Goethe University of Frankfurt as lecturer at the Department for Psyhcology as well as a journalist specialized in IT and media.

Her main research interests are CBL and e-learning, work motivation, organizational leadership and psychological measurement.

Zbiranje podatkov v izobraževanju: dobro, umazano ali morda celo zlobno?

Learning analytics: the good, the bad, or perhaps ugly?

Bart Carlo Rienties

Povzetek: Predavanje nas bo popeljalo v t. im. learning analytics in ga postavilo v kontekst velikih količin podatkov (big data) ter vedno večje vloge tehnologije pri učenju, ter nato poudarilo vlogo analize pri podpori učenju. Predavatelj bo podal nekaj primerov ter izpostavil, kje in kako nam je analiza učenja lahko najbolje v pomoč. Svoje predavanje bo zaključil z nekaj predlogi – nekaterimi praktičnimi in drugimi konceptualnimi – kako lahko raziskovalci in praktiki napredujejo pri svojem delu.

Dr. Bart Carlo Rienties je univerzitetni predavatelj s področja zbiranja in analize podatkov o učenju (learning analytics) na Inštitutu za izobraževalno tehnologijo na univerzi Open University, Velika Britanija. Je programski direktor področja learning analytics znotraj inštituta in vodja skupine za evalvacijo projekta Student Experience Project, ki se osredotoča na z dokazi podprto raziskovanje 15 modulov za obogatitev izkušenj študentov. Kot pedagoški psiholog vodi multidisciplinarno raziskavo na temo z delom podprtih in sodelovalnih učnih okolij, in se osredotoča na vlogo socialne interakcije v učenju, o čemer tudi redno piše in objavlja v vodilnih akademskih revijah in monografijah. Njegovo primarno zanimanje na področju raziskovanja se osredotoča na t.im. learning analytics, računalniško podprto sodelovalno učenje ter vlogo motivacije pri učenju. Poleg tega se zanima za širše mednarodne vidike visokega šolstva. Uspešno je vodil vrsto institucionalnih/nacionalnih/evropskih projektov in prejel več nagrad za svoje inovativne izobraževalne projekte.

Abstract: The presentation will be the introduction of learning analytics, setting it in the context of big data and the increasing role of technology in learning, emphasising the role of analytics for supporting learning. Some examples will be given, and the points will be highlighted where we have the best evidence for learning analytics being helpful. The presentation will end with some suggestions – some practical, some conceptual – for how researchers and practitioners could move forward.

Dr. Bart Carlo Rienties is Reader in Learning Analytics at the Institute of Educational Technology at the Open University UK. He is programme

director Learning Analytics within IET and Chair of Student Experience Project Intervention and Evaluation group, which focusses on evidence-based research on intervention of 15 modules to enhance student experience. As educational psychologist, he conducts multi-disciplinary research on work-based and collaborative learning environments and focuses on the role of social interaction in learning, which is published in leading academic journals and books. His primary research interests are focussed on Learning Analytics, Computer-Supported Collaborative Learning, and the role of motivation in learning. Furthermore, Bart is interested in broader internationalisation aspects of higher education. He successfully led a range of institutional/national/European projects and received several awards for his educational innovation projects.

Vsak je podjeten

Everyone is an entrepreneur

Dominic Graveson

Povzetek: Predstavitev nam bo ponudila ključna orodja in okvirje za vse, ki bi radi izgradili in omogočili 'zagonsko' ('start up') kulturo v šoli, inštitutu ali organizaciji. Prikazani bodo temeljni principi t. i. vitkega razvoja, ki so temelj uspeha majhnih inovativnih skupinah od Silicijeve doline pa vse do lokalnih skupnosti v Afriki. Če majhne, samoorganizirajoče se skupine delujejo avtonomno in pri tem delijo načela ter kriterije uspeha, tj. če merijo, kako sodelujejo in kakšni so njihovi dosežki, so lahko resnično uspešne in opolnomočijo ljudi ne glede na cilj, ki ga poizkušajo doseči.

Dominic Graveson je neodvisni svetovalec na področju digitalne preobrazbe in e-učenja. Izzivalen in pozitivno 'moteč', z izkušnjami na različnih področjih poslovanja in delovanja, vključno z javnim sektorjem, izobraževanjem, mediji, finančnim sektorjem, radiem in televizijo, založništvom, tehnologijo in terciarnim sektorjem. Izkušen je tako na področju teorije upravljanja ter dnevnih digitalnih sprememb v podjetjih kot na področju razvoja in masovnega zagotavljanja storitev in vsebin.

Njegova zadnja pomembna funkcija je bila vodja razvoja na področju učenja, medijev in sodelovanja na The Open University v Veliki Britaniji, kjer je vodil veliko skupino razvojnikov, ki so razvijali in vzdrževali platforme za učenje.

Abstract: In this presentation the key tools and frameworks will be shared for all who wish to build and enable a 'start up' culture in a school, institute or organisation. The talk will illustrate the core principles of Lean and Agile development that have formed the foundation for success in small innovative teams from Silicon Valley to the townships of Africa. If autonomous self-organising teams are working together to shared principles and success criteria (and they measure how they are collaborating and progress against clear analytics and goals), this can make a real difference and empower people, whatever the objective you are trying to achieve.

Dominic Graveson is a Senior Head of Development: Learning, Media & Collaboration at The Open University, UK. He has experience across multiple business areas including public sector, education, media, finance, broadcast, publishing, technology and third sector. Experienced in both, the management theory and day to day reality of enterprise digital change, development and delivery at large scale. Roles have included: development team transformation

and agile framework adoption, social media digital marketing and brand-building campaigns, outreach and widening participation for UK and EU Universities, corporate executive development programmes, development of communities of practice, OER, e-commerce development and broadcast/entertainment format development and support.

Ali četrtošolci razumejo, kar berejo na internetu? Izkušnja ePIRLS

Do fourthgraders understand what they read on-line? ePIRLS survey

Marjeta Doupona

Povzetek: ePIRLS je nova razsežnost Mednarodne raziskave bralne pismenosti PIRLS. Klasičnemu preverjanju razumevanja samostojno prebranih literarnih in informativnih besedil, natisnjenih na papirju, je prvič dodano preverjanje, kjer četrtošolci in četrtošolke v simuliranem internetnem okolju berejo informativna besedila in odgovarjajo na vprašanja. Aprila 2014 smo zaključili zbiranje podatkov v 15 državah. Predstavljeni bodo čisto sveži rezultati preverjanja v Sloveniji, kjer je v predraziskavi ePIRLS sodelovalo več kot 1100 otrok. Raziskavo v Sloveniji vodi Pedagoški inštitut, po mednarodno določenem protokolu pa jo izvajajo šole same. Pri izvedbi so bile kljub razvnovrstnim oviram zelo uspešne.

Marjeta Doupona je raziskovalka na Pedagoškem inštitutu v Ljubljani. Po izobrazbi je diplomirana novinarka in magistra sociologije kulture (področje uporabne lingvistike). Raziskovalno se ukvarja predvsem s pismenostjo in uporabo IKT pri opismenjevanju. Je nacionalna koordinatorka Mednarodne raziskave bralne pismenosti PIRLS, v okviru katere je bila tudi članica mednarodne ekspertne skupine pri IEA za metodologijo preverjanja pismenosti na računalnikih. Kot članica ekspertne skupine je sodelovala pri projektu ZRSS Opolnomočenje učencev z izboljšanjem bralne pismenosti in dostopa do znanja. Bila je članica Nacionalne komisije za pismenost ves čas njenega obstoja.

Abstract: ePIRLS is a a new inovative assessment of IEA Progress in International Reading Literacy Survey. ePIRLS uses an engaging, simulated Internet environment to measure fourth grade students' achievement in reading for informational purposes. In April 2015 data collection of ePIRLS was finished in 15 countries. We will present the data and experience from Slovenia where more then 1100 students were assessed in ePIRLS Field Trial. Survey in Slovenia is coordinated by Educational Research Institute and implemented by the school coordinators and teachers at the sampled schools in accordance with international protocol. In spite of many obstacles, schools were very successful in collecting the data.

Marjeta Doupona is a researcher at the Educational Research Institute in Ljubljana. She holds BA in journalism and a MA in sociology of culture

(applied linguistics). Her main research interests are literacy and the use of ICT. She is
the national coordinator of the international literacy study Progress in International Reading Literacy (PIRLS), within the framework of which she has also been a member of the international group of experts of the IEA in the field of computer-based literacy assessment methodology.

As a member of a group of experts, she was actively involved in the literacy project of the National Education Institute of Slovenia. She was also a member of the National Literacy Board.

2.

Programski sklopi • Programme Sections

2.1

Sejem DajDam • GiveTake Fair

Sejem DajDam

GiveTake Fair

Opis

Želite izkušnjo učenja drug od drugega predstaviti drugim in ob tem tudi sami pridobiti? Ste se katere od nalog lotili skupaj z učenci? Ste kakšno e-storitev, e-vsebino ali e-orodje uporabili na drugačen, izviren način? Imate izkušnjo z učenci pri uporabi sodobne tehnologije za doseganje višjih ravni znanja?

Vam je uspelo sodobno tehnologijo uporabiti na področju ocenjevanja znanja? Ste si upali ustaljene pristope obrniti na glavo ali ste s preprosto spremembo dosegli več? Zaupajte nam svojo izkušnjo in hkrati spoznajte izkušnje drugih.

Način predstavitve

Avtorji izbranih prispevkov bodo z žrebom izbrani v skupine po tri, kjer si bodo v okviru omizja izmenjali izkušnje. Vsak predstavljalec se bo udeležil treh omizij, vsakič v drugačni sestavi. Tako bo imel možnost svojo idejo in izkušnjo predstaviti trikrat in prisluhniti šestim predstavitvam. Na voljo bo imel 5 minut za predstavitev in še 5 minut za pogovor. V pogovor se bodo lahko vključili tudi opazovalci oz. poslušalci. Po 30 minutah bodo predstavljalci zamenjali omizja, tako da bodo nastala nova. Ključ za menjavo bodo izvedeli od moderatorjev. Opazovalci oz. poslušalci se bodo sprehajali med omizji, prisluhnili predstavitvam in pogovorom med člani omizja in se v pogovore tudi vključevali. Udeleženci sejma bodo lahko tudi podali svoje mnenje. Pri eni od prostih miz bodo svoje prispevke lahko predstavili tisti, ki jih niso vnaprej prijavili. V posebnem kotičku bodo obiskovalci lahko oddali svoje odzive na strokovne prispevke.

Description

Would you like to present your peer-learning experience to others and at the same time learn something new? Have you undertaken any learning activities together with your pupils? Have you applied any of the e-services, e-contents or e-tools in a new, innovative way? Do you have some experience with your pupils in applying ICT to gain higher levels of knowledge?

Have you succeeded in using modern technology for assessment?
Did you dare to flip the conventional approaches to learning and teaching?
Or perhaps you managed to reach something more with just
a small change?

Inspire us with your experience and learn about the others' experience at the same time.

Presentation form

The lot will draw the participants – presenters into clusters of three where they will share their experiences among themselves. Each presenter at the give-and-take fair will participate in three round tables, each time in a different formation. In this way, he will have the opportunity to present his idea and experience three times, and listen to six other presentations. Each presenter will have 5 minutes for the presentation, and another 5 minutes for the discussion. The audience (observers or listeners) will be able to interact in the discussion as well. After 30 minutes, the presenters will change places as to form a new table. The key for changing their places will be given by the moderators.

Observers or listeners will walk around the tables, listen to presentations and to the discussions among members of the table, and they will also be able to get involved and express their opinion. At one of the vacant tables, the opportunity will be given for presentations of those who did not pre-register. There will also be a corner where the visitors will be able to submit their feedback.

Obogatitveni šolski projekti na OŠ dr. Janeza Mencingerja Bohinjska Bistrica

Enrichment school projects at primary school Dr. Janez Mencinger Bohinjska Bistrica

Urška Repinc, **Marija Helena Logar**, **Janka Komac**,
OŠ dr. Janeza Mencingerja

Povzetek: V prispevku je predstavljeno projektno delo na šoli, ki pomeni obogatitev za učence, predvsem nadarjene, za šolo in skupnost, v kateri šola deluje. Posamezni projekt vodi več strokovnih delavcev šole, ki v njem vidijo priložnost za realizacijo ciljev pri svojem predmetu, izbirnem predmetu, interesni dejavnosti. Raziskovalna literatura ponuja različne, v praksi preizkušene modele sodelovanja učiteljev pri vodenju projektnega dela. Za zelo uporabnega se je izkazal model sodelovanja učitelja predmeta, povezanega s projektno temo, šolskega knjižničarja, učitelja računalnikarja in učitelja, povezanega s kompetencami, ki omogočajo ustrezno in učinkovito predstavitev rezultatov dela. Bistvo tesnega sodelovanja omenjenih strokovnih delavcev je, da se skozi proces dela veliko naučijo drug od drugega in pridobljeno znanje pozneje vpletajo v svoje vsakodnevno delo. Prav tako je pomembno, da omenjeno delo omogoča, da se marsičesa naučimo od učencev. Projekti so namreč vsako leto drugačni. Temeljijo na poizvedovalnih (raziskovalnih) aktivnostih. Rezultat dela je odvisen od idej in kreativnosti rešitev učencev in učiteljev. Na konferenci bodo izpostavljene predvsem izkušnje mednarodnega projekta o miru, katerega zaključne aktivnosti so potekale v Normandiji ob obletnici vkrcanja zaveznikov (začetek konca druge svetovne vojne). Izkušnja bo predstavljena z vidika učenja drug od drugega (mentorji) in od sodelujočih učencev, predvsem z vidika uporabe IKT v tem procesu.

Abstract: The contribution presents school project work which means enrichment for pupils, mostly talented, for school and school community. Projects are led by school professionals, who see the opportunity for realisation of the goals of the subject or activity they teach. Research literature and evidence based practice offer different models for team working at project work. The presented model shows how four teacher can collaborate: the theme teacher, school librarian, ICT teacher and teacher who is »presenting« skills. The essence of such collaboration is that through learning process they learn a lot from each other. And then they implement the new knowledge and skills into daily work. It is important that this opportunity offers experiences to learn from pupils. since projects are different every year. They are based on inquiry activities. Results depend on ideas and creativity of pupils and teachers. At the conference

the experiences of International Peace Project will be presented. The project was devoted to the 70th anniversary of Alliance landing in Normandy. It will be presented from the perspective of learning from each other (teachers – mentors) and from participating pupils, mostly about ICT use in this process.

Možnosti medsebojnega učenja na start-up vikendu nadarjenih učencev

Mutual learning at a start-up workshop for gifted and talented children

Ivan Dovič, OŠ Brinje

Povzetek: V prispevku bom predstavil izvedbo dvodnevne delavnice za nadarjene učence 8. in 9. razreda osnovne šole. Tema je bila ustanovitev lastnega start-up podjetja. Učenci so v manjših skupinah s pomočjo IKT-opreme načrtovali in izdelali svoje izdelke, pripravili predstavitvene fotografije in videogradivo, postavili so spletno stran, izvedli tržno analizo in pripravili finančno konstrukcijo podjetja, skratka vse, kar je potrebno za zagon in delovanje podjetja. Na konkretnih primerih bom opisal priložnosti, ki jih takšen način dela nudi za prenos znanja na več nivojih: med učenci znotraj skupine, med učitelji in strokovnjaki ter med učenci in učitelji. Učenci se danes srečujejo z zaskrbljujočimi informacijami o veliki brezposelnosti, hkrati pa tudi z zgodbami uspešnih podjetij. To je bil povod za oblikovanje ideje start-up delavnice, z namenom, da najuspešnejše učence naše šole opremimo z osnovnim znanjem, potrebnim za ustanovitev in delovanje podjetja. Temo so odlično sprejeli in bili za delo visoko motivirani. Nadarjeni učenci po svojih sposobnostih pogosto prekašajo tako vrstnike kot tudi učitelje, tudi pri uporabi IKT. Učence smo razdelili v skupine, v katerih so lahko poglabljali znanje, iskali ustvarjalne rešitve problemov, razvijali spretnosti in pridobivali izkušnje, ki se nanašajo na področje nadarjenosti, na katerem so bili prepoznani.

Abstract: In the article I will present a two-day workshop for the gifted and talented students of the 8th and 9th grades. Students worked in small groups where they were instructed in how to start and manage a start-up company. They designed and created their products, prepared presentation photos and videos, created a web page, carried out a market analysis or drew up company's financial analysis. Nowadays students are bombarded with disturbing news about high unemployment rates, but at the same time also with stories of successful business ventures. Such information triggered the idea of organizing a start-up workshop and our intention was to equip the best students of our school with some basic knowledge, required to successfully found and manage a company. The students were very enthusiastic about the topic and highly motivated. The gifted and talented students surpass their peers or even teachers in many areas, including the use of ICT. Therefore, we have decided to divide them into groups, where they were able to broaden their knowledge, search for creative solutions, gain experience and develop abilities according to their area of giftedness.

Učimo se e-učiti: E-listovnik kot orodje za formativno spremljanje

Learning to e-learn: E-portfolio as a tool for formative assessment

Vesna Gros, **Renata Krivec**, **Petra Mikeln**, OŠ Polje

Povzetek: Na šoli že nekaj časa opažamo, da so učenci precej nerealni v svojih pričakovanjih ter da ne znajo načrtovati svojega dela in ne prevzemajo odgovornosti za svoje učenje. Temeljni cilj projekta EUfolio je učence opolnomočiti za načrtovanje, spremljanje in vrednotenje lastnega napredka in razvoja, kar so osnovna načela formativnega spremljanja. V projektu uporabljamo e-listovnik Mahara. Gre za pestro spletno aplikacijo, v katero lahko učenci nalagajo dnevniške zapise, svoje izdelke, slike, videe ... Vsebuje tudi forum, od drugih listovnikov pa se razlikuje predvsem po tem, da vsak uporabnik sam določi, kateri elementi iz njegovega listovnika so dostopni drugim uporabnikom. Pri formativnem spremljanju nam je najbolj v pomoč zavihek Moje učenje, s katerim lahko učenci sami načrtujejo svoje delo. Učitelj jih lahko pri tem ves čas spremlja in vodi k cilju s sprotnim dajanjem povratnih informacij, ravno tako pa lahko tudi učenci med seboj kritično prijateljujejo ter vrednotijo svoje in tuje delo. Predstavile bomo, kaj so se v dveh letih naučili naši učenci (od nas in drug od drugega) ter kaj smo se me naučile od svojih učencev in druga od druge.

Abstract: At our school we have been noticing for quite some time that our students are quite unrealistic in their expectations and unable to plan their work and take responsibility for their learning. The main objective of the EUfolio project is to equip our students with skills for planning, monitoring and evaluating their own progress which are the core principles of formative assessment. In the project we use the Mahara e-portfolio, an online application in which students can upload their blogs, files, pictures and videos. It also contains a forum; however, its main advantage is that users decide themselves which parts of their portfolio will be visible to other users. The most useful tool for formative assessment is the “My learning” tab, where students plan their work. Teachers can monitor and guide them towards their goals by means of constructive feedback. Students can also be critical friends to each other and evaluate their own work and the work of their peers. We will present what our students have learned in the past two years (from us and from each other) and what we have learned from them and from our colleagues.

S Pixtonom v svet slovenskih pripovedk

Entering the world of Slovenian stories with Pixton

Maja Kosmač Zamuda, ŠC Ljubljana, Gimnazija Antona Aškerca

Povzetek: V članku predstavljam aktivno sodelovanje učiteljev in dijakov Gimnazije Antona Aškerca v projektu Erasmus+, Strip Identity, kjer sodelujemo z dijaki in učitelji devetih držav. Na srečanju sodelujočih v projektu so dijaki pripravili svojo predstavitev Slovenije in njene kulture v PowerPointu. Sledilo je spoznavanje in učenje Pixtona, računalniškega programa v oblaku, ki omogoča izdelavo stripa. (na povezavi http://www.strip2id.eu/). Program Pixton for Schools (na povezavi http://www.pixton.com/schools/comic/m7x6vrck) omogoča pripravo spletnih učilnic za učitelja in v spletni učilnici v oblaku so dijaki izdelali strip. Ker je cilj projekta tudi iskanje kulturne identitete v literaturi, so dijaki raziskovali po spletu in v knjižnici pripovedke, ki po njihovem mnenju prikazujejo izročilo slovenskega naroda. Izbrani pripovedki Peter Klepec in Martin Krpan sta služili za predlogo scenarija za strip, ki so ga dijaki izdelali s Pixtonom. Program Pixton učitelju omogoča nadzorovanje poteka dela dijakov, komentiranje izbora likov, orodij, izmenjavo mnenj. Slabost programa je, da je samo do določene mere brezplačen, saj smo morali njegovo uporabo zakupiti za leto, da smo lahko strip tudi natisnili. Ker program omogoča uporabo lastnih fotografij, so dijaki slikali turistične znamenitosti Slovenije ter jih dodali v ozadje zgodbe o Petru Klepcu in Martinu Krpanu in bili še kreativnejši.

Abstract: The article deals with active participation of teachers and students of the Anton Aškerc Grammar School in the Erasmus+, Strip Identity, Project; teachers and students from nine countries take part in the project.
At the meeting of the participants in the Project the students prepared their presentation of Slovenia and its culture in PowerPoint. What followed was getting acquainted with and learning Pixton, a computer programme in a cloud which enables students to make comics (http://www.strip2id.eu/). The Pixton for Schools programme (http://www.pixton.com/schools/comic/m7x6vrck) enables preparation of online classrooms for a teacher and in the online classroom the students made a comic. Since the aim of the Project is also searching cultural identity in literature the students made an online and a library research of stories which, in their opinion, present the folklore tradition of Slovenian nation. The selected stories Peter Klepec and Martin Krpan were used as a setting of the comics scenario the students made by using Pixton. Pixton makes it possible for a teacher to monitor the students' progress of work, make comments on their choice of characters, tools,

exchange of opinions. The weak side of the programme is that it is free of charge only to a certain degree as we had to pay an annual fee in order to be able to print the comic. Since the programme allows the use of own photographs the student had taken pictures of tourist attractions and sights in Slovenia and added them to the background of the stories about Peter Klepec and Martin Krpan which increased their creativity.

Vse poti vodijo v Rim ali kako lahko pri terenskem delu uporabimo pametni telefon

All the roads lead to Rome or how to use smart phone in out-of-class work

Bernardka Radej, Zavod Antona Martina Slomška, Škofijska gimnazija

Povzetek: V sklopu medpredmetne ekskurzije dijakov tretjega letnika v Italijo smo v letošnjem šolskem letu papirnate delovne zvezke z nalogami in vprašanji nadomestili s skupinskim tekmovanjem dijakov (z uporabo pametnih telefonov). Zanke in uganke, ki so se dotikale različnih področij (umetnost, matematika, zgodovina, geografija, arhitektura, orientacija, religija) in so od dijakov zahtevale uporabo predvsem različnih veščin (uporaba pametnih telefonov, različnih aplikacij, ki so na voljo za iOS in Android telefone, timsko delo, hitro prilagajanje situaciji na terenu, razmišljanje zunaj okvirjev in uporaba lastne domišljije ter iskanje različnih poti, ki nas pripeljejo do rešitve) in kompetenc (digitalne, interpersonalne, socialne, medkulturne), so nadomestile predvsem reprodukcijo slišanega in zapis v dnevnik ekskurzije. Dijake želimo spodbujati za samostojno odkrivanje informacij ter iskanje odgovorov v timskem duhu, kjer vsak član ekipe prispeva svoje talente in pokaže svoje izvirne zamisli, kako lahko pridemo do rešitve, ter pokazati, kako se dijaki veliko naučijo drug od drugega in koliko novih idej smo slišali od odkrivanju rešitev učitelji spremljevalci. Velika motiviranost dijakov (sami so priznali, da ne samo zaradi nagrad) je imela svoj izvor v drugačnem načinu dela, kjer smo jim dali možnost, da pridejo do odgovorov na svoj način z različnimi oblikami medsebojne in tehnološke pomoči.

Abstract: During the interdisciplinary excursion to Italy, organised for the 3rd year students, our classic paper workbooks were replaced by the students' competition that involved the use of smart phones. Riddles and puzzles involved various areas (Art, Maths, History, Geography, Direction, Architecture, Religion). What they demanded form students is the use of different skills (the use of smart phones, different applications available for iOS and Android phones, team work, fast adjustment to the situation, thinking outside the box, creativeness and searching for different ways of solving problems and finding solutions) and competences (digital, interpersonal, social and intercultural) which replaced students' writing in the excursion diary. We would like to encourage students to look for information independently and look for answers with each member contributing his/her talents and genuine ideas to finding solutions. We would also like to show that not only students can learn from each other but also mentors can learn from them. Students motivation was

achieved by different methods (rewarding them was not the only source of motivation as they admitted) which gave them the opportunity to find answers on their own using different technical aid and helping each other.

Povezani

Connected

Romana Kolar, Zavod za gluhe in naglušne Ljubljana,
Tadej Kolar, OŠ Pod goro, Slovenske Konjice in ZGNL

Povzetek: Avtorja prispevka sva se najprej spraševala, kako dijake/učence dodatno motivirati in kako snov predstaviti drugače, zanimiveje, in tako prišla do VOX-konference in izvedbe skupnih učnih ur na temo multimedijske predstavitve razredov iz različnih šol – OŠ Pod goro Slovenske Konjice in ZGNL Ljubljana. S podrobnejšo pripravo sva ugotovila, da bova z njo rešila tudi marsikatere težave, probleme in strahove. Dijaki ZGNL imajo zaradi svojih specifičnih težav (gluhota, govorno-jezikovne motnje in avtizem) velikokrat težave s komunikacijo, javnim nastopanjem, navezovanju stikov z drugimi itd. Z VOX-konferenco in omenjenim sodelovanjem so se te težave skoraj razblinile. Dijaki so postali samozavestnejši, z vsako dodatno uro je bilo opaziti napredek v komunikaciji. Zaradi razgibanega dela – anket, klepeta, pogovora, različnih mnenj so bili tako dijaki kot učenci zelo motivirani, kar je posledično prineslo tudi boljše učne rezultate. Prav tako so vsi začeli upoštevati osnovna pravila, kot je dvigovanje roke, če so želeli kaj povedati. Domače delo je bilo zelo dobro narejeno, saj je bil dogovor, da ga po želji predstavijo vrstnikom. Čeprav na začetku ni bilo velikega interesa po predstavitvi, se je kasneje izkazalo, da se je med njimi razvila tudi pozitivna tekmovalnost.

Abstract: The authors of the article were wondering how to further motivate pupils/students and how to present the teaching content in a different and interesting way, and they found a solution – VOX conferences and the multimedia presentation topic in joint lessons with two classes from different schools – elementary school Pod goro Slovenske Konjice and ZGNL Ljubljana. While preparing lessons, they noticed that kind of work will solve many problems and fears. Due to their specific problems (deafness, speech and language disorders and autism) students from ZGNL often have problems with communication, public speaking, making contacts with others, etc. With VOX conference all these difficulties have almost vanished. Students have become more confident with each additional lesson and the progress in communication was also noticed. The various methods of work – surveys, chat, conversation, different opinions caused that both, pupils and students, were highly motivated which resulted in better learning outcomes. Also, they all started to take into account the basic rules, such as raising hand, when they want to say something. Homework was also well done and everyone wanted to present it to his/her classmates. Although there was no interest to present their work at the beginning it has changed because of healthy level of competitiveness among the students.

Drobci iz vesolja, »Google Sites« spletna stran za učenje geografije v 6. razredu OŠ

Fragments of the Universe, »Google Sites« website for teaching Geography in 6th grade of primary school

Katja Završnik, OŠ Vransko, Tabor

Povzetek: Če pogledamo v učbenik za geografijo v 6. razredu, lahko hitro opazimo, da v poglavju o vesolju najdemo le malo fotografij. Zaradi pomanjkljivega slikovnega gradiva v učbeniku si učenci težko predstavljajo zelo abstraktne pojme v zvezi z vesoljem. Prav zato sem se odločila, da skupaj izdelamo spletno stran, na kateri bo veliko slikovnega gradiva ter videoposnetkov, ki jih bodo našli ne spletu in uporabili v svojih nalogah. Tako se bodo poučili o snovi, ki je v letnem delovnem načrtu pri pouku geografije v 6. razredu. Drobce znanja bo povezal učni list, ki bo na koncu izdelane spletne strani učenca skozi vprašanja in naloge pripeljal do končne rešitve. V projekt sem vključila učence treh oddelkov. Z učenci 6. c-oddelka smo pri urah geografije izdelali spletno stran, namenjeno spoznavanju vesolja in Osončja, s pomočjo spletne Googlove aplikacije Google Sites. Vsak učenec je sestavil delček v mozaiku skupne spletne strani. Skozi izdelovanje spletne strani so se spoznali z izdelovanjem spletne strani, prav tako pa so se učili spletnega brskanja, iskali so namreč zanimive posnetke iz vesolja, fotografije, zanimiva dejstva. Preostala dva oddelka (6. a in b) pa sta to spletno stran preizkusila in tudi ocenila, kaj je na njej dobro in kaj ne oz. kaj bi bilo treba še popraviti za boljše razumevanje.

Abstract: If we take a look at the Geography textbook for the 6th grade, it can quickly be noticed that there are very few photos in the chapter on Universe. Due to insufficient picture material pupils have problems imagining very abstract concepts of Universe. Therefore I decided to prepare a website together with pupils. The website would contain a lot of picture and video material which pupils will find online and use for their tasks. In this way they will gain the knowledge on the topic that is contained in work programme for Geography lessons in the 6th grade. The fragments of knowledge will be connected by a worksheet at the end of website preparation which will lead the pupils through questions and tasks to the final solution. Three classes of pupils were included into this project. Pupils from class 6 C helped to prepare website during the Geography lessons. It was intended to provide insights to topic of the Universe and Solar system with the help of Google application Sites. Every pupil contributed a piece to the mosaic of the common website. Through making of website pupils got

to know the preparation of the website as well as online browsing since they were looking for interesting material on Universe, photos, interesting facts. Two other classes (6 A and 6 B) tested the website, evaluated its strong and weak sides and identified the parts that need improvement to enable better understanding.

Kako učenec postane učitelj

How a pupil becomes a teacher

Liljana Petek, Prva gimnazija Maribor

Povzetek: V prispevku bom predstavila izbrane primere učnih ur, ki so jih izvedli učenci in tako drug drugega poučevali matematične vsebine. Učenci so uporabili e-učbenik za matematiko s pomočjo tablic, program Geogebra s pomočjo namiznih računalnikov in različne matematične aplikacije (Quick Graph, Free GraCalc, Math Solver) s pomočjo tablic. Prevzeli so vlogo učitelja pri sodelovalnem učenju, ko so raziskovali matematične vsebine v skupinah. Najprej so se razdelili v skupine, kjer je vsak prevzel svojo vlogo. Nato so se ponovno razvrstili v nove skupine tako, da so se združili vsi z isto nalogo. Tako pomešani so matematične vsebine raziskovali z uporabo e-učbenika Vega 1 in različnih matematičnih aplikacij s pomočjo tablic. Prav vsi so morali biti aktivni, saj so nato v svojih prvotnih skupinah, svoj del učne snovi razložili sošolcem. Tako se je vsak preizkusil v vlogi učitelja. Nadarjeni so v okviru raziskovalne naloge raziskovali risanje geometrijskih objektov s pomočjo programa Geogebra. Svojo raziskovalno nalogo z naslovom Eulerjeva premica so predstavili vrstnikom. Najprej so sošolce naučili uporabljati program Geogebra v računalniški učilnici s pomočjo namiznih računalnikov. Nato so pripravili naloge, ki so jih drugi učenci reševali, jih vodili in jim pomagali.

Abstract: In the article chosen samples of lessons which were performed by pupils teaching each other Math contents will be presented. Pupils were using Math e-textbook with iPads, programme Geogebra with desktop computers and different Math aplications (Quick Graph, Free GraCalc, Math Solver) with iPads. They became teachers during the cooperative learning. They were exploring mathematical contents in groups. At first hey formed groups where each of them got different task. Later those with the same task formed new groups. Divided this way they were researching mathematical contents with e-textbook Vega 1 and Math aplications with iPads. All pupils were active because they returned to primal groups and had to explain their task to each other. So every one of them became a teacher. Gifted pupils made a research paper where they drew geometric objects with the programme Geogebra. They introduced their research paper Euler line to their peers. They thaught their classmates how to use Geogebra in the computer lab with desktop computers. They prepared tasks for their classmates, guided them and helped them.

Medvrstniško učenje učencev 5. in 9. razreda

Peer-to-peer studying between the 5th and 9th graders

Mojca Janžekovič, OŠ Toma Brejca, Kamnik

Povzetek: Z željo, da bi uporabljali pridobljeno znanje, smo se razredni učitelji 5. razreda in učitelji geografije odločili za vertikalno povezovanje družbe in geografije. Tako povezovanje omogoča učencem pridobiti kompleksno znanje, ki ga lahko uporabijo v praktičnih okoliščinah. Ko učenec uči drugega učenca, sam poglobi svoje znanje, da pa lahko razlaga snov sovrstniku, mora vsebino dobro razumeti. Učence smo razdelili v pare, enega iz 5. in enega iz 9. razreda. Skupaj smo preživeli dve šolski uri, med katerima je preteklo mesec dni. Cilj prvega srečanja je bil ponavljanje in priklic že usvojene snovi. Pri tem so učenci 5. razreda učili učence iz 9. razreda, kaj vse bi že morali znati. Nato so učenci 9. razreda pri pouku geografije nadgrajevali vsebino. Po končani obravnavi je sledilo drugo srečanje, katerega cilj je bil, da učenci 9. razreda naučijo učence iz 5. razreda novo snov. V času skupnih ur so učenci uporabljali računalnike. Vsak par je dobil dokument z vprašanji, v katerega so zapisovali odgovore. Pri drugem srečanju so ponovno odprli svoj dokument in zapisali ali popravili odgovore, ki jih pri prvem srečanju niso znali. Uporaba računalnika nam je omogočala popravljalanje odgovorov za nazaj, hitrejše in čitljivejše zapisovanje, shranitev odgovorov na enem mestu, reševanje spletnega preverjanja znanja in ankete.

Abstract: Regarding the use of acquired knowledge, a decision was made by teachers of Geography and the 5th grade teachers to link Geography and Society vertically. Such linking enables students to acquire complex knowledge that can be used in practical situations. When students teach one another, those who have the role of teachers deepen their knowledge, and in order to be able to explain the subject matter to peers, they must know the contents of a particular subject very well. Students were put in the 5th - 9th grader pairs. Two lessons were then spent together in the course of one month. The aim of the first meeting was to revise and recall subject matter that had previously been dealt with. Students from the 5th grade taught the 9th graders everything they should have known by then. Afterwards, the 9th grade students upgraded their knowledge in their Geography lessons. After a month, a second meeting followed with the aim of 9th graders teaching the 5th graders new subject matter. Computers were used during the joint lessons. Each pair of students got a document with questions to be answered. During the course of the second meeting they reopened the document to write in the missing parts or correct the existing answers. The use of computers enabled students to make corrections, write faster and more legibly, save all the answers in one place, test their knowledge online and conduct an online survey.

Obdelava podatkov v 5. razredu »peš« in s pomočjo IKT

Data processing in the 5th grade »by hand« and with the help of ICT

Marica Domitrovič, OŠ Belokranjskega odreda, Semič

Povzetek: Predstavila bom primerjavo obdelave podatkov brez uporabe IKT in s pomočjo IKT. Gre za prikaz medpredmetnega povezovanja slovenščine, matematike, naravoslovja in tehnike, družbe in športa v skladu z učnimi cilji iz učnega načrta za 5. razred. Prvi način prikazuje, kako so učenci med svojimi sošolci izvedli raziskavo o prehranjevanju in gibanju. Podatke so zbirali z anketnim vprašalnikom, jih urejali in prikazali s pomočjo stolpičnega, vrstičnega oziroma tortnega prikaza. Za primerjavo so oblikovali še en anketni vprašalnik, ki se je nanašal na preživljanje prostega časa, in ga prek prijave v Google račun vnesli v obrazec Google drive na računalnikih v računalniški učilnici. Svoj vprašalnik so poslali na elektronske naslove najmanj petnajstih sošolcev. Tudi vsak posameznik je prejel anketni vprašalnik na svoj elektronski naslov in ga izpolnil ter oddal. V Google drivu so pregledali odzive in v zavihku Obrazec izbrali prikaži povzetek odgovorov, kjer so našli obdelane podatke. Primer prikazuje sodelovalno učenje znotraj oddelka in odgovornost posameznika, da opravi svoj del v celotnem procesu. Učenci so spoznali, kako nam lahko uporaba IKT olajša delo, predvsem pa skrajša čas za doseganje istega cilja. Motivacija učencev je bila visoka, predvsem pri uporabi IKT. Obenem so drug drugemu pomagali in si svetovali.

Abstract: The comparison of data processing without the use of ICT and with the help of ICT will be presented. It is an example of cross-curricular integration of Slovenian, Maths, Science and Technology, Geography and P. E. in the accordance with the learning objectives from the 5th grade curriculum. The first example shows how the pupils carried out a survey about dieting and activities among their classmates. The data were collected with the help of a questionnaire, compiled and shown with the bar, line and pie graphs. For the comparison they created another questionnaire which related to the past time activities. They signed in the Google accounts and entered the questionnaire in the Google drive form on their computers in the computer classroom. The questionnaire was sent to the e-mail addresses of at least fifteen classmates. Each individual also got the questionnaire in his/her mail-box, fulfilled and submitted it. They examined the responses in Google drive and in the form tab chose show the summary of results where they found out the processed data. The example shows the cooperative learning within

the class and the responsibility of the individual to perform his/her part in the entire process. The pupils realised how the use of ICT makes the work easier and mainly shortens the time needed for achieving the same objective. The pupils' motivation was high, especially when they used ICT. At the same time they helped and gave advice to each other.

Črta, ki nastane z gibanjem – kombinacija klasičnih risarskih pripomočkov in IKT pripomočkov

Lines by Movement – a combination of classic and ICT drawing tools

Vesna Kropivšek, OŠ Toma Brejca, Kamnik

Povzetek: Da bi bilo zadano likovno delo zanimivejše, želim učencem prikazati povezavo med klasičnimi načini risanja in risanjem z IKT pripomočki. Za delo z IKT sem izbrala fotoaparat, tablični računalnik in računalnik. Vse to sem vključila v likovno nalogo za 8. razred pri izbirnem predmetu likovno snovanje II, tema Črta, ki nastane z gibanjem. Ker učenci delajo na tabličnih računalnikih že pri drugih premetih in imajo z njimi že veliko izkušenj, sem želela, da pri tej likovni nalogi svoje znanje podajajo drug drugemu in tudi meni. Dala sem jim navodila za likovno nalogo, pri kateri so reševali likovni problem *črta, ki nastane z gibanjem točke*, katerega cilj je pridobivanje likovnih pojmov: kaj je točka in kaj črta ter kako točka postane črta. Za izpeljavo likovne naloge so dobili motiv – stol, ki so ga likovno izrazili s pomočjo štirih različnih orodij. Risanje s svinčnikom na papir ter s kredo na tablo so fotografirali. Tretji način je risanje s prstom na tablični računalnik v programu ArtStudio. Zadnji pa risanje s svetilko v temi, pri čemer je risbo zabeležil fotoaparat. Vse štiri načine risanja so morali izpeljati miže in jih na koncu s pomočjo računalnika in programa PowerPoint sestaviti v kolaž. Končne likovne izdelke smo združili v skupinsko PowerPoint predstavitev in jih medsebojno primerjali ter ugotavljali, kateri način risanja je dal najboljše rezultate. Pri likovni nalogi so razvijali občutek za povezavo med gibom, točko, črto, prostorom in uporabo različnih načinov izražanja. Likovna naloga je pokazala uspešno in uporabno kombinacijo klasičnih risarskih metod v povezavi z IKT ter uspešno medsebojno učenje dveh učencev ter učenca in učitelja.

Abstract: In order to make Art lessons more interesting, I wanted to show students the link between classic drawing and drawing by means of ICT tools. A camera, a tablet PC and a PC were selected as the school ICT tools. These tools were then incorporated into an Art assignment for 8th graders within the non-compulsory subject Artistic Formation II. The assignment was titled Lines by Movement. Since our students often use tablet PCs in various other subjects at school, they already have lots of experiences. Therefore, in this assignment I wanted them to share knowledge with each other and with me. Students were given assignment instructions that included an artistic problem – a line that is made by movement of a point. The goal was for students to learn artistic concepts: what is a point, what is a line and how does a point become a line. A chair motif was presented to students in the course of their work and they

had to express it artistically by means of four different tools. Drawing on paper with a pencil and drawing on the blackboard with chalk. Both drawings were photographed. The third tool was the use of ICT – students drew with their fingers on a tablet PC in an application called ArtStudio. The last tool was drawing with a lamp in the dark, whereby the drawing was captured on camera. While drawing in all of the mentioned ways, students also had to be blindfolded. Then a computer was used to make a collage in the PowerPoint programme. All artworks were collected in a common PowerPoint and were crosschecked to see which way of drawing brought students the best results. In the assignments students developed a feeling for the connection between movement, a point, a line, space and use of several ways of artistic expression. A successful and useful combination of classic and ICT drawing methods and successful cooperative learning (student-student and student-teacher) was put forward by the assignment.

Uporaba interaktivnih elementov za pridobivanje in utrjevanje znanja s pomočjo interaktivne table

Use of interactive elements in acquiring and strengthening knowledge using interactive whiteboards

Iztok Škof, OŠ Toma Brejca, Kamnik

Povzetek: Slovenske šole imajo veliko interaktivnih tabel. Zato smo želeli pripraviti gradiva, ki bi se jih lahko uporabilo pri pouku, in hkrati pokazati primere uporabe posameznih elementov programske opreme. Učenci so s pomočjo programske opreme interaktivne table pripravili interaktivne naloge pri predmetu geografija. Vnaprej so predelali učno snov in nato zanjo izdelali interaktivne naloge. Te so potem pri uri predstavili svojim sošolcem, ki so jih reševali pred tablo. Ko so reševali naloge svojih sošolcev, so snov, ki so jo predelali sami, tudi ponovili. Pri izdelavi predstavitve z interaktivnimi nalogami je učenec moral predelati snov in iz nje izluščiti bistvo, ki ga bodo njegovi sošolci spoznali pri reševanju nalog. Taka aktivnost zahteva razumevanje snovi in povzemanje bistva ter povezovanje v novo znanje. Sošolci pri reševanju teh nalog ponovijo in utrdijo snov, ki so jo spoznali. Učenci se z izdelavo predstavitve za sošolce postavijo v kožo učitelja.

Abstract: Many interactive whiteboards are installed in Slovenian schools. Therefore we wanted to prepare materials that could potentially be used during school lessons. At the same time we wished to show examples of use of individual elements of software. Students used interactive whiteboard software to create interactive exercises in their Geography lessons. They had to study certain subject matter on their own in advance and prepared interactive exercises which were then presented to the rest of the class, giving other students the chance to try and do the exercises. In doing so, students who had prepared the exercises also revised the content of the lesson. When creating interactive materials, students had to study parts of subject matter and extract the gist that their students would need to learn while doing the exercises. Such an activity demands a certain level of understanding the subject matter, summarizing and linking everything into new knowledge. The students' classmates revised and upgraded the subject matter that was new to them. In order to make such a presentation in the classroom students experience the role of a teacher.

Besedilne naloge v risanki

Problem solving tasks in a cartoon

Polonca Vodičar, **Katja Završnik**, OŠ Vransko, Tabor

Povzetek: Animirane podobe spremljajo otroke od rojstva naprej. Te podobe so otrokom zanimive, zato se vedno znova vračajo k njim. Na drugi strani besedilne naloge učencem predstavljajo napor, saj je treba iz besedila razbrati računsko operacijo in jo potem tudi uspešno rešiti. Zato sva se odločili, da skupaj z učenci ustvarimo risanke, s pomočjo katerih bodo urili osnovne štiri računske operacije. Tako bomo zabavne animirane podobe povezali z reševanjem matematičnih problemov. V projektu so sodelovali tretješolci, ki so poglabljali svoja znanja matematike, slovenščine, likovne umetnosti in znanja s področja animacije. Učenci so najprej osvežili znanja o animaciji iz preteklega šolskega leta. Nato so sestavili matematične probleme, v katere so zajeli vse štiri računske operacije. Matematične probleme so spremenili v besedno bogate zgodbe. V oddelku podaljšanega bivanja so narisali sceno, figure in vse dele, ki so jih potrebovali za animacijo. Pri urah dodatnega pouka so se ukvarjali z animiranjem junakov s fotoaparatom in programom Movie Maker. Najini glavni cilji, ki sva jih realizirali, so bili, da učenci spoznajo preprosta orodja, s katerimi lahko animirajo svoje junake, da s tvorjenjem matematičnih problemov predstavijo poznavanje osnovnih računskih operacij, da se naučijo načrtovati dejavnosti, ki zahtevajo več korakov, da razvijajo ustvarjalnost in nazadnje tudi lastno vztrajnost.

Abstract: Children are accompanied by animated images from their birth on. They are interested in them, they like watching them again and again. On the other side, children think that problem solving tasks are difficult because they need to find out the correct mathematical operation and then calculate it successfully. We decided to create cartoons together with the children that will help them to practise basic four mathematical operations. We connected funny animated images with solving mathematical problems. Third graders who participated in the project deepened their knowledge of Math, Slovene and Art and their knowledge of animation. At first they revised their knowledge of animation from the previous school year. Then they created mathematical problems that included all four mathematical operations. They transformed mathematical problems into stories rich in words. The scene, the figures and all for the animation needed parts were made in the after-school care class. The camera and the Movie Maker programme were used to animate the heroes in the additional classes. We achieved our main goals. Pupils learned about simple tools they can animate their heroes with. They presented their knowledge of basic mathematical operations by creating mathematical problems and developed their creativity by planning activities that demand several steps. They developed their persistence, too.

Učenje učenja po načelih formativnega spremljanja pri pouku matematike z uporabo e-listovnika

Learning-to-learn in formative assessment approach in Mathematics by using the e-portfolio

Petra Kastelic, OŠ Belokranjskega odreda, Semič

Povzetek: Na delavnici bom udeležencem predstavila svoj prispevek na temo učenje učenja po načelih formativnega spremljanja pri pouku matematike z uporabo e-listovnika. Dejavnosti za razvoj kompetence učenje učenja smo izvedli v 8. razredu pri pouku matematike za učni sklop Izrazi. Učenci so pri delu uporabljali tablični računalnik. Z uporabo e-listovnika v Mahari so izvedli vse korake formativnega spremljanja: aktiviranje in ugotavljanje predznanja, postavljanje ciljev učenja, načrtovanje strategije učenja, zbiranje dokazov o učenju, vrstniška povratna informacija ter sprotna in končna samoevalvacija lastnega učenja ter napredka. Pri procesu učenja smo izvajali dejavnosti, s katerimi so učenci razvijali kompetenci raziskovanja in preiskovanja ter ustvarjanja pri pouku matematike. Z uporabo e-učbenika so raziskovali in preiskovali pravila, definicije in primere. Z orodji za pisanje matematičnih besedil v Wordu so sestavljali in reševali naloge, v programu Geogebra pa ustvarjali grafične prikaze izrazov s spremenljivkami. Z reševanjem kviza v spletni učilnici so učenci preverili svoje znanje o izrazih. Dosežek učenca pri procesu učenja o izrazih je ustvarjen v pogledu Izrazi v e-listovniku, kjer so razvidni vsi izvedeni koraki formativnega spremljanja. S sprotno in končno evalvacijo sem učencem posredovala povratno informacijo o njihovem delu in napredku ter smernice za izboljšanje načinov učenja.

Abstract: In the workshop my contribution to the topic Learning-to-learn according to the principles of formative assessment in Mathematics by using e-portfolio will be presented. All the activities for the development of Learning-to-learn competence were performed in grade 8 in Mathematics for unit Expressions. Pupils used tablet computers and e-portfolio in Mahara where all the steps of formative assessment were performed: activation and identification of pre-knowledge, defining learning objectives, planning learning strategies, collecting proofs of learning, peers feedback, ongoing and ultimate self-evaluation of pupils own learning and progress. All this activities were performed during their learning process when they were developing competences of exploring, investigating and creating in Mathematics. E-textbook helped them to explore and investigate the principles, definitions and examples. Word

application tools for writting mathematic texsts were used to construct and solve exercises. Geogebra program was used to create graphic presentation of expressions with variables.The pupils knowledge of expressions was checked by a quiz in online-classrooms.The achievement in the process of learning about the expressions is created in e-portfolio under the view Expressions, here, all the steps of formative assessments can be seen.Pupils were given feedback on their work, progress.They were also given some guidelines to improve their ways of learning.

Google Street View kot interaktivni vodnik po slovenski obali

Google Street View as an interactive guide along the Slovenian coast

Andrej Nemec, **Klementina Weis**, OŠ Prežihovega Voranca, Bistrica

Povzetek: Sodobna tehnologija omogoča, da učenci pri pouku spoznajo resničnost zunanjega sveta, ne da bi sploh zapustili učilnico. Orodje, ki to omogoča, je Google Street View. To je prosto dostopno, brezplačno in za uporabo preprosto orodje, ki omogoča 360-stopinjski pogled na določen kraj, kakršen ta v resnici je. Z uporabo orodja smo izvedli pouk družbe v 5. razredu v kombinaciji z igro vlog in združili vlogo učenca kot klasičnega vodiča ter aplikacije kot interaktivnega vodnika po obiskanih destinacijah. Učenci skozi tak večstranski in interaktiven pristop razvijajo svoje sposobnosti govornega nastopanja in izražanja, digitalne kompetence, samostojno in skupinsko raziskujejo, so kritični prijatelji, se srečajo z izkustvenim učenjem ter se aktivno vključujejo v celoten potek učne ure. V procesu priprave, raziskovanja in izvedbe aktivnosti so podali lastne ideje ter pomembne povratne informacije, ki prispevajo h kakovostnejši izvedbi pouka. Pri učenju digitalnih kompetenc ima pomembno vlogo predvsem razredni učitelj, saj učence uči o pravilni in smiselni uporabi IKT. Prav slednje je izziv tako šoli, staršem kot celotni družbi pri razvoju mladih in njihove prihodnosti.

Abstract: Modern information technology makes it possible for pupils to learn about the true nature of the outside world, even if they stay in their classroom. A tool that makes the mentioned possible is Google Street View. Street View is a free, accessible and easy to use tool with a 360 degrees natural view on a certain location. With this tool we performed a lesson in society in the 5th grade and integrated it with the pupils role play. Pupils took over the role of classic tourist guides and their role play was combined with Google Street View in the role of an interactive guide along the presented destinations. With this kind of an interactive approach pupils develop their public speaking skills and their digital competences, they undertake individual and group research, learn the basics of critical friendship and experiential learning and participate actively in the whole lesson. In the process of preparing, research and performing classroom activities pupils provided important feedback and shared their own ideas which will contribute to a more efficient teaching process. A class teacher has a very important role in digital competences teaching since he/she is responsible that pupils learn about the correct and reasonable utilization of ICT. The latter is a challenge for schools, parents and the whole society in terms of developing young personalities and their future.

Kako v spletnem učnem okolju Mahara razvijati veščine kritičnega mišljenja pri učencih razredne stopnje z uporabo kartic po Bloomu

How to teach critical thinking skills to young children with use of question cards from blooms taxonomy in the ICT tool Mahara

Darja Farič Klemenčič, OŠ Šalovci

Povzetek: Kritično mišljenje pri učencih razredne stopnje je mogoče razvijati z uporabo kartic, oblikovanih v skladu z Bloomovo taksonomijo v spletnem učnem okolju Mahara. Učenci s pomočjo vprašanj, napisanih na karticah, po Bloomu usvajajo veščine postavljanja vprašanj, sklepanja, vrednotenja, presojanja in argumentiranja. Pri tem sestavljajo kvize o vsebini pravljice, sintetizirajo obnovo, se identificirajo s književnimi osebami, jih med seboj primerjajo, argumentirajo njihovo ravnanje, napišejo nadaljevanje pravljice ali narobe pravljico ter zaigrajo igro vlog. Pravljice razvrščajo glede na vsebino in jih priporočajo preostalim. Šele nato sledi delo z IKT Mahara. Učenci 3. in 4. razreda niso vešči dela z IKT, zato je primeren poseben način dela, t. i. »tutorstvo«. Starejši učenci posredujejo svoje znanje o IKT mlajšim. Delo z učenci razredne stopnje je potekalo sistematično: od nastavitve profila, kritičnega prijateljevanja v zvezi z narobe zapisano pravljico o Grdem račku v e-listovnik do nastavitve mape za pravljični krožek (deljenje datoteke o evalvaciji pravljice) in na koncu izpolnitve zavihka Moje učenje pri pravljici Mavrična ribica. Učenci pri tem spoznavajo elemente FS-znanja. Zastavljajo si cilje in kriterije, ugotavljajo svoje predznanje o književnih osebah in izberejo strategijo (igro vlog), dokaz (videoposnetek) ter podajo samoevalvacijo. Prednosti učenja s pomočjo IKT zajemajo poglobljen pogled lastnega učenja in napredka ter ponujajo drugačen pristop dela učencev in učiteljev tudi na razredni stopnji. Učencem ponuja možnost, da evalvirajo svoje znanje in dobijo povratno informacijo s strani učitelja in sošolca. Predvsem slednje vzbuja pri učencih povečano motivacijo in željo po izpolnjevanju zastavljenih ciljev oz. nalog.

Abstract: Critical thinking skills can be developed with the use of question cards created on the basis of Bloom's taxonomy in the ICT tool Mahara. With questions on the cards pupils are learning to develop critical skills by asking questions, analyzing, developing logical arguments, predicting, relating the text to themselves, evaluating, drawing conclusions, forming opinions, comparing characters with each other, creating extended thinking by making a new ending for the story or making up a new problem for the characters and acting out

the stories. Pupils evaluate fairytales in order – from their favourite to the one they don't like and recommend the stories to others. "Tutoring" is a very appropriate way of working in the classroom because the pupils of the 3th and 4th grade of primary school are not used to ICT tools. The older pupils share the knowledge about ICT tool to the younger. The work in the classroom was systematic: from profile setting in ICT tool, making critical friendships between pupils to creating a new problem for the Ugly duck fairytale in ICT tool and sharing a document about evaluated story with each other and filling the rubric My learning for the fairytale Rainbow fish. Here pupils are following the steps of formative assessment. They are setting the goals and criteria, establishing their prior knowledge about characters in the story and choosing strategies (role playing game), collecting evidence (video of role playing) and evaluating their assessment. The advantages of learning with ICT tool Mahara are: in-depth view of self-learning and self-progress. They offer a different approach in the classroom for both, teachers and pupils in the elementary school as the pupils evaluate their knowledge and get a feedback from classmates as well as the teacher. The response from the teacher inspires pupils' motivation and the wish for achieving the set goals.

Različni pristopi pri začetnem opismenjevanju

Different approaches in teaching early literacy

Elvira Čengija, OŠ Belokranjskega odreda, Semič

Povzetek: Prispevek predstavlja primer dobre prakse uporabe različnih pristopov začetnega opismenjevanja. V letošnjem šolskem letu poučujem štirinajst učencev z različnim predznanjem in sposobnostmi. Pri načrtovanju opismenjevanja sem upoštevala njihove razvojne potrebe in stopnjo pismenosti, da bi s tem posameznemu učencu ponudila možnost optimalnega napredka glede na trenutno predznanje. Posebno skrb namenjam trem romskim učencem, saj izhajajo iz socialno ogroženega okolja, s čimer sovpada njihovo predznanje. Materni jezik romskih učencev je romščina, zato je njihovo razumevanje slovenščine kot jezika okolja izjemno šibko. Pri delu z naglušnim učencem sem začela uporabljati fonomimično metodo opismenjevanja, ki je bila uspešna tudi pri preostalih učencih, saj sem pri tem upoštevala njihove različne učne stile. Dejavnosti pri opismenjevanju so potekale v daljšem časovnem obdobju, v katerem so učenci za vsako črko spoznali gib in se naučili pesmico. S pomočjo IKT (tablic) smo v okviru teh dejavnosti izvedli snemanje v paru. Učenci so utrjevali že znane črke, tako da so v parih z gibom uprizarjali besede in jih poskušali prebrati. Posnetke bomo uporabili pri pripravi za govorni nastop. S pomočjo pridobljenega znanja so razvijali zapis črk in besed na klasičen način, prav tako z uporabo tablice in i-table. Dosegla sem večjo motivacijo za sodelovanje, predvsem pri romskih učencih, ter daljši čas koncentracije za delo.

Abstract: The paper includes a good example how different approaches can be used in early literacy teaching. This school year I am teaching 14 children that have different prior knowledge as well as different reading and writing competences. When I was planning my lessons, I thought of each child's capabilities individually so that every one of them could reach his/her maximum progress regarding to his/her prior knowledge. I devoted my special attention to the three Romani pupils that come from poor underprivileged homes; such was also their prior knowledge. The Romani pupils' mother tongue is Romany, therefore their understanding of Slovene – the language of the environment – is weak. When I worked with a pupil with weak hearing, I started using a phonomimic literacy development method which has proven to be very successful with other pupils and their different learning styles. Literacy activities were conducted over long periods during which each pupil got to learn a gesture for the manual alphabet and a short song. With the help of the ICT, especially tablet computers, we were able to record the pupils. They were working in pairs, one of them was showing a word using only gestures for individual letters and the other pupil was trying to identify the given word. All the videos

that we made will be used for further discussion. This new knowledge helped my pupils to recognise letters and words written classically and with using tablet computer or smart board. In this way, I achieved greater motivation, cooperation and better concentration, especially among Romani pupils.

Slovangea

Slovangea

Katja Knific, **Branka Vodopivec**, **Maruša Bogataj**, OŠ Predoslje, Kranj

Povzetek: Prispevek predstavlja primere medpredmetnega povezovanja med slovenščino, angleščino in geografijo ter medsebojnega učenja med učitelji in učenci s pomočjo formativnega spremljanja v e-listovniku v spletnem okolju Mahara. Cilj našega medpredmetnega povezovanja je bil učence spodbuditi in jim omogočiti kritično razmišljanje na oseben in ustvarjalen način ter to deliti z drugimi. V njih smo ob skupinskem načrtovanju, delu, ustvarjanju in kritičnem prijateljevanju s pomočjo spletnega okolja vzbujale željo po ozaveščanju in izboljšanju lastnega učenja in dela. Formativno spremljanje jim je ob začetnih nalogah predstavljalo velik izziv. Težave so imeli predvsem s postavljanjem ciljev in strategij, vendar je delo postajalo vse lažje. Med seboj so kritično prijateljevali, se urili v argumentiranju in tako so vse boj kakovostne povratne informacije dobivale vse večji smisel. Ob delu ter ugotavljanju, kje jim je šlo dobro in zakaj, kaj pa bi lahko še izboljšali, je bilo čutiti vse večje zadovoljstvo. Medsebojno učenje bomo predstavile skozi tri naloge: učenci so najprej soustvarjali in kasneje tudi odigrali izvirno namizno igro Slovangea manija, pripravili so razstavo nastalih konsov v angleščini in slovenščini, na koncu pa postavili še svoje kažipote slovenskih dobrot. Pridobljeno znanje se je tako prek naših idej in izdelkov učencev širilo na vse deležnike šole, ki so si vzeli trenutek, prebrali kons ali odčitali QR-kodo na kažipotu.

Abstract: Our contribution for this conference presents examples of cross-curricular integration between Slovene, English and Geography and cross-curricular learning, learning between students and teachers which consists the elements of formative assessment and takes place in the Internet environment called Mahara. The main common aim of our cross-curricular integration was to encourage and stimulate the students to think in a more critical way and on the other hand prepare a safe environment where they can express their own opinion and thoughts and share them with their classmates. At the very beginning formative assessment represented a big challenge to our students. They had some difficulties defining the aims and the strategies how to achieve the aims. But step by step their work was becoming easier. They became good critical friends to each other, so they could practice presenting the arguments for their opinion. Students' feedback on the work they had done became more important. We will present the learning between each other, students and teachers through three different tasks: a board game called Slovangea mania, made by students working in groups, an exhibition of poems, again made by our students, and a signpost of Slovenian traditional food. That was the way how we, the students and the teachers, prepared some

opportunities to spread our knowledge to other participants in school, too. All they needed to do was to take a few minutes to read a poem, maybe two, or read the QR code on our signpost.

Učenci za učence

By pupils for pupils

Aleksandra Vadnjal, **Mojca Stergar**, OŠ Dekani

Povzetek: Na šoli velikokrat opazimo, da so mlajši učenci zelo veseli, ko pritegnejo pozornost starejših učencev. Všeč jim je, da se nekdo ukvarja z njimi, in zato je medvrstniško učenje odlična priložnost, pri kateri pridobijo vsi, tako učenci, ki poučujejo, kot tudi tisti, ki se učijo. Že rimski filozof Seneka je zagovarjal trditev: »Ko poučuješ, se učiš dvojno.« (Deutch, 2008) Vsak učenec, ki poučuje, se mora najprej naučiti svoj del naloge in nato to znanje ustrezno predati ter preveriti, ali so preostali učenci to znanje usvojili. Primer medvrstniškega učenja med učenci smo izvedli tudi na naši šoli in skozi dejavnost ugotavljali, kako se učenci učijo drug od drugega, koliko so motivirani za učenje drug drugega in kaj se lahko iz te dejavnosti naučimo tudi učitelji kot načrtovalci in opazovalci dejavnosti. Z učenci smo najprej posneli videonavodila za izdelavo origami škatlice, nato pa dejavnost izvedli pri učencih 4. razreda ob pomoči starejših učencev prostovoljcev. Učenci so v dejavnosti, kjer so imeli aktivno vlogo učitelja in učencev, razvijali višji nivo mišljenja, saj so morali način podajanja informacij prilagoditi izkušnjam in predznanju preostalih učencev. Krepili so tudi različne socialne veščine, dobro sodelovanje, medsebojno pomoč ter vrednote in stališča, ki se jih učenci učijo drug od drugega.

Abstract: It can be frequently noticed in school that younger pupils are really pleased when they attract attention of the older ones. They like it when someone dedicates his/her time to them, so peer-learning is a perfect possibility bringing benefits to all – pupils who teach as well as those who are taught. Seneca, a Roman philosopher, already defended the statement: “To teach is to learn twice.” (Deutch, 2008) Each pupil who teaches needs first to learn his/her part of the task, then to pass that knowledge in a sound way, and, finally, to check if the other pupils gained that knowledge. An example of peer-learning was also performed at our school. The aim of the activities was to find out how pupils learn from each other, what motivates them to teach each other and what can teachers as planners and observers learn from these activities. Firstly, with the help of pupils, video instructions how to make origami boxes were shot, then the activity was carried out with 4th grade children with the help of older pupils as volunteers. Children developed higher-order thinking in the activities where they played an active role as teachers and pupils, since they had to adapt the way of delivering the information to the experience and prior knowledge of the other pupils. They also improved various social skills, good cooperation, mutual help as well as values and beliefs they learn from each other.

Kemija, matematika, slovenščina in informatika z roko v roki

Chemistry, Mathematics, Slovenian and Computer Science hand in hand

Andreja Rajh, Srednja ekonomska šola Maribor

Povzetek: Že od začetka posodobitve gimnazijskega programa aktivno sodelujem pri timskem pouku in medpredmetnih povezavah. Ugotavljam, da dijaki ne znajo povezati znanj, ki jih pridobijo pri različnih predmetih, v celoto. Na prvi pogled se nam zdi, da nas dijaki prekašajo tudi v uporabi IKT, vendar ugotavljam, da temu ni vedno tako. Zato sem se odločila, da pri specifičnih vsebinah (kot so: množina snovi, raztopine in pH) k uri povabim kolega matematika. Timski pouk ne izvajam le pri usvajanju teoretičnih vsebin, temveč tudi pri obveznih laboratorijskih vajah, ki so osnova za dobro razumevanje teoretičnih vsebin. Takšne vaje so: • Priprava raztopin, kjer se povežem z matematikom, ki dijakom pomaga pri uporabi enačbe z enojnim ulomkom. • Merjenje ter izračun pH, kjer se prav tako povežem z matematikom, da dijaki spoznajo praktični primer uporabe logaritma. • Energijske spremembe pri kemijskih reakcijah, kjer se za opis postopka povežem s kolegom slavistom. • Hitrost kemijske reakcije, kjer se povežem s kolegom informatikom za risanje grafov in tabel. Ugotavljam, da dijaki po tako izvedenih urah pouka in izvedenih vajah bolje povežejo učne vsebine, predvsem pa imajo tisti, ki se odločijo za maturo iz kemije, bistveno manj težav pri zapisu poročil laboratorijskih vaj. Hkrati pa tudi sama ugotavljam, da pridobivam dodatna znanja na področju uporabe IKT.

Abstract: I have been active in the area of team teaching and cross curricular connections from the beginning of general high school curricular reform. I have established that students are not able to connect knowledge of different subjects in one unit. It seems that they might know more about using ICT, however, this is not always true. Therefore, I have decided to invite my colleague mathematician to my Chemistry lessons with specific topics (such as abundance of substance, solution, and pH). Team teaching has not only been used for new theoretical contents but also with obligatory laboratory exercises which are a basis for better understanding of theoretical contents. Such exercises are: • Preparation of solutions where I connect with a mathematician who helps the students use equation with single fraction. • Measurement and calculation of pH where I also invite the mathematician to help the students with practical examples of logarithm usage. • Energy changes with chemical reactions where I connect with a colleague teacher for Slovene who helps the students with to create a description of the procedure. • Speed of chemical reaction where

I connect with a colleague teacher of ICT for computer drawing of graphs and tables. I can conclude that students connect the contents at Chemistry with other knowledge better when we have lessons connected with other subjects. The students who decide that one of their subjects at the baccalaureate exam would be Chemistry have less problems with writing reports for laboratory exercises. At the same time, I can also say that my knowledge of ICT usage has increased because of the cooperation with my colleagues.

Obrnjeno obrnjeno učenje

Flipped flipped learning

Špela Bagon, OŠ Louisa Adamiča, Grosuplje

Povzetek: Obrnjeno učenje je pri izbirnem predmetu šolsko novinarstvo predstavljalo kombinacijo učenja učne snovi prek WordPressa in aktivnega, sodelovalnega učenja v šoli. Pouk je potekal tako, da sem učencem v naprej posredovala učno snov prek WordPressa, ki ga ponuja Arnes Splet. WordPress smo z učenci najprej skupaj oblikovali in pozneje sproti urejali. Na začetku sem o oblikovanju WordPressa najprej jaz poučevala učence, nato pa so začeli učenci mene. Učenci so doma podano učno snov v WordPressu predelali in pripravili gradivo za delo v šoli. V šoli je tako ostal čas za izmenjavo idej in razpravo, s čimer sem zbrala povratne informacije (težave, pobude). Na tej podlagi smo skupaj načrtovali učne teme, dejavnosti, metode učenja in opredelili pričakovane dosežke ter načine ugotavljanja dosežkov. Sodobno, z IKT podprto pedagoško metodo obrnjenega učenja sem torej nadgradila tako, da ni bila v ospredju učiteljeva povratna informacija pri pouku, kot je to po navadi pri obrnjenem učenju, temveč predvsem učenčeva. Njihovo povratno informacijo sem uporabila za oblikovanje aktivnega učenja, kot ga želijo učenci, in tako omogočila razvijanje znanja na višjih taksonomskih nivojih ter sprotno in stalno osmišljanje znanja. Z IKT podprto obrnjeno učenje sem torej še nekoliko obrnila in nadgradila, s čimer sem omogočila medsebojno vzajemno ter aktivno učenje.

Abstract: Flipped learning in school course Journalism represents a combination of teaching learning materials in WordPress and active, collaborative learning in school. I provided learning material through WordPress, offered by Arnes Splet. First we developed in WordPress together with students and then in real-time editing. At the beginning I was teaching students, then they began teaching me. They were studying material at home and they also prepared materials for school work. That is why in school remained time for the exchange of ideas and discussion, so I gathered feedback (problems, desire, initiative), based on which we jointly planned learning topics, activities, learning methods and defined expected achivements and ways to measure them. The modern ICT-based teaching of flipped learning was upgraded in the way that it was not the use of teacher's feedback in the classroom that was stressed as usually, but mostly learners' feedback. This was used to moderate the learning as the students, and thus the advancement of knowledge in higher taxonomic levels and continuous comprehending knowledge were enabled. ICT-supported flipped learning was turned and upgraded and thus the mutual and active learning was enabled.

Vzajemno učenje nas nahrani

Reciprocal learning feeds us

Maruša Jazbec Colja, OŠ Naklo

Povzetek: Prispevek opisuje uporabo tabličnega računalnika pri pouku nemškega jezika kot orodja, ki učencem omogoča, da v majhnih, heterogenih skupinah prek vzajemnega dela in neodvisno od učitelja pridejo do zastavljenega cilja. Učenci so z uporabo tabličnega računalnika usvajali novo učno snov drugače – interaktivno in aktivno. Vloga učenca se pri takem načinu dela povsem spremeni. Pasivni učenec postane aktivni učenec, prevzame glavno vlogo pri usvajanju znanja ter odgovornost za svoje znanje in za skupino, saj je prispevek vsakega posameznika ključnega pomena za končni izdelek cele skupine. Šibkejši učenci pri takem načinu dela dobijo vidno vlogo. Zato je pomembno, da so skupine oblikovane heterogeno. Učenci so si v skupinah razdelili vloge (natakar, gostje in snemalec). Nato so pripravili nabor aplikacij, ki jih bodo uporabljali pri delu in nadaljnjem učenju. Po tem, ko so z žrebom določili situacijo (v restavraciji, v kavarni ali na stojnici s hitro prehrano), so v skupini, s pomočjo aplikacij, predznanja, lastnih izkušenj in spletnega slovarja pripravili dialog, ki so ga tudi posneli s tablico. Naloga snemalca je bila tudi, da pripravil nekaj vprašanj za preostale učence v razredu. Pri pouku smo si vse videoposnetke ogledali, kritično prijateljevali, rešili naloge in opravili evalvacijo. Učenci so samostojno, s sodelovalnim učenjem in uporabo tabličnih računalnikov v celoti uresničili zastavljene cilje. Pri delu so uživali in se hkrati ogromno naučili.

Abstract: The paper focuses on the use of tablet computers in German language learning as a tool which allows students to work in small, heterogeneous groups and achieve their goal through reciprocal work and with minimal help of the teacher. The students have acquired knowledge in a different, interactive and active way. The role of the student changes completely. A passive student becomes an active student. He/she takes on the leading role in acquiring knowledge, accepts responsibility for his/her own knowledge and takes responsibility for the group because the contribution of each individual is the key to the final product of the group. In this way weaker students get an important and prominent role. That is one of the reasons why it is important that the groups are formed heterogeneously. Students were divided in small groups. They took a role of a bartender or one of the guests and the cameraman. They prepared a set of applications that were used in the work and for further learning. After that, they raffled a situation (in a restaurant, in a coffee shop or at a fast-food stand), they prepared a dialogue in a group with the help of applications and Web-based dictionary and recorded the dialogue with a tablet computer. The cameraman prepared some questions for the rest of the students in the classroom. In class we watched all the videos, we did the tasks, gave critical feedback and made the evaluation. The pupils achieved the goals completely – individually, with reciprocal learning.

Sodelovalno učenje na drugačen način

A different approach to collaborative learning

Jožica Tratar, **Sandra Vereš**, **Slavica Balek Haddaoui**, OŠ Šalovci

Povzetek: Medpredmetna ura je najboljši način, da lahko učenci povežejo določene učne vsebine, jih znajo uporabiti v novi konkretni situaciji in si tako delijo svoje znanje in izkušnje iz različnih predmetnih področij. Pri tem pa kot učno orodje uporabijo IKT za doseganje zastavljenih ciljev in sodelovalno učenje. Ideja povezave učnih vsebin s predmetnih področij domovinske in državljanske kulture in etike, zgodovine ter matematike je v tem, da z uporabo računalniških orodij in preglednic, programov za izdelavo predstavitev ter e -orodij: Google Drive in učnega okolja Mahara učenci povežejo svoje znanje in se učijo drug od drugega. Učenci pokažejo svoje predznanje na izbrano temo Vrednote, tako da pripravijo predstavitev s pomočjo računalniških programov (Windows Movie Maker in Microsoft PowerPoint) in jo predstavijo preostalim. To jim služi kot iztočnica za nadaljnje raziskovalno delo. Cilj raziskovalnega dela je ugotoviti, kako se spreminjajo vrednote skozi generacije, in poiskati vzroke za spremembo le-teh. Za samo raziskovalno delo morajo učenci izdelati anketni vprašalnik ter zbrane podatke obdelati z računalniškimi preglednicami. Pri tem uporabljajo računalniško orodje Google Drive in skupno ustvarijo bazo podatkov, ki jim služi za nadaljnjo obdelavo. Pri tem pomagajo drug drugemu. V sklepnem delu uporabijo izsledke raziskave, jih povežejo z zgodovinskimi dejstvi in predstavijo ugotovitve.

Abstract: Cross-curricular lessons offer pupils a new platform for the integration of the discussed topic and their application in new, concrete situations, thus promoting their sharing of knowledge and experience from a variety of different subjects. The information and communications technologies (ICT) are used as a learning tool to attain the set objectives and facilitate collaborative learning. Such integration of the planned teaching material with other subjects such as Ethics and Cultural Studies, History and Mathematics is correlated to the idea that the application of computer programmes and data processing in form of tables as well as software for PowerPoint presentations and other electronic tools, i.e. Google Drive and Mahara learning environment empowers pupils knowledge sharing and peer learning. Pupils design their presentation on a selected topic on Human Values with the help of computer programmes such as Windows Movie Maker and Microsoft PowerPoint, which they later present to their classmates. Their chosen topics serve as a cue for further research work. The main objective of their studies is to establish how values have been changing with various generations and to find the reasons for their change. Part of their research is to design a questionnaire and present the data obtained in form of suitable computer tables. This is facilitated by Google Drive which

allows the pupils to create a large database that serves as a platform for further data processing. Throughout the task collaborative peer work is strongly encouraged. In the concluding part the pupils relate their results to historical facts and present their findings in the class.

Uporaba IKT kot orodja za formativno spremljanje učenja in dosežkov

Use of ICT as a tool for formative assessment of learning and achievements

Jasmina Velikanje, Gimnazija Jurija Vege, Idrija

Povzetek: V prispevku je na treh primerih dobre prakse prikazana uporaba IKT z namenom formativnega spremljanja učenja (v nadaljevanju FS) v srednji šoli. FS je v osnovi aktivna vloga učenca pri načrtovanju učnega procesa, zastavljanju učnih ciljev in spremljanju ter vrednotenju dosežkov. Eden temeljev FS je povratna informacija o učenju, ki učencu omogoča kritičen vpogled v svoje znanje in samoregulativno učenje ter predstavlja izhodišča za napredovanje. Primeri prikazujejo vključevanje IKT v pouk drugega tujega jezika (nemščine) v gimnazijskem programu oziroma v pouk prvega tujega jezika (angleščina) v srednjem strokovnem izobraževanju. Dijaki večino dela opravijo v skupinah ali v paru v učilnici za multimedijo v šoli. Te oblike dela omogočajo sodelovalno učenje, medsebojno podpiranje, vrstniško poučevanje in odpirajo dialog o učenju med učiteljem in učencem ter med učenci samimi. Dijaki pri delu izkazujejo digitalno kompetenco, ki so jo razvili samostojno ali pri pouku informatike ter uporabljajo različna brezplačna e-orodja. Poleg tega skupaj s sovrstniki ali učiteljem utrjujejo, preverjajo in nadgrajujejo znanje tujega jezika. Učitelj je hkrati v vlogi učenca, saj dijaki na področju IKT izkazujejo veliko znanja. Vsi prispevki oziroma izdelki so objavljeni v spletni učilnici Moodle in tako dostopni vsem dijakom. Tako imajo dijaki in učitelj možnost med seboj sodelovati na daljavo, izmenjati izkušnje in mnenja in se tako učiti eden od drugega.

Abstract: The presentation shows three examples of good practice, where ICT skills are used in order to support formative assessment for learning (AfL) in secondary school. AfL is based on an active role of learners in terms of planning the learning process. Students should be encouraged to set their own learning goals and should be able to monitor and evaluate their achievements. One of basic principles is feedback on learning, which enables students to get a critical insight into their knowledge and thus stimulates the development of self-regulated learning and improvement. The examples show the use of ICT in learning and teaching a secondary foreign language (German) in grammar school and first foreign language (English) in technical secondary school. Divided into small groups or pairs, students do most of the tasks at the multimedia classroom at school. These forms of work enable cooperative learning, mutual supporting, peer teaching and encourage teacher and peer dialogue about learning. When trying to do the assignments, students use digital competence.

Some have gained the ICT skills independently, others in Information Technology lessons as a part of the curriculum. Students no only assess their ability to use different e-learning tools, but at the same time they refresh, assess and upgrade their knowledge of a foreign language. The teacher is at the same time a learner because students often possess more ICT skills than the teacher. All achievements and possible results of the assignments are published in e-learning Moodle platform which makes them accessible to all students. Students can cooperate at a distance, publish their work as well as exchange their ideas, opinions and experience. This is an opportunity for students to learn from each other and for the teacher to learn from them.

Raba IKT pri učenju in poučevanju matematike v tretjem triletju OŠ

Use of information and communication tehnology in learning and teaching Mathematics in the third triad of primary school

Lidija Jug, OŠ Sladki Vrh

Povzetek: Razvoj in sam napredek IKT v današnjem času močno vpliva ne samo na naše življenje, ampak tudi na naš način poučevanja predmeta. Učenec postaja vse bolj aktiven deležnik poučevanja in didaktično smiselna izbira in uporaba IKT je zagotovo ena izmed možnosti za še uspešnejši razvoj matematičnega znanja. Še več, učencu tako omogočimo, da sam odkriva nova znanja in spoznanja, da lahko sam narekuje ali izbira tempo učenja, bolje razvija miselne in učne strategije za reševanje problemov, vizualizacija in demonstracija rešitev pa mu omogočata boljše pomnjenje, navsezadnje pa mu IKT lahko služi zgolj kot samo motivacijsko sredstvo. Učitelj ima pri tem pomembno vlogo, saj mora uporabo IKT najprej kritično ovrednotiti ter zelo preudarno in smiselno umestiti v poučevanje. Znanje uporabe IKT je pri učencih in učiteljih različno. Pilotni projekt Uvajanje in uporaba e-vsebin in e-storitev v okviru projekta e-Šolska torba nam omogoča, da sodelujoči nadgradimo svoje znanje uporabe IKT in se učimo drug od drugega. V prispevku pokažem smiselno uporabo IKT pri poučevanju matematike kot primere dobre prakse. Tablični računalnik je z uporabo raznih programov in aplikacij, kot so Geogebra, Prezi, delo s preglednicami v Excelu, delo v spletni učilnici, delo v oblaku Drive, delo v e-listovniku in delo z e-gradivi, postal nepogrešljiv didaktični pripomoček pri poučevanju matematike.

Abstract: Nowadays, the development and progress of the ICT has a massive influence not only on our way of life but on the teaching methods as well. Students are becoming a more active part in the educational process and the didactic choice of ICT is a guarantee for a better knowledge in Maths. Even more, we enable a student to reveal his own new discoveries and facts and by the same time he can choose his own style and pace of learning. Students develop mind and learning strategies for solving the problems while the visualization and demonstration of the results also enable better recollection and finally it could be a motivational tool as well. Teacher has an important role as he/she has to critically evaluate ICT and reasonably include it into the teaching process. Prior knowledge of using ICT is among the students and teachers on a different level. Therefore the application of e-contents and

services in a pilot project e-Schoolbag enables the ones who are taking part in it to upgrade their knowledge in using ICT and to learn from each other. In my article I point out the reasonable use of ICT while teaching Maths as an example of good experience. Tablet, with numerous applications like Geogebra, Prezi, Excel, online classroom, Cloud, e-portfolio, is slowly becoming an indispensable didactic accessory in Maths classes.

Uvajanje angleščine kot prvega tujega jezika v 2. razredu in raba programa Tux Paint

Introduction to English as the first foreign language in the 2nd grade and the use of the programme Tux Paint

Sanja Pavlinić Vidic, OŠ Belokranjskega odreda, Semič

Povzetek: V prispevku je predstavljen sistem uvajanja angleščine kot prvega tujega jezika v 2. razredu osnovne šole. Na podlagi znanih dejstev, da so učenci v tem obdobju radovedni, imajo željo po učenju in potrebo po sporazumevanju na različne načine, v učnem procesu uporabljam IKT, s katerim laže in učinkoviteje dosegam učne cilje. Program Tux Paint omogoča učinkovito in uspešno izvajanje dejavnosti, poleg tega pa krepi fino motoriko, domišljijo, medsebojno sodelovanje in interakcijo učencev ter omogoča zabavno učenje angleščine. S pomočjo programa učenci ponavljajo besedišče in se učijo brez vidnega napora, sama pa ob tem beležim in vrednotim napredek posameznega učenca. Tako učencem pripravim slikovni narek, besedišče obravnavane vsebine ali preprosto zgodbo, ki jo rišejo po navodilih. Delo diferenciram, tako da učence glede na zmožnosti razdelim v pare ali manjše skupine, kjer samostojno pripravijo navodila za slikovni narek in jih narekujejo drugemu paru oz. skupini. Pozitiven vpliv uporabe programa Tux Paint se kaže v motivaciji in aktivnosti pri sodelovalnem učenju, učenci se drug od drugega učijo tako angleščino kot tudi uporabljati didaktični program.

Abstract: This paper presents a system for introducing English as the first foreign language in the 2nd grade of primary school. Based on the facts that the 2nd grade pupils are curious, have a desire to learn and a need to communicate in different ways, I use ICT in the process of learning English to achieve aims easier and more efficiently. Tux Paint programme enables effective and successful implementation of activities, increases fine motor skills, imagination, cooperation and interaction of pupils and provides a funny way of learning English. Pupils with the use of the programme repeat the vocabulary and learn without any visible effort. As they learn I take notes and evaluate the progress of each pupil individually. I also prepare a picture dictation, vocabulary or a simple story which they illustrate using the programme. Using differentiation I divide pupils into pairs or groups according to their abilities. Then they independently prepare instructions for the dictation that is foretold to another pair or group. The positive impact of the application programme is reflected in the motivation and collaboration between students, in the spontaneous learning from each other and in the gaining of English as well as gaining computer skills.

Učimo se individualno, pa vendar skupaj

Learn individually, but together

Danuška Škapin, **Jelka Čop**, **Anica Justinek**, CPI

Povzetek: Kako lahko v šoli vsem učencem ponudimo možnosti za razvoj njihovih potencialov? Aplikacija VID (vodnik po individualizaciji in diferenciaciji), ki smo jo na Centru RS za poklicno izobraževanje razvili v okviru VŽU-projekta MAPPING, je rezultat medsebojnega učenja in deljenja dobrih praks partnerjev iz Danske, Finske, Walesa, Nizozemske in Slovenije. Namenjena je poklicnim in strokovnim šolam, ki želijo razvijati didaktične modele, s katerimi bodo upoštevale individualne posebnosti vsakega dijaka in mu tako omogočile optimalne pogoje za učenje. Osnova za aplikacijo so merila kakovosti individualiziranega učenja, ki smo jih prav tako razvili v projektu MAPPING. Za vsako od meril aplikacija ponuja temeljna metodološka izhodišča, vprašanja za samoevalvacijo, dodatne dokumente in AV-gradivo s primeri dobre prakse ter predloge za nadaljnje branje. Posamezna šola merila izbere v skladu s svojimi potrebami in cilji. Pri vseh merilih smo bili še posebej pozorni na smiselno rabo IKT. Za usposabljanje učiteljev je nastal spletni tečaj (MOOC), zasnovan po finskem modelu Diana (Dialogical Authentic Learning on the Net), ki sistematično spodbuja dialog med udeleženci posameznih študijskih skupin na tečaju ter na podlagi avtentičnih situacij vodi k izboljšanju lastne prakse individualiziranega učenja.

Abstract: How can we enable all the students in a school to develop their potentials? Application MAP (hands-on methods and practice-based principles for promoting individualized learning in VET) which was developed at the Institute for Vocational Education and Training within the LLL project MAPPING is a result of mutual learning and sharing good practices among partners from Denmark, Finland, Wales, the Netherlands and Slovenia. It is intended for vocational and technical schools wishing to develop didactic models which take into account the individual characteristics of each student and thus enable them to learn in their optimal way. The basis for the application is the quality grid of individualized learning that has been developed in the project MAPPING as well. For each of the criteria from the grid, the application offers basic methodological principles, questions for self-evaluation, additional documents and AV material with examples of good practice and suggestions for further reading. Each school selects criteria in accordance with their needs and objectives. For all the criteria we were especially attentive to meaningful use of ICT. As a tool for teacher training, MOOC has been created according to the Finnish model of Dialogical Authentic Learning on the Net which systematically promotes dialogue among the participants of the study groups on the course and leads on the basis of authentic situations to the improvement of their own practice of individualized learning.

Kako motivirati tretješolce za besedno ustvarjanje in sodelovalno učenje? Odgovor: s programom Story Jumper

Motivating third grade pupils for creative writing and cooperative learning using the Story Jumper programme

Mateja Chvatal, OŠ Domžale

Povzetek: V letošnjem šolskem letu sem se odločila, da v podaljšanem bivanju seznanjam tretješolce z uporabo IKT z namenom, dvigniti njihovo motivacijo za pisanje različnih vrst besedil, saj so se pogosto pred to nalogo (klasičen zapis v zvezek) upirali. Po drugi strani pa sem izhajala iz lastnih izkušenj pri delu z učenci prvega triletja, da se v tej starosti že lahko seznanjajo z uporabo IKT, da spoznajo računalnik tudi kot učni pripomoček in da se pri tem učijo drug od drugega. Program je izjemno zanimiv, barvit in nudi neomejene možnosti tako besednega kot likovnega ustvarjanja. Tako omogoča, da za vsako besedilo izberemo že narejene scene, sličice in like ali pa da učenci narišejo scene sami, jih fotografirajo/skenirajo, naložijo na računalnik in jih nato uporabijo v programu. Pomemben je tako pri povezovanju različnih predmetnih področij (slovenščina, likovna vzgoja, angleščina) kot tesnem sodelovanju med učenci in učiteljem podaljšanega bivanja in razrednikom. Na tej točki gre seveda za nadaljevanje učenja, dejavnosti, ki jih učenci opravijo pri pouku, v njihov prosti čas. Pisanje in ustvarjanje je bilo za učence pravo veselje in sprostitev. Nastali so zanimivi stripi, opisi dni dejavnosti, tedenski urnik učenčevih aktivnosti, moja prva knjiga. Učenci so bili zelo uspešni in zato samozavestnejši.

Abstract: Third grade pupils have been increasingly reluctant to write in their notebooks. This year I have therefore decided to start introducing to them IT in order to increase their motivation for all forms of writing. In my own experience as a teacher, pupils of this age are old enough to start getting acquainted with computers and IT as a learning aid and to start learning from one another. Story Jumper is a very colourful and attractive programme that provides almost limitless possibilities for verbal and visual expression. Pupils can choose among several image, scene and character templates, or create their own scenes from drawings, photographs and scanned images imported into the programme. A key benefit of using Story Jumper is that it allows linking various subjects (Slovene, Art, English) while at the same time promoting cooperation between pupils, daycare teacher and class teacher. In this sense it is an extension of learning into the pupils' after school, free time activities. The creative work and verbal

expression were a source of joy and relaxation for the pupils who designed interesting cartoons, illustrations of school activities, descriptions of their weekly schedules, concepts of books, etc. These successes filled the pupils with confidence.

S QR-kodo med knjižne police

Hitting the bookshelves with the QR code

Metka Kostanjevec, Prva gimnazija Maribor

Povzetek: Naučiti dijake izbrati primerne informacijske vire za opredeljeno potrebo, je eden temeljnih ciljev knjižničnega informacijskega znanja (KIZ) v gimnaziji. Zato je zelo pomembno, da dijaki poznajo sistem postavitve knjižničnega gradiva v šolski knjižnici, v našem primeru je to sistem univerzalne decimalne klasifikacije oz. UDK-sistem. Ni namreč dovolj, da dijaki v knjižničnem katalogu najdejo želeno gradivo, temveč je nujno, da ga znajo tudi sami najti na knjižnih policah. Pri vsem tem jim je lahko v veliko pomoč sodobna računalniška ter komunikacijska tehnologija, ki ob ustrezni rabi olajša iskanje in občutno skrajša čas, potreben za zadovoljevanje informacijskih potreb. Na poti k doseganju omenjenih ciljev smo na Prvi gimnaziji Maribor izvedli pouk KIZ, pri katerem so dijaki 1. letnika usvajali postavitev gradiva v šolski knjižnici s pomočjo tablic in QR-kod. Ob koncu izvedenega pouka smo bili zadovoljni vsi vpleteni: dijaki, ki so v veliki večini uspešno našli v nalogah zahtevano gradivo, in profesorice, ki smo le še utrdile svoje prepričanje o tem, da se pri timskem delu lahko res veliko naučimo drug od drugega.

Abstract: Teaching high-school students how to choose appropriate information sources for the defined need is one of the basic goals of the Library and Information Knowledge (KIZ) in high-school. Thus it is essential for the students to be familiar with the system of the library material layout in the school library, in our case that means the UDC system or the system of the Universal Decimal Classification. Namely, it is not enough that students are able to find the material they want in the library catalogue but it is an imperative that they know how to find this material on the bookshelves by themselves. In their search the modern computer and communication technology can be of great help since when used properly it makes the search easier and significantly shortens the time needed to satisfy the information needs. On our journey towards reaching the above-mention goals we have, at the high-school Prva gimnazija Maribor, carried out classes of library and information knowledge where first year students were learning about the layout of the material in the school library with the help of iPads and QR codes. At the end of our classes everybody was satisfied: the students, the great majority of whom successfully found the material required in their tasks, and the professors, who strengthened the belief that team work really does offer a chance to learn a lot from one another.

Festival naše prihodnosti – Izdelajmo računalniško igrico

Festival of our future - Lets make a computer game

Primož Umek, **Simona Ostović**, OŠ Orehek Kranj

Povzetek: Na festivalu imajo nadarjeni priložnost spoznati vsebine, ki niso predpisane z učnim načrtom, aktivnosti pa omogočajo divergentno, kritično in logično mišljenje, empatijo, izražanje skozi umetniške dejavnosti, spodbujajo radovednost, domišljijo, ustvarjalnost. Nadarjeni učenci si najbolj želijo druženja in dejavnosti, ki so namenjene le njim, vendar jih šole po njihovem mnenju organizirajo preredko. Zato je naš festival dobrodošla popestritev na področju dela z nadarjenimi. Izziv, ki smo ga videli za izvajalce delavnic, je, da bi bile delavnice plod timskega dela učiteljev in medpredmetno obarvane. Gradivo za delavnico »Izdelajmo računalniško igrico« sva na začetku pripravljala vsak zase, kasneje pa sva uskladila ideje in poiskala najboljše naloge za učence. Za uvod smo naredili nekaj vaj brez računalnika, v nadaljevanju pa sva se odločila za uporabo enega novejših programskih jezikov – Scratch. Njegova prednost je preprostost, kode ni treba pisati ročno, temveč programske gradnike zlagamo skupaj kot kocke. Učenci se lahko posvetijo reševanju problemov, ne da bi se mučili z zahtevno sintakso. Prve vaje na računalniku so bile namenjene branju programa (sledenje kodi in predvidevanje rezultata), nato so učenci v parih popravljali napake v programu (zaporedje ukazov – pravilen vrstni red), v nadaljevanju pa so spoznali še osnovne koncepte v programiranju spremenljivke, zanke in vejitev. V drugem delu so po skupinah izdelali svojo računalniško igrico.

Abstract: This festival offers talented students an opportunity to discover topics that are not included the curriculum, while the activities enable students divergent, critical and logical thinking, empathy, expression through art, encourage curiosity, imagination and creativity. Talented pupils want to be engaged in activities that have been designed for them only, and believe such activities are not organised frequently for them by schools. Hence, our Festival is an important event in the field of working with talented students. Workshops offer a challenge to teachers as the activities must be cross-curricular and a result of team work. We prepared materials for the workshop “Lets’ make a computer game” individually, however, we later on harmonised our ideas and searched for the best tasks for pupils. The introduction features a few computer-free tasks, while later on students used Scratch – one of the latest programming languages. It is simple, code does not have to be written

manually, and pieces of code are put together like blocks. Students can focus on problem solving, without having to linger on complex syntax. The initial computer exercises were intended for reading the programme (tracking the code and predicting the results), while later the students in pairs corrected the mistakes in the programme (the sequence of orders, correct order). Further, the students learnt the basic concepts in programming the variable, loops and conditional clauses. The second part required the students to design their own computer game in groups.

Ustvarjalnost brez meja

Creativity without limits

Andrej Oberwalder Zupanc, Srednja šola Domžale

Povzetek: Prispevek predstavi uporabnost tehnologije 3D-tiskanja za razvoj ustvarjalnosti učencev in dijakov na področju oblikovanja različnih izdelkov. Predstavljen je primer uporabe v izobraževalnem programu strojni tehnik. Opisana tehnologija se lahko uporablja tudi v drugih srednješolskih izobraževalnih programih, vsekakor pa tudi že v osnovni šoli pri pouku tehnike in tehnologije. Prispevek opiše različne možnosti za izdelavo 3D-modelov: kreiranje lastnih v različnih programskih paketih in uporaba že izdelanih baz 3D-modelov. Opiše pripravo 3D-modela v ustrezno datoteko, pripravo ustrezne programske kode za 3D-tisk (G-koda) in program za upravljanje 3D-tiskalnika. Opiše konkreten 3D-tiskalnik, ki je primeren za uporabo v šolah. Predstavi tudi pozitivne izkušnje glede motiviranosti dijakov za ustvarjalno delo pri oblikovanju izdelkov. Ko še ni bilo možnosti izdelave izdelka in je vse ostalo na ekranu, je bila zavzetost dijakov manjša. Zelo se je povečala odgovornost do lastnega dela, saj se pri izdelanem izdelku točno vidijo napake. Če je izdelek ostal na ekranu, se to ni videlo tako dobro. Opisani način dela vzpodbuja izmenjavo idej, učenje med učenci, učenje med učiteljem in učenci ter razvija občutek za timsko delo. V procesu ustvarjanja novega izdelka se učinkovito uporablja razpoložljiva strojna in programska oprema, ki ni več sama sebi namen, ampak je v funkciji ustvarjalnosti.

Abstract: The article presents the usefulness of 3D printing technology to develop the creativity of pupils and students in the design of various products. It is shown in the example of the educational programme Mechanical technician.
The described technology can also be used in other secondary education programmes, and certainly also in primary schools in teaching Techniques and Technology. The article describes the various options for making 3D models: the creation of own in various software packages and use pre-made database of 3D models. Further it describes the preparation of a 3D model in the appropriate file, the preparation of the appropriate programme code for 3D printing (G-code) and the programme that manages 3D printer. It describes the specific 3D printer which is suitable for use in schools, and presents a positive experience regarding the motivation of students for creative work in designing products. When there was no possibility of actually producing the product, the students' enthusiasm was much weaker. The responsibility for their own work is now strenghtened as the finished product shows the result of their work. If the product can only be seen on the screen, such an effect is not achieved. The above-mentioned way of working encourages the exchange of ideas and learning between students and learning between teachers and students, At the same time it develops a sense for team work. In the process of creating a new product the available hardware and software are used which stimulates creativity.

Obrnjeno učenje z uporabo spletne aplikacije TED-Ed

Flipped learning through the use of TED-Ed

Simon Dražič, OŠ Šmarje pri Kopru,
Maja Vičič Krabonja, Srednja ekonomska šola Maribor

Povzetek: Obrnjeno učenje (flipped learning) je sodobna izobraževalna metoda, ki združuje učenje v živo in na daljavo. Učitelj posname kratek video z razlago učne vsebine in ga posreduje učencem, ki si posnetek ogledajo pred obravnavo v šoli. Videoposnetek naj traja največ 7 minut, kar zagotavlja ohranjanje koncentracije. Učenci načrtujejo, kdaj si bodo posnetek ogledali in kolikokrat, pripravijo vprašanja in povzetke, pri pouku pa o tem razpravljajo, rešujejo naloge in praktične probleme, kar bi sicer morali opraviti sami doma. Pri obrnjenem učenju je poudarek na aktivni vlogi učenca v celotnem procesu učenja. Učitelj postaja mentor in usmerjevalec. Učencem pomaga med poukom, sodeluje pri reševanju nalog in problemov, spremlja razumevanje učne snovi, spodbuja sodelovalno delo in medsebojno pomoč. Predstavili bomo spletno aplikacijo TED-Ed, ki omogoča ne le posredovanje videoposnetka učencem, temveč tudi dodajanje interaktivnih vsebin (opremimo z vprašanji, s katerimi preverijo svoje razumevanje, ter navodili za dodatno raziskovanje in razpravo) in usmerimo pozornost učencev. Učitelju omogoča tudi spremljanje dela učencev. Dostop do spletne strani je prost in njena uporaba enostavna. Dodana vrednost je učeča se skupnost, kjer učitelji izmenjujemo izkušnje ter uporabljamo in prilagajamo gradiva, ki so jih ustvarili drugi. Lekcije lahko pripravijo tudi učenci sami in tako dosežejo višje taksonomske stopnje po Bloomu – ustvarjanje.

Abstract: Flipped learning is a modern method that combines f2f and long-distance learning. Teacher prepares a short video with the interpretation of the learning content and shares it with students who watch it before lesson school. The video should last no more than 7 minutes, thus allowing the concentration of students. Students are planning themselves when and how often they will watch a video, they prepare questions and summaries, discuss them with peers, and they are solving practical problems which would otherwise have to be done as homework. In the flipped learning the emphasis is on the active role of the student throughout the whole learning process. The teacher becomes a mentor. He/she helps the students, participates in solving tasks and problems, monitors understanding, encourages cooperative work and peer-to-peer assistance, etc. We will present the website TED-Ed which allows not only sharing the video but also adding the interactivity (with questions, additional instructions for further research and discussion) and strenhtens students' attention. Ted-Ed allows teachers monitoring of students work. Access to the site is free, and its use is

simple. The added value is the learning community where teachers exchange experiences and use and adapt material created by others. Lessons can also be prepared by the pupils themselves and thus they achieve higher taxonomic levels – creating.

Dijaki izdelujejo androidne aplikacije in poučujejo, kako jih izdelati

Students create and teach how to make android applications

Nejc Grošelj, Gimnazija Jurija Vege, Idrija

Povzetek: Življenja brez uporabe pametnih mobilnih naprav si v zadnjem času ne moremo več predstavljati. Dijaki so zato z navdušenjem izdelali prve androidne aplikacije skupaj s poučnim šolskim gradivom. Ker niso imeli nikakršnega predznanja iz programiranja, sem se odločil za uporabo preprostega spletnega orodja Appinventor. Zadali smo si nalogo, da znotraj Erasmus+ projekta Airnet na uvodni izmenjavi v Malagi (od 6. 3. do 11. 3. 2015) izvirno in zabavno predstavimo našo šolo. Pri pouku informatike so dijaki izdelali androidne kvize v španskem in angleškem jeziku in jih naložili na Google play store. S tem so pri udeležencih izmenjave ob koncu uvodne predstavitve preverili, kako dobro so si zapomnili predstavitev. Zatem so predstavil preostalim dijakom program Appinventor in razložili potek izdelave kviza. Nato so se razdelili v heterogene skupine in izdelali kratke poučne kvize na temo zraka. Ugotovil sem, da se lahko program uporabi kot odlično didaktično orodje za začetno fazo učenja programiranja. Hkrati pa lahko z aplikacijami širimo usvojeno znanje iz različnih šolskih področji. V 10-minutnih delavnicah boste spoznali prednosti in slabosti Appinventorja in se naučili izdelati preprosto androidno aplikacijo v obliki poučnega kviza. Dijaki šole bodo predstavili svoje izkušnje z izdelavo in poučevanjem drugih dijakov na mednarodni izmenjavi.

Abstract: Nowadays life without the use of smart mobile devices cannot be imagined anymore. Students were therefore excited when they got the chance to create their first android apps along with educational materials for them. Because they had no prior knowledge of programming, I decided to use a simple online tool Appinventor. We set ourselves the task to present our school in an original and entreating way within the Erasmus+ project AIRNET at the initial exchange in Malaga (from 6th until the 11th March 2015). In ICT lessons, students created android quizzes in both Spanish and English language. Then they uploaded the apps to Google play store. At our initial exchange presentation we wanted to check with those apps how much the participants remembered our presentation. After that our students introduced Appinventor and explained step by step how to make the quiz. Students were then divided into heterogeneous groups and produced short educational quizzes on the topic of air. I found out that the programme may be used as an excellent teaching tool for the initial phase of learning how to programme. At the same time you can expand

the knowledge from different school subjects with available apps.
In the 10-minute workshop you will learn about the advantages and disadvantages of Appinventor and how to make a simple android application in the form of an educational quiz. Students of our school will share their experience with making and teaching on how to make android apps.

Snemaj, poglej in se uči

Record, watch and learn

Karmen Posedel Golob, II. OŠ Žalec

Povzetek: Sem učiteljica v posebnem programu. Vanj so vključeni učenci z zmerno in težjo motnjo v duševnem razvoju. Kot učiteljica v tem programu se zavedam, da je eden izmed najpomembnejših ciljev, ki ga moramo uresničiti, pripraviti učence na čim bolj samostojno življenje. Od tega je močno odvisna kakovost njihovega življenja v prihodnosti. V prispevku bom pokazala, kako ob podpori IKT zagotavljam učencem, da se učijo drug od drugega. Osebe z zmerno in težjo motnjo potrebujejo nazorna slikovno podprta navodila in večkratno utrjevanje. Učenci so pri urjenju veščin in spretnosti uspešnejši, če imajo na voljo nazorne demonstracije in večkratne ponovitve. Ta ugotovitev mi je porodila idejo, da bi sposobnejši učenci naredili posnetke vsakodnevnih opravil z mobilnim telefonom, ki bi jih nato objavili na spletni strani šole. Posnetke bi nato uporabljali in večkrat predvajali ter se ob njih učili, urili manj sposobni učenci. Pri tem uporabljamo mobilne telefone, Arnesovo spletno stran: video.arnes.si, spletno stran naše šole in računalnike. Na spletni strani šole je kotiček, kamor nalagamo posnetke. Učenci ne znajo brati, zato jim bodo pomagali nazorni posnetki sošolcev s posnetimi verbalnimi navodili. Koliko vpliva uporaba posnetkov na samostojnost učencev v domačem okolju, sem merila z anketo, ki sem jo naslovila na starše učencev. Uporaba IKT učiteljem omogoča, da učencem dejavnosti prikažemo nazorno. Učenci so razvili nove veščine pri uporabi IKT, njihovo znanje pa je bilo pridobljeno prek učenja drug od drugega in s timskim delom. Tudi učenci so bili s potekom dela zadovoljni in ponosni na svoje posnetke.

Abstract: I am a special education teacher and I work with students with moderate and severe mental disabilities and disorders. As their teacher I am aware of the fact that my primary mission is to prepare them for an independent life in future and a selfhood. The quality of their future endeavours depends on it to a great extent. Utilizing ICT, I aspire to demonstrate learning process and ensure that students benefit from each other's learning experience. Individuals with moderate to severe mental disabilities and disorders benefit from a non-abstract, repetitive, and very explicit verbal instructions. Students perform better in training skills if they have illustrative demonstrations and are allowed to do multiple repetitions. With this in mind I decided that the advanced pupils would make videos of their regular activities with a mobile phone which could then be shared on the school website. Recordings could then be used repeatedly, and when the advanced pupils learned the topic they could teach less capable classmates. Mobile phones are used as recording devices, and a video-cast is made available via video.arnes.si, schools web portal and personal computers.

Since students don' know to read, video demostrations of fellow students who successfully accomplished specific tasks is very likely to benefit them and ensure their consequent success. In the survey I carried out later I tried to establish the influence of such work on pupils' independent life at home.

Med pesmijo, spletom in elektronskimi slovarji

Between the poem, Internet and electronic dictionaries

Sabina Grabar, OŠ Martina Konšaka, Maribor

Povzetek: Sodelovalno učenje, prebiranje spletnih strani, uporaba elektronskih slovarjev, kritično mišljenje, bralne učne strategije, spletna učilnica so oblike dela, ki sem jih vključila, ko sem z osmošolci obravnavala Prešernovo pesem Apel in čevljar. Učenci so delali v dvojicah, navodila za delo pa so dobili v spletni učilnici. Najprej so si na spletnih straneh (dane povezave) prebrali o Jerneju Kopitarju in tako spoznali ozadje nastanka pesmi. S primerjalno matriko so primerjali Prešernov in Kopitarjev pogled na jezik in literaturo. S pomočjo elektronskih slovarjev so pojasnili neznane besede, ki so jih zasledili v pesmi. Po drugem branju so pesem analizirali tako, da jo je pol razreda razčlenila vsebinsko, druga polovica pa jezikovno in oblikovno. Nato se je učenec iz prve skupine povezal z učencem iz druge skupine. Drug drugemu sta predstavila svoje delo in se tako seznanila z vsemi prvinami interpretacije. Sledilo je kritično razmišljanje. Učenci so na forumu spregovorili o aktualizaciji sporočila pesmi. Na koncu so se preizkusili v ustvarjalnem delu. Z elektronskim odzadnjim slovarjem so si pomagali pri iskanju rim in pisali pesmi o Prešernu. Refleksija je pokazala, da so učenci kot aktivni udeleženci pouka z uporabo sodobne tehnologije in s sodelovalnim delom dosegli načrtovane cilje.

Abstract: Cooperative learning, web page browsing, use of electronic dictionaries, critical thinking, reading learning strategies, web classroom are the forms of work I have included, when I discussed Prešeren's poem Apel in čevljar with my 8th grade pupils. The pupils worked in pairs and they received the instructions for work in the web classroom. First they went online (they were given links) and read about Jernej Kopitar in order to get to know the background of the poem. By applying a comparative matrix they compared Prešeren's and Kopitar's views on language and literature. By using electronic dictionaries they explained unknown words they came across in the poem. After the second reading they analysed the poem, whereby one half of the class analysed the poem in terms of its content, and the other half explored the language and the construction of the poem. After that a pupil from the first group worked with a pupil from the second group. They showed their findings to each other and learned about all elements of interpretation. This was followed by critical thinking. On the forum the pupils discussed the contemporary character of the poem's message. At the end they engaged in some creative work. They used the reversed dictionary in an electronic form to find rhymes and write poems

about Prešeren. Reflexion has shown that students as active participants of class realized the planned objectives through their cooperative work and by means of modern technology.

Šolske tablice

Tablets for school use

Emica Škrinjar, OŠ Selnica ob Dravi

Povzetek: Naša šola je že drugo leto vključena v e-projekt, kjer uporabljamo iPade. Ugotavljamo, da se zgodovina ponavlja. Pred približno sto petdesetimi leti je izšel članek F. Stergarja o šolskih tablicah in njihovem namenu, uporabi, materialni sestavi in tudi ceni. S tem projektom smo dobili priložnost uporabljati sodobne tablice pri pouku. Učenci so primerjali tablice izpred sto petdeset let z današnjimi. Še posebej sta nas zanimali uporabi pri pouku zgodovine, kjer smo si izbrali temo miselnih vzorcev, in pri geografiji, kjer smo se posvetili rabi zemljevidov in slikovnega gradiva pri pouku. Pri delu smo uporabljali našo spletno učilnico. Pri zgodovini smo oblikovali miselne vzorce na klasičnih in sodobnih tablicah, ugotavljali smo razlike in jih ovrednotili. Učenci morajo znati miselne vzorce razložiti sošolcem, učiteljem in opazovalcem pouka. Tako se naučijo nastopati pred občinstvom. Pri geografiji smo slikovno gradivo in zemljevide uporabljali v vseh komponentah učne ure. Predstavitev temelji na prikazu konkretnih primerov pouka. Spremljali smo delo in preverjali doseganje učnih ciljev ter usvajanja digitalne pismenosti. Evalvirali smo posamezne ure in prišli do različnih sklepov. Med učenci sedmih razredov smo izvedli še anketo, kjer so izrazili svoje mnenje o uporabi sodobnih tablic. Zmogljivost zgodovinskih in današnjih tablic je odvisna od spretnosti in sposobnosti uporabnikov.

Abstract: Our school has been active in an e-project about using iPads for 2 years. We can say that history repeats itself. About 150 years ago an article by F. Stergar was published. It was about tablets for schools and their purpose, usage, materials and prices. By taking part in this project we got a chance to use modern tablets during school lessons. Pupils compared 150 years old tablets to modern ones. We were especially interested in their usage at History classes for making mind maps and at Geography classes for using the geography maps and photos. We were using our virtual classroom. At History lessons we were creating mind maps by using both: old tablets and the modern ones. We were searching for differences, then we analysed them. Pupils should be able to present mind maps to their schoolmates, teachers and lesson observes. This is the way they learn how to talk in public. At Geography lessons we used pictures, photos and geography maps in all the stages of the lessons. The presentation is based on the concrete lessons. Our work was monitored and we checked and analysed teaching goals as well as digital literacy. The lessons were analysed and we came to different conclusions. Our 7th grade pupils were asked to complete a questionnaire where they wrote their opinion about modern tablets usage. The capacity of the old and modern tablets depends on skills and abilities of their users.

Skype v vrtcu: blizu, pa vendar tako daleč

Skype at nursery school: so near and yet so far

Klavdija Hrastovec, Vrtec Črnuče

Povzetek: Vedno več komunikacije v vsakdanjem hitrem tempu življenja poteka s pomočjo različnih telekomunikacijskih naprav in povezav. Tudi delo v vrtcu se vedno bolj prepleta s sodobnimi tehnologijami, ki postajajo pripomoček pri izvajanju posameznih dejavnosti. V naši skupini pa smo se seznanili z uporabo brezplačnega internetnega telefonskega omrežja Skype, ki nam zelo pomaga pri videopogovorih z našo prijateljico, ki se je lani poleti preselila v London. Otroci so spremljali celoten potek priprave prostora in opreme pred videopogovorom. Ob vzpostavitvi povezave, in ko so na zaslonu računalnika zagledali prijateljico, je bilo najprej slišati le vzklike veselja, videli pa smo nekoliko zadržano deklico, ki je tudi že zrasla in med odsotnostjo dopolnila 5 let. Pogovor je potekal sproščeno; otroke je najbolj zanimalo, kako je praznovala rojstni dan, kako se počuti v Londonu, kako se pogovarja in kako je ime prijateljem v šoli. Zapela nam je nekaj pesmi v angleščini in razložila njihov pomen. Spoznali smo posebnosti njenega življenja v Londonu, mi pa smo ji predstavili naše dogodivščine. Po pogovoru so bili otroci polni najrazličnejših vtisov. Vtise o videopogovoru smo strnili v stavek: »London je tako daleč, mi pa smo prijateljico videli in slišali, kot da je čisto blizu nas.«

Abstract: More and more communication in everyday rapid pace of life is carried out by means of various telecommunication devices and connections. Modern technologies which are becoming useful accessories for various activities also intertwine with work at nursery school. Our group started using Internet phone network Skype which is free of charge and helps us communicate with our friend who moved to London last summer. Children observed the entire procedure of preparing the room and equipment before the video call. When the connection was established and the children saw our friend on the screen they let out a big cheer. However, we saw a reserved little girl, who grew taller and turned 5 in the meantime. The conversation was relaxed and the children wanted to know how she had celebrated her birthday, how she felt in London, how she communicated with other people and what the names of her schoolmates were. She sang us a couple of songs in English and explained their meaning. We learned about her life in London and told her about our adventures. After this video chat children were full of various impressions. We summed up the impressions of the video chat in one sentence: “London is so far away and yet we saw and heard our friend as if she were right next to us.”

Kako naredimo risanko v tretjem razredu

How to make a cartoon in the third grade

Rosana Dular, OŠ Dolenjske Toplice

Povzetek: Kako motivirati učence za učenje in delo v šoli, je pogosto vprašanje, ki si ga postavljamo učitelji. To vprašanje me je pripeljalo do iskanja novih vsebin in pristopov z uporabo IKT pri izvajanju pouka. Kot novost smo vpeljali nov dan dejavnosti z naslovom Risanka. Pri izdelavi risanke ali animacije delo poteka medpredmetno, ker tema povezuje različna področja in omogoča celostno dojemanje. Spoznali smo pot od ideje do izdelka. Učenci so si ogledali in spoznali postopek nastajanja risanke, izbrali so ideje za svoje animacije, oblikovali okvirni scenarij, izdelali sceno in animirane like. Animacije smo posneli in z montažo izdelali končni izdelek Ta je zahteval uporabo različnega orodja, pripomočkov (aplikacija Stop Motion, Movie Maker), IKT-naprav (tablični računalnik, pametni telefon) in gradiv. Pri delu so bili učenci izjemno učno aktivni in motivirani. Pri delu so pokazali ustvarjalnost, nasuli veliko svojih idej in zelo kakovostno timsko sodelovali. S takšno obliko dela smo dosegli višji nivo učenja in spodbudili ustvarjalnost. Učenci so spoznali, kako lahko multifunkcijske naprave uporabimo za potrebe učenja. Z uporabo IKT želimo povečati aktivnost učencev v izobraževalnem procesu in izboljšati njihovo motivacijo, kar nam je tokrat uspelo.

Abstract: How to motivate students for learning and working at school is a more and more frequent question arising among teachers. It led me to search for novelities and innovations for learning in the clasroom. So we introduced an innovation in the activity day, titled Cartoon. When we create cartoon or animation, work is in process across the curriculum. The subject connects different areas and allows holistic perception. We learn the procedure from the idea to the product. Pupils have learned the proces of making cartoon movie, they colected ideas for their own animations, created framework scenario, scene and animation characters. We recorded animations and edited final product. The final product required the use of different tools, devices (application Stop Motion, Movie Maker, tablet PC, smart phone) and materials. When we worked, all the children were maximally active and motivated for learning. They showed creativity, accumulated a lot of new ideas and participated in teamwork. We achieved a higher level of learning and encouraged creativity. Pupils found out how we could use the multifunctional devices for learning needs. With ICT we like to enhance the activity and the motivation of pupils in schools. With this innovation we managed to achieve this goal.

Prevod in uporaba tuje fizikalne spletne aplikacije v slovenščini

Foreign web applications for Physics – translation and use in Slovene language

Aljoša Kancler, Prva gimnazija Maribor

Povzetek: Z razširjeno uporabo tabličnih računalnikov se tudi v pouk fizike vpeljuje vse več spletnih aplikacij. Dijaki so vešči iskanja novih stvari, zato z njihovo pomočjo učitelj spoznava nove širine uporabe. V slovenskem jeziku je aplikacij za poučevanje fizike razmeroma malo, prav tako ni na voljo e-učbenika za pouk fizike v gimnaziji, kar otežuje sodobno poučevanje. Z dijaki skupaj odkrivamo uporabne aplikacije za pouk fizike. Pri tem smo prišli do odkritja, ki so mi ga v osnovi predstavili dijaki. Torej kako uporabiti tuje spletne aplikacije tudi v slovenskem jeziku. To dijakom omogoča lažje razumevanje simuliranih eksperimentov. Seveda pa lahko takšno rešitev uporabimo tudi drugače. Na Prvo gimnazijo namreč prihaja vedno več dijakov iz tujih držav (Rusija, Belorusija, BiH, Italija), ki jim jezikovna ovira otežuje razumevanje snovi. S takšno rešitvijo lahko tujejezični dijak na naši gimnaziji uporabi isto e-gradivo, a v njemu razumljivem jeziku. Verjamem, da se preostali učitelji srečujejo s podobnimi težavami, zato je lahko poznavanje takšnega načina uporabe zanimivo tudi zanje. Vse to bodo lahko spoznali v okviru prispevka na Sejmu DajDam.

Abstract: With the widespread use of tablet PCs more and more web applications are used in the teaching of Physics. Students are proficient in search of new things, so a teacher can learn new ways of use with their help. The applications for teaching Physics in Slovenian are rare and what is more – there are no e-books available for this subject in high-school which makes modern teaching difficult. I look for useful applications for teaching Physics together with my students. In doing so, we discovered that we can use foreign web applications in Slovenian. This allows students to facilitate understanding of simulated experiments. Of course, such a solution can also be used in a different way. Namely, more and more students from foreign countries (Russia, Belarus, Bosnia and Herzegovina, Italy) come to Prva gimnazija Maribor to whom the language barrier causes problems regarding understanding the curriculum. With such web application a foreign language speaking student can use the same e-materials in a language he or she understands best. I believe that the rest of the teachers are faced with similar problems and can thus benefit from this presentation. They will have the opportunity to learn about it at the fair DajDam at SIRikt 2015 international conference.

Google Drive ali obrnjeno učenje

Google Drive or flipped learning

Božena Rudolf, Gimnazija Jurija Vege, Idrija

Povzetek: Namen predstavitve je pokazati, kako lahko storitev Google Drive uporabimo tudi pri pouku. Prikazati želim nekaj primerov uporabe te storitve. S pomočjo Driva lahko dijaki sestavljajo ali rešujejo različne naloge. Njegova prednost je, da lahko dijaki sočasno oblikujejo določen dokument. Ko opazujejo, kaj delajo drugi, jih to spodbudi in motivira za njihovo delo, obenem pa se tako porodi veliko idej. Ko dijaki sami sestavljajo naloge za določeno snov, morajo to snov ozavestiti in razmisliti o njeni uporabnosti. Zato je ta način odličen za sestavljanje nalog za preverjanje znanja pred testom. Ta način dela spodbuja in razvija delitev idej, omogoča pa tudi komentiranje dela in idej drugih in je odlično orodje za souporabo. Dijaki se učijo drug od drugega, prav tako pa se tudi učitelj lahko uči od dijakov, saj je njihov način razmišljanja drugačen in posledično tudi ideje. Ta storitev učitelju omogoča pregled nad delom dijakov. Poleg tega pa lahko ob koncu aktivnosti s pomočjo ankete merimo dijakovo uspešnost in dosežke. Drive pa lahko uporabimo tudi za reševanje nalog po skupinah. Posamezni dijaki ali skupine morajo rešiti določene naloge, na koncu pa drug drugemu kratko poročajo. Tako imajo na koncu dela vsi dijaki takoj rezultate tudi drugih skupin in rezultatov oz. rešitev ni treba prepisovati oz. pošiljati.

Abstract: The aim of the presentation is to show how one can use Google Drive in school. I want to show some ways of its implementation. With Drive pupils can create exercises and task or solve different tasks. It enables pupils simultaneous creating of one document. When observing the work of others students are encourged and motivated for their own work and many ideas are born. When students create a task they have to think about the subject matter so its perfect for evaluation of knowledge before tests. It enables sharing ideas simultaneously and offers the overview to the teacher. One can also carry out the evaluation with this function. Another way one can use it is solving tasks in groups, so that everybody gets the results of everbody. In both cases students learn from students and teachers from students.

S tablico v Opero

In Opera with iPad

Živa Škrinjar, OŠ Šmartno pod Šmarno Goro

Povzetek: Z učenci 4. razreda naše šole smo vključeni v projekt e-Šolska torba. Pri pouku uporabljamo tablice ter e-storitve. Tokrat smo tablice vključili v projektno delo pri glasbi S tablico v Opero. Cilj projekta je bil, da so učenci s pomočjo tablic spoznali, kaj je opera, katere so njene značilnosti, spoznali slovensko operno delo ter si izbrali primerne posnetke za duet, arijo in zborovsko petje. Poiskati so morali razlago za libreto ter povzeti Gorenjskega slavčka. Pomembno je bilo, da so informacije s spleta preverili, da niso posredovali svojih osebnih podatkov in da so pravilno navajali vire. Pri delu je bilo, razen tehničnih težav, za njih najtežje kritično presojanje, navajanje virov in določanje bistva. Svoje ugotovitve so nato s plakatom ali ppt-predstavitvijo predstavili sošolcem v razredu. Ob predstavitvi so s pomočjo aplikacije klavirja zaigrali del melodije iz Gorenjskega slavčka. Pri tej nalogi so si lahko med seboj izbrali sošolce, ki poznajo notni zapis ter igrajo na kak inštrument. Po njihovi izbiri so lahko nato instrumentalni del dopolnili še z igranjem na druga glasbila. Naučila sem se, da so nam samoumevni kliki in iskanje po spletu za njih vseeno še zelo zahtevni. Hitro so se učili drug od drugega in si pri delu pomagali s pridobljenimi izkušnjami.

Abstract: The 4th grade pupils in our school are included in the project e-Schoolbag. We have been testing the use of iPads and e-textbooks in our curriculum. I will present the use of iPads in Music Art. We titled our project work With iPad in the Opera. Its main goal was that the pupils – with the use of iPads – learned facts about Opera. For example what is opera, which opera was written by a Slovenian author; they also had to choose suitable examples, recordings. It was very important that they were cautious about Internet safety and critical regarding the information found on the net; they also practised citing. The project work was concluded by a presentation for their classmates. The upgrade goal was the use of the piano aplication. They tried to play a short part from the Slovenian opera Gorenjski slavček. The pupils taught me that searching for information is not so easy and that it is very important that you check whether the information is correct or not. They have been learning very fast and they soon helped one another.

Domače branje v e-okolju

Book club in an online environment

Monika Kovačič, I. OŠ Žalec

Povzetek: Pri pouku opažam, da je učence vedno teže spodbuditi, da bi za domače branje z zanimanjem prebrali klasična dela slovenskega leposlovja (npr. Cankarjeve, Tavčarjeve, Vorančeve črtice). Zato sem razmišljala, kako bi jim ta leposlovna dela približala, da bi jih (pre)brali ter da bi bila obravnava domačega branja učinkovita in konstruktivna. Poskusila sem z domačim branjem v e-okolju, ker jim je uporaba sodobne tehnologije blizu, ker jo radi uporabljajo, ker se jim zdi vse, kar je povezano z njeno uporabo, zanimivo, jih pritegne. S tem namenom sem pripravila spletno učilnico za učence 9. razreda, v kateri so povezave do prosto dostopnih elektronskih knjig (E-knjiga.si), do katerih so učenci dostopali in jih prebrali. Tudi obravnava domačega branja je bila zastavljena v e-učilnici, z manj običajnimi nalogami, pri katerih so izmenjevali mnenja pred branjem, med njim inpo njem. Oblikovali so skupni dnevnik branja, pripraviti pa so morali tudi (e-)gradivo za zaključno obravnavo v šoli. V šoli smo pregledali opravljeno delo, pri tem pa ni bila v ospredju učiteljeva povratna informacija ob preverjanju prebranega, ampak učenčeva, saj so s sodelovalnim učenjem v e-okolju aktivno soustvarjali učno okolje in gradivo. Šlo je za kombinacijo samostojnega sodelovalnega dela (učenja učencev od učencev/ s pomočjo učencev) s podporo IKT.

Abstract: I have noticed that it is getting harder and harder to motivate pupils to read classic Slovenian literary works, such as the short stories by Ivan Cankar, Ivan Tavčar and Prežihov Voranc. In order to make these texts more interesting I decided to set a book club in an online environment because the pupils are familiar with modern technologies, they like to use them and find anything related to them very appealing. I set up an online classroom for the 9th grade pupils, containing links to free e-books (E-knjiga.si) which allowed pupils to access and read the selected works. This was followed by a discussion and less conventional tasks. Thus pupils had to exchange opinions before, during and after reading. They had to prepare a common reading log, and also (e-)materials for the final discussion in school. In school we also checked the work they had done. Here the emphasis was not on the teacher's feedback by checking what they had read but on the pupils' feedback. Through cooperative work in the online environment they were actively cocreating the study environment as well as the study material. It was a combination of cooperation and independent studying by means of ICT.

Medpredmetni prometni tehniški dan

Cross-curriculum scratch activity day

Brigita Ornik, I. OŠ Celje

Povzetek: Sedmošolci in učitelji TJA, TIT, RAČ, MAT, LVZ v timskem delu/sodelovalnem učenju avtentično spoznamo in razvijamo vse kompetence. Izbrani spletni viri in aplikacija nudijo individualizacijo, diferenciacijo in osebno rast. Različne oblike dela (dvojice, skupine) lahko prehajajo z ene v drugo obliko kar med procesom učenja. Vrstniško/lastno vrednotenje (npr. EJL) doseženih ciljev je motivacijsko. Sedmošolci znanje utrdijo in dosegajo višje cilje z uporabo tehnologij. Razvijajo matematične kompetence z uporabo koordinatnega sistema za premikanje domišljijske figure, spretnost vzporednega programiranja in načrtovanja, orientacijo v 2D- prostoru, občutek za časovnico ter nadgradijo komunikacijske vloge opisa poti v domišljijskem mestu (Scratch). Učenec z izdelavo estetskega izdelka, lastnih zamisli razvija spretnosti (žaganje, vrtanje, brušenje) mehanske (umetne snovi) in toplotne obdelave (termoplasti). Vožnja avtomobilčka po lastnih zemljevidih dviguje zavest varovanja okolja, medkulturnost, samozavest in pripomore k boljšemu prepoznavanju šolske okolice in prometni varnosti. Organizacijsko-vsebinski dokument je temelj za samoevalvacijo in predloge sprememb za nadgradnjo dneva dejavnosti. V prihodnje lahko v fazi načrtovanja vključimo še učence. Ti prispevajo posamezne spletne vire in aplikacije. Pogovore posnamemo in vrednotimo z samoocenjevalnimi lestvicami. Vnaprej načrtujemo ocenjevanje pri nosilnih predmetih. Učenci z DSP laže dosegajo zastavljene cilje.

Abstract: The awareness and development of 7th graders and English/Craft/Maths/Computing/Art teachers' competences are more authentic by team work and collaborative learning. Chosen Internet sources and applications offer a unique opportunity of individualisation, differentiation and personal growth. Different study techniques are used, adjusted and mixed in the learning process. It is highly motivating when schoolmates evaluate themselves and others with self-evaluation charts. They revise and upgrade their knowledge to develop more complex goals using modern technology. They develop math competences (coordinate system to move the figure, parallel programming, planning, and orientation in 2d, timeline) and upgrade the communicative approach of describing the way in an imaginary town (Scratch). Their own aesthetic model cars develop skills (sawing, drilling, and sharpening) of mechanic (synthetic materials) and thermal treatment (thermoplastics). The model car riding on the students' own town maps strengthens the awareness of protecting the environment, multiculturality, self-esteem, traffic safety and the orientation in school surrounding. The organisational and teaching content document is the opportunity to self-evaluate the team work and provoke the suggestions to the changes/upgrading the day. In future we can involve pupils to collect sources, record and evaluate with self-assessment charts. Those with special needs achieve the goals with their own pace easily.

Spletna stran IKT-vikenda

Web page ICT weekend

Anita Smole, **Sonja Strgar**, OŠ Vide Pregarc, Ljubljana

Povzetek: V prispevku predstavljava spletno stran IKT-vikenda, ki sva jo predhodno ustvarili učiteljici, naredili okvirno strukturo in dodelili vloge za urejanje, potem pa je skrbništvo spletne strani prevzela ekipa učencev – novinarji (učenci 5. razreda, ki so se prejšnje šolsko leto na to vlogo pripravljali na interesni dejavnosti ustvarjamo z IKT) in skrbnik (učenec 8. razreda, ki je za to potrebno znanje pridobival pri izbirnem predmetu računalniška omrežja). Vsak učenec novinar je imel svoj fotoaparat in prenosnik. Posamezni član ekipe je dogajanje med vikendom fotografiral in snemal ter tako pripravljal potrebno gradivo za pripravo prispevkov za objavo na spletni strani, izdelavo Prezi/PPT-predstavitev za posamezne dejavnosti in za izdelavo filma v Windows Live Movie Makerju s celostnim prikazom dejavnosti vikenda. Skrbnik spletne strani je prek svojega prenosnika in prek svojega uporabniškega računa skrbel za objavo pripravljenega na spletu. Za merila uspešnosti smo si pred začetkom določili preglednost spletne strani, aktualnost objav, število obiskov spletne strani med vikendom, odziv staršev, učencev, sodelavcev, dobre odnose med deležniki, novo znanje. Ugotavljava, da smo s transakcijsko zastavljenimi dejavnosti, pri katerih smo posamezniki dobili celovito izkušnjo, in množico smiselnih in koristnih interakcij med udeleženci prispevali k spontanemu učenju. Zaradi kritičnega pristopa smo smiselno in učinkovito izkoristili prednosti, ki jih ponuja uporaba IKT.

Abstract: This paper presents a Web page ICT weekend made by teachers. First a frame structure was made and roles to edit were assigned. Then the custody of the website was taken by pupils – a team of journalists (5th grade pupils who in the previous school year prepared for the role of extracurricular activities creating ICT) and administrator (pupil of the 8th grade, who gained necessary knowledge in the elective course Computer Networks). Each pupil journalist had his camera and laptop. Each member of the team photographed and recorded events on the weekend. In this way the necessary material was prepared for the preparation of papers for publication on the website, making Prezi/PPT presentation for each activity and for making a movie in Windows Live Movie Maker. Using his laptop and his user account administrator was responsible for the publication on the Internet. Benchmarks have been designed from the start: transparency websites, news announcements, number of visits to the website during the weekend, the response of parents, pupils and staff, good relations between stakeholders, new knowledge. We found out that with the transaction set of activities with a variety of meaningful and useful interaction between participants we contributed to spontaneous learning. Due to the critical approach advantages have been exploited by the use of ICT.

Uporaba Google+ za razvijanje sodelovalnega učenja

Using Google+ for developing cooperative learning

Mojca Hojski Tkavc, OŠ Blanca

Povzetek: Za razvoj družbe so hkrati potrebni razvijanje e-kompetenc kot tudi sodelovalno učenje in krepitev medosebnih odnosov. V ta namen smo z učenci ustanovili skupnost Google+, kjer se učenci obveščajo o domačih nalogah in si pomagajo pri reševanju le-teh. Lahko bi rekli, da izvajajo e-tutorstvo, torej se učijo drug od drugega, hkrati pa se krepijo naši medosebni odnosi, saj kljub temu da gre za učenje in pomoč, učenci tega ne doživljajo kot šolsko obvezo, temveč sproščeno debato oziroma jim je to toliko bolj zanimivo, saj se dogaja v okolju, ki jim je blizu, in sicer na medmrežju. Z analizo filmčkov, objavljenih na strani safe.si (ovce.sk), smo se dotaknili še ene pomembne teme pri razvoju te naše e-družbe, in sicer nevarnosti in pasti na spletu. V izmenjavi mnenj in pri podajanju naših dosedanjih izkušenj smo se učili tudi drug od drugega. Učence sem seznanila s svojim videnjem, imeli smo konstruktivno razpravo, sami pa so mi omogočili vpogled v njihovo razmišljanje, seznanili so me z novimi spletnimi stranmi kot na primer Ask.fm, naučili, zakaj označevati nekaj s +1 v skupnosti Google+ in podobno. Vsak dan se torej kaj novega naučimo drug od drugega in tako še naprej bogatimo in sestavljamo naš mozaik sodobne družbe.

Abstrac: For the right development of the society we need to focus on developing e-competences as well as cooperative learning and fostering positive interpersonal relations. To achieve this aim we have established a Google+ community where the students inform each other what they have for homework, they help each other by explaining the procedure of how to solve different tasks, so we could say they are doing e-tutoring thus learning from each other. At the same time we are strengthening our interpersonal relations as the pupils, even though this is a way of learning, do not perceive this as an obligation or school work but as a relaxing debate in an environment close to them – the Internet. With the analysis of short movies posted on the Internet site safe.si (ovce.sk) we have discussed another important theme in the development of our e-society, i.e. the threats and traps of the Internet. By exchanging opinions and writing about our experiences we have also learnt from each other. I have shared my views with them, we had a constructive debate which enabled me the insight into their way of thinking and perceiving the world. The students showed me new Internet sites like Ask.fm, explained the marking +1 in our Google+ community, etc. We learn something new from each other daily and so continue enriching and building our modern society.

Priprava na tekmovanje Kresnička v 4. razredu s pomočjo IKT-opreme

Preparation for the Kresnička competition in 4th grade with the use of ICT

Simona Jan, OŠ Vransko Tabor

Povzetek: V letošnjem šolskem letu smo se na šoli odločili, da bomo izvedli tekmovanje iz znanja naravoslovja Kresnička. Tekmovanje je razpisala DMFA Slovenije. Bistveni del tekmovanja so eksperimenti, ki jih lahko učenci izvedejo doma ali v šoli. Navodila za objavo poskusov so objavljena na spletni strani: https://www.dmfa.si/NaOS/Razpis.html. Učence, ki jih zanimajo naravoslovne vsebine, sem pri dodatnem pouku seznanila s tekmovanjem. Njihov prvi izziv je bil, da se pripravijo na demonstracijo posameznega poskusa v šoli. Za izvedbo so se javile tri učenke. Dogovorili smo se, da bomo izvedbo poskusa tudi posneli s pomočjo pametnih telefonov. Posnetke poskusov smo objavili na spletni strani naše šole. Posnetki so bili v pomoč preostalim učencem, ko so izvajali poskuse doma ali v oddelku podaljšanega bivanja. Primerjali so ugotovitve in jih zapisali. S pomočjo tega so pri dodatnem pouku vrednotili, kateri poskus je dobro uspel in kaj bi bilo treba še spremeniti. Pri tem so navajali konkretne primere izboljšav. Poročali so, kje so imeli težave in kaj so na novo spoznali. Prek spleta so iskali strokovne razlage za posamezne poskuse in s tem pridobili še dodatna naravoslovna znanja. Cilj je bil dosežen; s posnetkom lahko vrednotimo sebe in druge, s tem pa pridobimo tudi nova znanja.

Abstract: In this school year our school has decided to organize a Science competition 'Kresnička'. The competition is held by DMFA Slovenija. The essential part of this competition are experiments which can be carried out by pupils at home or at school. The information how to publish/post the experiments is available on the following webpage https://www.dmfa.si/NaOS/Razpis.html. Pupils who are interested in Science were informed about this competition at my extra-curriculum classes for talented children. Their first challenge was to get ready for the presentation/demonstration of the experiment at school. Three female pupils volunteered. We agreed to record the experiments with smart phones.
The recordings of these experiments were presented/posted on our school webpage and helped other pupils. They compared the findings and wrote down their observations. The notes helped them to evaluate and improve the experiments with concrete ideas during my extra-curriculum classes for talented children. They also reported about the difficulties and new findings. On the Internet they were looking for professional explanations of each experiment and therefore gained some additional/extra knowledge. The goal was achieved. The recordings help us to evaluate not only ourselves, but also other people. We also gained some new knowledge.

Moj vzornik v okolju Mahara

My idol in Mahara

Tatjana Lubej, OŠ Janka Glazerja, Ruše

Povzetek: Učna ura Mein Idol v okolju Mahra je od učencev zahtevala doseganje višjih ravni znanja – tako jezikovnega kot računalniškega. Poleg doseženih učnih ciljev so učenci izpopolnjevali svoje zanje na področju formativnega spremljanja učenčevega napredka in sodelovanja in komunikacije. E-listovnik in okolje Mahara sem uporabila za predstavitev naloge, ki so jo učenci opravili med samo šolsko uro. Cilj je bil, da se učenci od učitelja naučijo, kako zanimivo predstavimo svojega vzornika s pomočjo IKT. Hkrati je bila moja predloga v pomoč učencem pri oblikovanju njihovega prispevka. Sodelovanje in komunikacija med učiteljem in učenci sta bila v tem primeru speljana od tega, da je učitelj tisti, ki predava, k temu, da so učenci prevzeli vodenje in usmerjanje dela. Učitelj, ki je predhodno pripravil navodilo, je bil samo opazovalec oziroma v določenih primerih svetovalec. Med delom je učitelj spremljal napredek posamezne skupine in tako dobival nove poglede na posameznike v razredu in na njihovo prevzemanje odgovornosti. Učenje učencev od učitelja in učitelja od učencev je bilo nadgrajeno še s sodelovanjem kolegov iz šole in Zavoda RS za šolstvo. Z učenci smo jim svoje delo, sodelovanje in komunikacijo predstavili na hospitacijski uri, kjer so se nekateri prvič srečali z E-listovnikom in okoljem Mahara in njegovo uspešno vpeljanostjo v pouk obveznega drugega tujega jezika.

Abstract: Lesson Mein Idol in Mahara demanded from the pupils to achieve higher goals – in language and technology knowledge. The pupils achieved learning goals and they improved their knowledge in AFL and in communication and cooperation. EU-folio with Mahara was used for the introduction of the assignment that the pupils should make during the lesson. The learning goal for the pupils was to learn how to introduce an idol in an interesting way by means of communication technology. In the same time was the teacher's source material a help for the work of pupils. Communication and cooperation between teacher and pupil shifted from the art were the teacher is the "maker" of the lesson to the art were the pupils create their own work and take responsibility for their progress. The teacher made the task bevor. So during the lesson he had time so watch the progress of each pupil and his or hers responsibility for making the task. Learning of pupil from teacher and teacher from pupil was upgraded to cooperation with other teachers from the school and members of Education authority. The pupils and the teacher showed them their work with EU-folio and Mahara which most of them met for the first time, and how good this is implemented in the work at German as the second foreign language.

Presežek načrtovanega medpredmetnega povezovanja z IKT

ICT for achieving the superabundance of the planned cross-curricular integration

Nataša Robič, **Petra Lajlar**, OŠ Dobje

Povzetek: Sodobni način poučevanja teži k čim pestrejšemu naboru učnih metod in oblik, s katerimi učenci in učitelji razvijajo ustvarjalno mišljenje, hkrati pa pridobivajo znanja in kompetence na različnih ravneh človekovega mišljenja in delovanja (čustvena, intelektualna, kulturna, socialna raven). Izvedba učne ure, ki temelji na medpredmetnem povezovanju po vertikali, je zagotovo odličen primer celostno zajetega koncepta sodobnega poučevanja. Ko smo v dveh urah združili inovativnost učencev sedmih in osmih razredov pri pouku slovenščine in zgodovine in v ta učni proces dodali še IKT – tablice, prenosni računalnik, pametne telefone –, so učenci s pomočjo filozofije Mahare začrtali cilje oziroma načrtovali pouk (zavihek Moje učenje – kaj o napovedani temi že vedo (predznanje) in kaj novega želijo izvedeti). V skupnem dokumentu Google Drive so s pomočjo metode VŽN povzeli ugotovitve razmišljanja na podlagi vpisanih podatkov v razpredelnici. Posamezne dele učne snovi pa so po metodi mešanih skupin (jigsaw) v programu XMind sestavili v celoto tako, da so jih strnili v miselni vzorec. Sintezo pridobljenega znanja so učenci v sklepnem delu prikazali s pomočjo razprave, pri čemer so argumentirano zagovarjali ali nasprotovali dani trditvi. Opisani način poučevanja je zagotovo trend, ki bi zaradi vseh svojih razsežnosti v prihodnosti moral postati vsakdanja praksa.

Abstract: The modern way of teaching tends to make diverse range of teaching methods and forms which are used for developing creative thinking by students and teachers while gaining knowledge and skills at different levels of human thinking and action (emotional, intellectual, cultural, social level). Implementation of a vertically integrated cross-curricular lesson is certainly a great example of an integrated concept in modern teaching. When we combined innovativeness of 7th and 8th grade pupils in two Slovene and History lessons together and added the ICT – tablets, laptops and smart phones – our pupils planned their goals and actually planned the lesson in Mahara's My learning tab (what I already know, what I want to know, what I have learnt). In Google Drive shared folder they summarized their thinking, based on the data from the table by using the KWL method. Individual parts of the subject matter were assembled into a unified whole. Students used the jigsaw method and the mind mapping tool XMind for creating one common mind map. Students presented the synthesis of the gained knowledge in the final part through debate with pro and con arguments. The described method of teaching is certainly a trend that due to all its dimensions should become the norm in the future.

Z druženjem ob učenju do znanja ali: kemijski procesi (uporabno) drugače

Socializing while learning to knowledge or: chemical processes (useful) differently

Petra Arnejčič Munda, **Mojca Gornik Brodnjak**, Srednja šola za oblikovanje Maribor

Povzetek: Z dijaki smo posneli že videno, znano, razloženo učno vsebino, tako da jim je proces barvanja las razumljivejši, bližji. Dijakinja 2. letnika programa Frizer je izdelala model nastajanja barve med barvanjem las. Dijaki se učijo (teoretično in praktično) barvnih sprememb na laseh tudi s pomočjo sodobne tehnologije – videoposnetkov, dostopnih na spletu. Ker gre pri tej tematiki za dokaj zapletene kemijske in fizikalne procese, dijake spodbudimo, da sami izdelajo model dogajanja in ob konkretnem izdelku razložijo postopek. Na spletu nismo našli nazorne razlage, povezane s temo barvanja, zato je dijakinja s pomočjo dijakov programa Medijski tehnik oblikovala videoposnetek, ki smo ga objavili na YouTubu. Posnetek predstavlja učno gradivo. Tako se dijaki učijo od dijakov konkretnih učnih vsebin, sodelujejo z dijaki drugih izobraževalnih programov (medvrstniško povezovanje, učenje neformalnih vsebin – scenarij, snemanje, elementi videopredstavitve itd.). Učitelji različnih programov ob tem sodelujemo in se učimo drug od drugega (učitelj frizerstva, snemanja in montaže, slovenist in učitelj tujega jezika) ter ugotovimo, kaj je dijakom blizu, kako razumejo delovanje procesov in kaj se jim zdi nazoren prikaz. Tako se laže vživimo v miselne procese dijaka. Na osnovi videa dijakinje je v tem šolskem letu večina dijakov 2. letnika pridobila višjo raven znanja.

Abstract: Within the project the students together with their teachers created educational video content on the topic of hair colouring. A second year hairdressing student prepared a model of colour emergence during the hair coloration process, thereby enabling other students to utilize YouTube for learning from their pears. The fact that the coloration process includes some rather complicated chemical and physical processes, the students are encouraged to create a model themselves, while utilizing a concrete example to explain it. Since there is currently very little material on the theme available on the web, the student worked together with her peers form the Media technician programme to create an educational video and distribute it on YouTube. This is a nice practical demonstration of informal collaborative learning and inter-disciplinary teamwork for students as well as for teachers who now have the ability to see how students think and learn. We have concluded that the beforementioned video greatly enhanced the learning experience, while at the same time improving the knowledge of the student's second year peers.

E-listovnik kot instrument podpore pri poklicnem usmerjanju učencev osnovne šole

E-portfolio as the means of students' work-study orientation in primary school

Boža Jazbinšek, OŠ Dobje

Povzetek: Med nalogami osnovne šole je tudi pomoč učencem pri pripravi na nadaljnje izobraževanje in vstop v svet dela. Pri tem sodelujejo vsi strokovni delavci, posebej svetovalna služba v okviru poklicnega usmerjanja. Tu se učenci učijo prepoznavati svoje osebnostne lastnosti in značilnosti, vrednote, predstavljati in utemeljevati svoja stališča, sprejemati in podajati kritiko in kar je najpomembnejše – prevzemati odgovornost za svoje odločitve. Glede na to, da naša šola sledi trendom e-kompetentne šole, smo pri poklicnem usmerjanju začeli uporabljati spletno orodje Mahara. Nekoč papirnate mape Zavoda RS za zaposlovanje je zamenjal e-listovnik, ki učencem omogoča všečen način komuniciranja. Mahara za poklicno usmerjanje pomeni zbirko dosežkov, izdelkov, razmišljanj, spoznanj in refleksij, ki se nalagajo v daljšem časovnem obdobju. Forumi in pogledi omogočajo, da posameznik dobi informacijo o tem, kako ga vidijo drugi (sošolci, učitelji tudi starši, ki so vključeni v del procesa). Učenec dobiva povratne informacije kritičnih prijateljev v različnih situacijah, kar mu omogoča, da si ustvari realno sliko o sebi, najde svoja močna področja, jih nadgradi in se laže odloči za nadaljnjo poklicno pot.

Abstract: E-portfolio is the means of students' work-study orientation in primary school. Preparing students for further education and entry into the world of work is also one of the tasks of primary school teachers. All professionals at school, especially counselling service within the career guidance help them on their way. Here students learn to identify their personality traits, characteristics and values, to present and justify their points of view, and to give and receive critical opinion and most importantly – to take responsibility for their decisions. Given the fact that our school follows the trend of e-competent school, we started to use the web application Mahara in career guidance. Once a paper folder of the Employment Service has been replaced by e-Portfolio that enables students the way of communication they like. Mahara is a collection of achievements, products, reflections, their thinking and self-awareness accumulated during the time. Forums and views allow the individual to obtain information about how others (classmates, teachers, parents who are involved in the process) see him/her. The student gets feedback from critical friends in different situations which enables him to create a realistic picture of himself, find his strong points, improve them and make the decision about the job easier.

Razvijanje višjih taksonomskih ravni znanja pri angleščini s pomočjo vrstniškega ocenjevanja in orodja Delavnica

Peer assessment activity in Workshop as a tool for developing higher taxonomic levels in English

Nela Bejat Krajnc, OŠ Pod goro, Sl. Konjice

Povzetek: V prispevku predstavljamo vrstniško ocenjevanje pri predmetu angleščina s pomočjo orodja Delavnica v Moodlu. Temeljni cilj vrstniškega ocenjevanja je bil razvijanje veščine vrednotenja pisnih sestavkov in oblikovanje povratnih informacij sošolcem. Učenci so ozaveščali pomen kriterijev za ocenjevanje in razvijali višje taksonomske ravni znanja. Ocenjevali so sestavke svojih sošolcev in jim napisali povratno informacijo. Ocenjevanje je bilo poenostavljeno z vnaprej pripravljenimi kriteriji z opisniki in točkami. Pri oblikovanju kriterijev za ocenjevanje sestavkov so aktivno sodelovali, kar je vplivalo na boljše razumevanje in doseganje ciljev pri pisnem sporočanju. Pred ocenjevanjem smo naredili testno ocenjevanje z namenom uskladiti kriterije in čim bolj objektivno ter zanesljivo ocenjevati sestavke. Po končanem ocenjevanju je primerjava s poskusnim ocenjevanjem kazala na večjo usklajenost ocen učencev z oceno učitelja. Zaradi poznavanja, razumevanja in doslednega upoštevanja kriterijev so bili sestavki učencev izvirnejši ter slovnično in pravopisno pravilnejši.

Abstract: The paper presents the Workshop module in Moodle as a tool for peer assessment of English writing skills in primary school. The primary objective of peer assessment was to develop the skills of evaluation of written compositions and to provide a feedback for the classmates. Besides that, the students have become aware of the importance of knowing the criteria for evaluating and were learning on higher taxonomic levels. Each student first submitted his/her composition and then assessed 2 compositions of their classmates. The assessment has been simplified with previously prepared criteria and descriptors. The students were actively involved in making assessment criteria for written compositions which resulted in both better understanding and achievement of objectives for writing skills. Before the assessment, we had made a pilot one in order to harmonize the criteria and to objectively and reliably assess the compositions. After the assessment was made, the comparison with the pilot assessment showed greater consistency of students' assessment with teacher's assessment. Due to the strict adherence to the criteria, the students' own compositions have significantly improved considering original content, versatile vocabulary and grammatical correctness.

Uporaba IKT v dramskih prizorih

The use of ICT in drama scenes

Polona Miklavc, OŠ Vransko Tabor

Povzetek: Sodobni čas in tehnologija nam omogočata, da lahko svoje vzgojno-izobraževalno delo v šolah z uporabo pametnih naprav popestrimo ter tako učence bolj motiviramo za učenje in delo. Pri izbirnem predmetu gledališki klub smo se zato z učenci letos odločili, da bo naše delo celotno šolsko leto spremljal IKT. Tako smo proslavo ob slovenskem kulturnem prazniku zasnovali nekoliko drugače, saj smo v scenarij vključili interaktivne elemente. Namesto »klasične« scene smo pripravili interaktivno DVD-projekcijo slik, ki je ponazarjala življenje Franceta Prešerna. Dramski nastopi učencev na prireditvi so se prepletali z interaktivnimi: programu smo dodali reportažo in dva filmska prizora iz Prešernovega življenja, ki so jih posneli učenci gledališkega kluba. V reportaži so preostale učence spraševali, kaj vedo o pesniku. Vse posnetke so posneli s pomočjo pametnih telefonov, jih zmontirali v programu iMovie in jih vstavili v DVD-projekcijo, ki so jo naredili v programu iDVD. Pri pripravi prireditve so se preizkusili v vlogi snemalcev, novinarjev, igralcev in monterjev posnetkov, na sami prireditvi pa v vlogi »učiteljev«, saj so preostalim učencem zanimivo predstavili Prešernovo življenje in delo. Uporaba IKT-elementov je vsekakor dosegla svoj namen, saj je prireditev popestrila, učence motivirala za delo in omogočila, da so izmenjevali svoja znanja tako pri pripravah kot tudi pri izvedbi prireditve.

Abstract: Modern technology allows us to make our educational work at school more interesting with the use of smart devices and therefore motivate pupils to learn and work. Together with pupils we decided to use ICT in the optional subject Drama Club during this school year. The celebration of The Slovene Cultural Day – Prešeren's Day was organized slightly differently because our script included interactive elements. An interactive DVD-projection of images that illustrated France Prešeren's life was used instead of a usual scene. At the event the acting of pupils was intertwined with interactive inserts; a reportage and two film scenes from Prešerens life filmed by the pupils attending Drama Club were added to the script. In the reportage pupils were asked questions about the poet. All the videos were filmed with smart phones, edited in iMovie program and inserted in the DVD-projection, which was created in iDVD programme. Pupils who took part in the organization of this event had the roles of reporters, actors and editors. At the event itself they also played the role of a teacher when they presented Prešerens life and work to other pupils in a very interesting way. The use of ICT elements has definitely achieved its aim, the event was enlivened and the pupils were motivated to work. ICT made it possible for pupils to share their knowledge both in the process of organization as well as at the event itself.

Vključevanje IKT-sredstev v vrtcu

Use of ICT in nursery school

Špela Pirih, Kranjski vrtci, Čebelica

Povzetek: Sodobna tehnologija je postala naš vsakdan. Kljub temu opažam, da pri delu z otroki v vrtcu tega ni zaslediti, celo več, strokovni delavci se temu raje izognejo. Medtem pa se v šolah IKT vedno bolj uspešno in napredno vključuje v proces učenja in dela z otroki. Na to kažejo tudi različni primeri dobre prakse, ki jih predstavljajo v okviru različnih izobraževanj. Vzgojiteljice in vzgojitelji pri načrtovanju aktivnosti in delu z otroki še vedno pogosteje uporabljajo starejše metode, ki ne vključujejo IKT-sredstev. Vzrok je verjetno v tem, da imajo nekateri premalo izkušenj s tega področja in premalo razpoložljivih sredstev. V letih, ki sem jih preživela v interakciji z otroki v vrtcu, sem opazila, da znanje in veščine o uporabi različnih IKTsredstev pri otrocih naraščajo. Ker sem to znanje želela vključiti v sam proces dela z otroki, sem sama sebi postavila vprašanje, kako bi to lahko izvedla na ravni predšolskih otrok. Počasi sem začela vključevati IKT v delo z otroki in pozitivni odzivi so se kazali pri analizi dela in načrtovanja. Pri tem pa sem opazila še eno prednost: različni tehnološki pripomočki so lahko tudi izjemno močno motivacijsko sredstvo. V prispevku bi rada pokazala primer projekta v vrtcu Moje telo/My body, pri katerem sem uporabila različna IKT-sredstva. Temo smo skupaj z otroki razvijali, načrtovali in izvajali. Dejavnosti so potekale prek različnih internetnih povezav, računalniških iger na tabličnem računalniku ter so vključevale snemanje in slikanje s kamero in fotoaparatom. Temo sem vpeljala tudi v ure zgodnjega poučevanja angleščine, kjer mi uporaba IKT še dodatno pomaga, da otroci bolje razumejo snov.

Abstract: Modern technology became very important part of our lives. Despite that I noticed that working with children doesn't include ICT, even more, nursery school teachers are avoiding its use. Meanwhile teachers in primary schools are successfully using ICT for learning and working with children in classes. This is also shown through various examples of good practices which are represented through various educational trainings. Nursery school teachers are still actively using older methods that don't include ICT. The reason for that is probably the lack of experiences and available resources. During the years I have spent working in nursery school I noticed that their knowledge and skills re. the use of ICT are increasing. As I wanted to include this knowledge into the process of my work with children, and I slowly started to use ICT. Positive reactions of children were shown in the analysis that followed. Another advantage is that ICT can also be an extremely powerful motivational tool. I would like to present an example of a nursery school project My body where I used different ICT. Activities were planned together with children and they were conducted through different Internet connections, computer games on the tablet as well as recording and taking pictures with digital camera. I also used ICT in English lessons which proved made them more interesting.

Posvoji Facebook za en teden

Adopt Facebook for a week

Brigita Praprotnik, Prva gimnazija Maribor

Povzetek: Z dijaki uporabljamo Facebook skupino že nekaj let kot občasen način sporazumevanja in učenja ob domačih nalogah. Način dela so sprejeli kot normalen del učnega procesa in tako sem lahko vpeljala novost, in sicer: vsak teden sem postavila enega od dijakov za skrbnika Facebook skupine, njegova naloga pa je bila, da sošolce nauči nekaj novega. Tako so bili postavljeni pred zahtevno nalogo, saj so morali uporabiti predhodno obravnavana znanja kritične presoje primernih gradiv in virov, ki so jih iskali na internetu. Pri tem so morali uporabiti še znanje postavljanja bistvenih vprašanj, ki bi sošolce spodbudila k razmišljanju in bi ti posledično v odgovorih lahko izkazali sposobnost presoje z dobro razvitim argumentiranjem. Dijaki skrbniki so prevzeli tudi evalvacijo naloge, za kar so večinoma uporabili komunikacijsko veščino dajanja povratne informacije po metodi »sendvič«. Uvajanje novega načina dela ni potekalo gladko, saj so dijaki potrebovali nekaj časa, da so sprejeli svojega sošolca ali sošolko kot »učitelja«. Iz naloge v nalogo pa se kaže vse večji občutek odgovornosti na obeh straneh.

Abstract: Using Facebook group as means of occasional communication and learning through homework has been practised with my students for a few years. They took this way of work as a normal part of the learning process and so I could introduce a novelty: each week one student was appointed as a keeper of the group with the task to teach his classmates something new. Being put in the position to carry out this demanding task they had to use previously acquired knowledge of critical evaluation of the suitable material and sources which they searched on the Internet. Moreover, they had to show their knowledge of asking essential questions which would stimulate their classmates' contemplation and show their ability of judgement with well developed arguments. Student keepers took over the evaluation of the task, mostly by using the »sandwich« technique of communicational skills for feedback. Introducing the new way of work did not run smoothly, the students needed some time to accept their classmate as a »teacher«. The increasing sense of responsibility has been noted on both sides.

Formativno spremljanje znanja v e-listovniku

Formative knowledge assessment in EUfolio

Ljiljana Mićović Struger, OŠ J. Glazerja, Ruše

Povzetek: Formativno spremljanje znanja je spremljanje učenčevega napredka znanja, ki temelji na preverjanju predznanja, načrtovanju na temelju preverjenega predznanja in nadgradnji znanja posameznega učenca glede na zmožnosti. Učiteljeva naloga je pri tem, da vzpodbuja, pripravlja primerno učno okolje, v katerem učenec lahko doseže največ. Najpomembnejša učenčeva naloga je, da prevzame skrb za svoje učenje in napredek, da si postavlja cilje v skladu z zmožnostmi in skupnimi ter lastnimi cilji. Pri tem mi pomaga e-listovnik, ki učencu omogoča, da po natančno določenih korakih, ki od njega zahtevajo posamezne miselne procese v zvezi z učenjem, to tudi uzavesti. Najprej se seznani s sklopom, ki ga bomo obravnavali, opis po navadi pripravi učitelj (lahko tudi učenec), ključne besede povzamemo po opisu sklopa, preverjanju predznanja in postavljanju ciljev. Učenec ves čas ob tem razmišlja tudi o strategijah učenja, dokazih za svoje učenje, ki ga posledično izkaže z uporabo znanja in samovrednotenjem dela. E-listovnik učencu omogoča, da stvari počne, ko se za to odloči, da jih počne tako hitro, kot zmore, in da svoje ugotovitve deli s sošolci in z učiteljico ter tako dobi sprotno povratno informacijo, ki mu omogoča največji možni napredek.

Abstract: Formative knowledge assessment in EUfolio Formative assessment helps teachers to monitor progress of their pupils. It is based on diagnosting the prior knowledge, planning based on prior knowledge and building up the individual pupil's knowledge according to his abilities. Teacher's role is to encourage and create adequate learning environment which allows pupils to perform at their best. The most important task of the pupil is to take on responsibility for his own learning and progress, to set his objectives in accordance with his abilities as well as common and personal objectives. I use Eufolio which enables the pupil to become aware of that through exactly defined steps that make him use different thinking processes while studying. Firstly, the pupil meets the theme which will be discussed, the description of the theme is usually prepared by teacher (but it can be also prepared by a pupil), the keywords are extracted after the theme description, assessment of prior knowledge and setting objectives. During that time the pupil is also thinking about the learning strategies, proofs of his learning which is shown with the use of knowledge and self evaluation of his own work. EUfolio enables the pupil to do things, when he decides so. It also enables him to do things at his own pace and share his findings with other pupils and teacher. This way he is constantly getting feedback which allows him to make the best possible progress.

Postavljam vprašanja

I ask questions

Mateja Drnovšek, OŠ Polje

Povzetek: V projektu EUfolio smo pri pouku uvajali veščino kritičnega mišljenja. S formativnim spremljanjem smo želeli pri učencih dodatno spodbuditi občutek odgovornosti do lastnega dela in napredka. Oboje smo pri urah zgodovine uresničevali s pomočjo vprašanj, ki so jih zastavljali in oblikovali učenci sami v sklopu utrjevanja in obravnave nove snovi. Na začetku so bili učenci seznanjeni z različnimi oblikami in tipi vprašanj, da so dobili občutek, kakšna je razlika med njimi in kakšen odgovor se pričakuje. V skupinah so oblikovali vprašanja, ki so bila uporabljena tako pri pisnem testu, kot tudi za ustno spraševanje. Postavljanje vprašanj so nadgradili, ko so morali izdelovati delovne liste. Sami so postavili kriterije dobrega delovnega lista in ga izdelali. Skupaj smo pregledali delovne liste in jih na podlagi njihovih kriterijev ocenili. S pomočjo elektronskega orodja Mahara in zavihka Moje učenje v e-listovniku so učenci sami določali svoje predznanje, si določili cilje in strategije za dosego svojega cilja. Ker so delovali v skupinah, so se lahko učili drug od drugega, ugotovili, da razmišljajo različno, da so nekaterim bližji zaprti in drugim odprti tipi vprašanj. Nekateri so bolj vizualni tipi drugi so boljši kritični misleci. Pridobili so tudi občutek odgovornosti za svoje odločitve in dejanja.

Abstract: We introduced the skill of critical thinking in classroom with EUfolio project. With the help of formative assessment, we tried to promote a sense of responsibility for pupils' own work and progress. At History lessons we achieved that by asking questions. Questions were designed by pupils between learning old lessons and confrontation with new educational material. In the beginning we introduced them with tips of questions, differences between questions and what we expect for answer. In groups they formed questions which were used in written test as well as oral questioning. Pupils upgraded asking questions by making their own worksheets. They set the criteria of good worksheet and made it. Together we reviewed all the worksheets and based on their criteria evaluated them. With the help of electronic tool Mahara and tab my learning in e-Portfolio pupils determinated their knowledge and set goals and strategies to achieve this goal. Because they worked in groups they learned from each other, discovered that they think differently, that for some of them closed questions are easier than open types of questions that some of them are more visual types and they need visual material and others are better critical thinkers. They also gained a sense of responsibility for their decisions and actions.

Z anketo do kakovostnejše spletne učilnice pri informatiki

With the use of a survey towards a higher quality web classroom in the Information Science lessons

Andrej Šuštaršič, Gimnazija Bežigrad, Ljubljana

Povzetek: Učenci imajo radi nekaj novega, boljšega, torej nekaj zanimivega, ki jih navdušuje in jih vsesplošno bogati. To spoznanje je izziv za šolo kot tudi za učitelja, da dijakom prisluhne in jim omogoči temu ustrezen učni proces in učenje. Učitelj dijakom lahko omogoči bolj ustrezna gradiva, izvaja dejavnosti, pristope, uporabi temu ustrezne metode in oblike dela. Spletne učilnice predmeta se navadno zelo razlikujejo. Učitelji dodajamo v spletno učilnico raznovrstne vire in dejavnosti. Skrbeti moramo, da tako učilnico v ustreznem času tudi kakovostno nadgradimo oziroma spremenimo. V prispevku bo predstavljena predvsem kakovostna sprememba spletne učilnice pri informatiki z upoštevanjem mnenja dijakov o pomanjkljivostih, ustreznosti ter kakovosti posameznih virov in dejavnosti v spletni učilnici. Na voljo imamo več možnosti, da spoznamo in ugotovimo mnenje dijakov o uporabi in kakovosti spletne učilnice. Lahko je dovolj že kratek pogovor ali kritična presoja pri pouku, lahko uporabimo forum v spletni učilnici, lahko pa sestavimo vprašalnik in izvedemo anketo. Najbolje je, da uporabimo vse tri možnosti, saj so kritični komentarji dijakov pri prvem vstopu v spletno učilnico zelo dobrodošli za popravke in spremembe, ki jih lahko naredimo takoj. Forum omogoča, da sledimo mnenju dijakov ves čas, z anketo pa lahko dobimo mnenje dijakov, ki je celovitejše. Kritičen odziv dijakov je za učitelja lahko novo znanje.

Abstract: Students like something new, better and therefore more interesting which inspires and enriches them in general. This notion presents a challenge for school as well as for the teachers to listen to the students and provide a suitable studying environment. The teacher can provide the students with more adequate materials, perform better activities and ways of teaching and use equivalent methods. Web classrooms differ in terms of different school subjects. Teachers put various sources and activities in a web classroom and upgrade or change the web classroom in terms of quality. This article presents mostly the qualitative aspect of upgrading the web classroom in Information Science lessons, bearing in mind the opinions of the students about the drawbacks, adequacy and quality of each source and activity in the web classroom. There are different possibilities to be used to find out about the students' opinions regarding the use and quality of the web classrooms. Sometimes even a short conversation or a critical evaluation during the classes is enough.

A forum in the web classroom can also be used or a survey can be carried out. It is best to use all three options since students' critical comments at their first web-classroom entry are very welcome for corrections and changes. The forum enables us to follow the students' opinions all the time and the survey makes it possible to get more complex opinions. A critical student's response can serve as new knowledge for the teacher.

Tablica pri kiparstvu ni samo podlaga

Tablet in sculpturing is not just a panel

Renata Kern, OŠ Šmartno pod Šmarno goro

Povzetek: Poučevanje je izziv in izziv je krasna motivacija za spremembe in drugačnosti. Pouk likovne umetnosti mi je v veselje, saj teoretične vsebine vedno preizkušamo, raziskujemo z ustvarjanjem, oblikovanjem različnih materialov. Informacije in trditve v obliki besed pri podajanju likovne teorije večkrat niso dovolj, da bi učenec razumel. Privabiti učenca, da z izkušnjo samostojno obrazloži podano teoretično novost, je bil izziv tudi zame. V 4. razredu sem pri kiparski vsebini našla način, kako bi s pomočjo tablice učenci samostojno raziskali in ugotovili razlike med dvema vrstama kiparskih izdelkov. Nalogo sem nadgradila in določila, da učenci raziskujejo v dvojicah. Samostojno so se odločali, katero vlogo bo kdo prevzel ali če bodo vlogi zamenjali. Eden izmed njiju je prevzel vlogo snemalca, drugi je pripravil izdelek za snemanje na vrtljivo podlago. Naloga je zahtevala medsebojno sodelovanje, dogovarjanje, ugotavljanje, potrjevanje in dokazovanje trditve. Skozi to izkušnjo so doumeli razlike med reliefom in oblo plastiko, saj so pri snemanju naleteli na manjšo oviro. Reliefa niso mogli posneti na enak način z vseh strani kot manjši kipec človeka. Teoretično trditev so učenci v nekaj minutah s pomočjo snemalnika na tablici preprosto spoznali, razumeli in dokazali.

Abstract: Teaching is a challenge and a challenge is great motivation for changes and diversity. Teaching Fine Arts is a pleasure to me as we always test theoretical contents, we explore through creating, designing different materials. Information and statements are often not enough for a pupil to understand the art theory, so it was a challenge to me to invite pupils to explain the given theoretical novelty through experience. In the 4th grade I found a way in the sculptural content for pupils to research and find differences between the two types of sculpture by using tablets. I upgraded the task and told the pupils to research in pairs. They could decide by themselves which role to take or even to change the roles. One of them took over the role of the cameraman, the other one prepared the sculpture for recording on a rotating surface. The task requested mutual cooperation, making agreements, discovering the facts, validating and proving the claim. Through this experience they understood the differences between a relief and a rounded plastic as they came across a minor obstacle during the recording. They could record a small statue of a human being from all sides, but they were not able to record a relief in the same way. In just a few minutes students became acquainted with the theoretical claim, they were able to understand and prove it by using the tablet recorder.

Kako povezati neobvezna izbirna predmeta – nemščino in film

How to connect optional non compulsory classes – German and Film

Urška Godler, **Katja Gajšek**, OŠ Hruševec, Šentjur

Povzetek: Pri neobveznih izbirnih predmetih, nemščini in filmu, za 4. razred sva se učiteljici odločili izvesti projekt medpredmetne povezave, pri katerem so se učenci obeh predmetov učili drug od drugega. Učenci so se med poukom nemščine naučili pesem Kaj pravi lisica? v nemškem jeziku. Učenci neobveznega izbirnega predmeta film pa so nato njihov nastop posneli ter naredili videospot. Tako so se na zabaven način učili postopkov snemanja, dela s kamero, montaže filma, kostumografije ter usvajali nemško besedišče. Tehnologija, ki so jo pri tem uporabljali, so tako bili iPadi, Go Pro kamera kot program iMovie za obdelavo videa ter Sam Animation za izdelavo animacije. Namen tovrstnega projekta je bil učencem predstaviti različne vloge, potek nastajanja filma ter izmenjavo znanja med dvema predmetoma.

Abstract: In optional non compulsory classes German and Film for 4th grade pupils we made a project in which children had learned from one and another. During the German class children learned a song What does the fox say? in German language. The pupils of Film class then filmed their performance and made a video. That is how the they learned the process of filmmaking, handling the camera, film designee, cosmography and German words in a fun way. The technology we used were iPads, Go pro camera, iMove programme for making of the film and Sam animation program for making animation. The purpose of the project was to learn children different roles and jobs recurred for making of the film and exchange of knowledge between two subjects.

Pouk informatike v virtualnem okolju OpenSim

Teaching Informatics in virtual environment OpenSim

Mirko Đukić, Zavod Antona Martina Slomška, Škofijska gimnazija

Povzetek: Namen prispevka je predstaviti “nekoliko drugačen” projektni in v dijaka usmerjeni način izvajanja pouka pri informatiki. Naslanja se na koncepte poigritve učnega procesa, kot so učenje skozi igro, učenje skozi delo, na dijaka osredotočeno učenje, spodbujanje ustvarjalnosti in prenašanje znanja med dijaki. Dijaki v virtualnem okolju (OpenSim) “predelajo” teme iz učnega načrta, in sicer programiranje ter predstavitev predmetne in točkovne slike. Na začetku se na nivoju razreda dogovorimo za skupno temo (letos: “Srednjeveški gradovi”). Dijaki nato v majhnih skupinah delno vodeno in samostojno gradijo vsebino v skupnem virtualnem okolju (OpenSim). Tako se učijo lastnosti predmetne slike. Z oblačenjem ustvarjenih predmetov s teksturami, ki jih izdelajo sami, pa usvojijo obdelavo točkovne slike. Programirati se učijo v programskem jeziku Scratch. Napisane programe izvažajo v skripte (Linden Script), ki jih nato uvozijo v OpenSim in jih lepijo kot obnašanje določenega predmeta. Učenje poteka v skupnem okolju, kjer imajo možnost komunicirati, opazovati delo sosedov, si med seboj pomagati in se tako drug od drugega učiti. Iztek učne teme je usmerjen v ocenjevanje, kjer se ne oceni končni izdelek. Dijak ustvari predmet in ga opremi s smiselnim obnašanjem (npr. dvižni most). V primeru ocenjevanja znanja iz programiranja, se izdelek oceni na nivoju doseganja konceptov, kot so: program vsebuje smiselno vejitev, zanko, spremenljivko, funkcijo ...

Abstract: The aim of the article is to present a »slightly different« project-based and student centred way of teaching Informatics. It leans on the concepts of gamification of the learning process, such as the game based approach of learning, learning by doing approach, student centred learning, encouraging the creativity and spreading knowledge among students. In the virtual environment (OpenSim), students consider the topics from the curriculum, namely programming, presentation of vector graphic and bitmap images. First, we discuss the common theme in class (this year: “Medieval Castles”). Then students form small groups and partly guided and partly independently create contents in the common virtual environment (OpenSim). This is how they learn the characteristics of a vector graphic. By clothing the created objects with textures made by them, students adopt the processing of a bitmap images. They learn to code in the programming language Scratch. They export the written programmes in scripts (Linden Script) and then import them to OpenSim and paste them as the behaviour of a certain object. They learn in the common

environment where they have the opportunity to communicate, observe the work of their neighbours, help each other and learn from each other. The final part of the teaching theme is dedicated to assessment, but not of the final product. The student creates an object and decorates it with the logical behaviour (for example: a draw bridge). When assessing programming, the product is assessed at the level of concepts, e.g. the program contains appropriate branching, a loop, a variable, a function, etc.

Ko 1 : 30 postane 1 : 1

When 1 : 30 becomes 1 : 1

Goran Bezjak, Zavod Antona Martina Slomška, Škofijska gimnazija

Povzetek: Namen delavnice je prikazati prehod poučevanja fizike iz sistema 1 : 30 na sistem 1 : 1. V delavnici bom prikazal, kako lahko to dosežemo ob uporabi aplikacije NearPod na mobilnih naparvah (in ustrezni omrežni infrastrukturi). Pri poučevanju fizike pogosto pojasnjujemo s pomočjo risanja (grafi, skice, skiciranje eksperimentov itd.). To po navadi počnemo tako, da npr. graf narišemo na tablo in tako uporabimo frontalno obliko po sistemu 1 : 30. V takem primeru vsi dijaki pogosto niso aktivni. Lahko pa razvijamo razlago ob grafu tako, da jim postopno posredujemo snov. Za to uporabimo v naprej pripravljeno predlogo (npr. nastavek za graf) v aplikaciji NearPod, kjer vsak dijak (delno vodeno) nariše svojo predvideno rešitev. S tem aktiviramo vse dijake, hkrati pa nam aplikacija omogoča, da (izbrane) rešitve posredujem v pogled vsem dijakom, kar mi omogoči nadaljnjo razpravo o snovi. Pri tem spodbujam kritično mišljenje in medvrstniško vrednotenje, saj imajo dijaki možnost vrednotiti (ali komentirati) vrstniške (pol)izdelke (v našem primeru graf), hkrati pa so tudi "soustvarjalci" podajanja snovi. Prednost je podajanje znanja na način, kjer so ob razlagi vsi dijaki aktivni v razvijaju in razlagi snovi. Moja vloga se torej decentralizira in se postavi na nivo moderatorja, ki usmerja potek snovi. Sošolci se tako imajo možnost učiti drug od drugega. To lahko dijakom poveča motivacijo za delo, saj vidijo, da če zmore sošolec, zmorejo tudi oni.

Abstract: The aim of the workshop is to demonstrate the transition of teaching Physics from the system 1 : 30 to the system 1 : 1. I will show how we can achieve this passage by using the application NearPod on the mobile devices (and the suitable network infrastructure). Explaining Physics often includes drawing (graphs, sketches, sketching experiments, etc.). We usually do this by drawing, for example, a graph on the blackboard, where we use the frontal shape, according to the system 1 : 30. In a case like this not all students are always active. However, we can provide the explanation with a graph by introducing the subject matter gradually. In order to do this, we use the pre-prepared materials (for example, a graph's base) in the application NearPod, where each student (partially guided) draws his/her own prospective solution. This is the way to activate every student. At the same time the application enables us to forward in consideration the (chosen) solutions to all students or to project them on the blackboard, which provides the further discussion about the subject matter. With this practice I encourage the critical thinking and evaluation among the peers, since students have the opportunity to evaluate (or comment) the (half) products of their peers (in our case the graph) while being the co-creators of presenting a subject matter. The advantage of this

method of teaching is activity of every student in developing and explaining the matter. My role becomes My role therefore becomes decentralized and gets on the level of the moderator who directs the course of the theme. Classmates therefore have the opportunity to learn from each other. This can increase their motivation to work, because they see that if their classmate can do it, they can do it as well.

Vpliv moderne tehnologije na poučevanje matematike

The impact of modern technology on teaching Math

Marija Blažič, OŠ Dobje

Povzetek: Tablice so močno spremenile način dela v razredu. Vsi smo postali učitelji in vsi učenci. Vloge se hitro menjajo med vsako uro. Komunikacija poteka tudi po uri. Pri matematiki nam je e-učbenik nadomestil papirnatega. Pri matematiki uporabljamo GeoGebro, ki omogoča boljše razumevanje geometrije. Učenci se seznanijo s pravili načrtovanja in pri tem pomagajo drug drugemu. Spletna učilnica omogoča tudi preverjanje znanja s kvizi. Wolfram in program prostorske predstavljivosti na torini, atlas okolja idr. omogočajo razvoj prostorske predstavljivosti in učenje ob igri. Učenci imajo ogromen nabor možnosti učenja, pomagajo drug drugemu, raziskujejo, odkritja posredujejo sošolcem, učitelju. Kritično ocenimo vrednost programa, njegove dobre in slabe strani. Hitro najdemo povezavo med vsakdanjim življenjem in učno snovjo. Učencem je tablica dodatna motivacija pri pouku. Pomeni večje znanje in uspeh. Spoznajo svoja močna področja, se znajo samoovrednotiti in sprejeti kritično mišljenje sošolcev. Učenci hitro sprejemajo nova znanja. Učitelji se marsikaj lahko naučimo od njih. Pri brskanju po spletu hitro najdejo tudi zanimive in uporabne programe. Pomembno je sodelovanje s sodelavci, izmenjava izkušenj, učenje programov ... Tehnologija postaja naš način življenja in poti nazaj ni. Treba jo bo samo pravilno umestiti v naš način življenja. Učence vzgajamo, da se oboroţijo z znanjem, da bodo uspešni v življenju.

Abstract: Tablets have impacted teaching to a great extent. Pupils have become teachers and teachers have become pupils. Roles are changing constantly in the course of classes. The communication is also running after classes. E-textbook has replaced regular Mathematics textbook. We use GeoGebra which facilitates understanding of Geometry. Pupils help each other while learning the rules of planning. Online classroom also enables testing the knowledge by quizes. Wolfram and the programme of spatial awareness on torina, atlas of environment and others, help with developing spatial awareness at students and learning by game. Pupils have a huge draft of studying possibilities. They help each other, research, and share conclusions with schoolmates and teachers. They evaluate the worth of the programme and expose its pros and cons. They quickly find the connection between everyday life and subject matter. They find tablet an additional motivation at classes. It contributes to improving knowledge and distinction. They discover their powerful fields and improve

at self-evaluation, but also learn to accept critical thinking of schoolmates. Teachers can also learn a lot from them. They often find interesting and useful programmes when surfing the web. Cooperation between coworkers, the exchange of experience and learning about programmes are also significant. Technology is becoming the way of life and there is no way back. We will just have to incorporate it in our way of life. We are educating pupils to obtain knowledge in order to be successful in life.

ROBO-učenje

ROBO-learning

Miha Miklavc, OŠ Vransko Tabor

Povzetek: Živimo v dobi visoke tehnologije, ko roboti vedno bolj vstopajo v naša življenja. Poleg tega da olajšajo človekovo delo, postajajo tudi avtonomni sistemi, ki lahko človeka v določenih pogledih celo nadomestijo. Delovanje in upravljanje robotov smo želeli razumeti tudi na naši šoli, zato smo v preteklem šolskem letu v okviru projekta Popestrimo šolo začeli izvajati aktivnost LEGO® sistemi, ki jo obiskujejo tako učenci predmetne kot tudi razredne stopnje. Učenci pri omenjeni aktivnosti spoznavajo LEGO® mehaniko in LEGO® robotiko. Delovanje robotov odkrivajo s pomočjo programskega okolja MINDSTORMS NXT in EV3 Education ter z uporabo pametnih telefonov, na katere naložijo aplikacijo ter krmilijo robote. Glavno vodilo aktivnosti je sodelovanje in medsebojno učenje. Učenci višjih razredov pomagajo mlajšim pri zahtevnejših opravilih, kot so konstruiranje, programiranje in upravljanje robotov. S tem postavljamo učence v vlogo učiteljev. Pri odločanju o tem, kaj bodo roboti počeli, učencev ne omejujemo, saj si s tem širijo kreativnost in domišljijo. Njihove ideje so sveže in zanimive, pri konstruiranju pa nenehno težijo k izboljšavam. Največji izziv jim predstavlja povezovanje različnih tehnologij. Aktivnost LEGO® sistemi nudi novo obliko učenja naravoslovnih ved in pridobivanja tehničnega znanja. Matematično-fizikalno znanje predstavlja zabavno in igrivo, hkrati pa opozarja, da le vzajemno izkustveno učenje vodi do boljših rezultatov.

Abstract: We live in the world of high technology in which robots are the integral part of our lives. Not only do they make our work easier, but they are also becoming autonomous systems which can replace humans in certain ways. At our school we wanted to learn more about the functioning and operating of robots. In the previous school year, within the project Popestrimo šolo, we started the activity LEGO®systems which involves pupils of different age. Within the activity pupils are discovering lego mechanics and LEGO®robotics. They are learning about the robots functioning with the use of MINDSTORMS NXT and EV3 Education programmes. The applications are loaded on their smart phones in order to operate the robots. The main motto of this activity is pupils cooperation and cooperative learning. Older pupils have the role of a teacher and help younger with more complex tasks, such as robots construction, programming and their operating. Pupils are not limited in their activities because we want them to develop their creativity and imagination. Their ideas are fresh and very interesting; they always strive for further improvements. The greatest challenge for them is to combine different technologies. LEGO®systems activity offers a new form of Science based learning and acquiring new technical skills. The knowledge of Math and Physics is presented in a funny and playful way. The activity itself shows that only cooperative experiential learning can lead to better results.

Tudi učenci lahko samostojno urejamo spletne učilnice

Even pupils can edit e-classrooms independently

Daša Bejat Kranjc, OŠ Dušana Flisa Hoče

Povzetek: V prispevku bo predstavljen poskus, da bi učenec s pomočjo IKT raziskoval lastni proces učenja in svoje znanje delil s sošolci. Avtorica prispevka ima v spletni učilnici za angleščino vlogo izvajalca, kar ji omogoča vstavljanje virov in pripravo dejavnosti za pridobivanje in utrjevanje znanja. Učenka ustvarja digitalne vsebine, ki se navezujejo na učno snov in motivirajo učence k učenju tujega jezika. Dejavnosti, ki jih avtorica pripravlja v spletni učilnici, so: kreativno pisanje v forumu, vpisovanje besed v slovar, reševanje kvizov in anket, iskanje in objava zanimivih virov, obveščanje o aktualnih zadevah (datumi testov, snov za test). Učenec v vlogi izvajalca je motivator za učenje saj nekateri učenci izvajalki pošiljajo povezave do uporabnih gradiv na spletu.

Abstract: This paper presents an attempt of a pupil to explore her own learning process and share her knowledge with their classmates by using ICT.
The author is given a role of the teacher in the online classroom for English which enables the insertion of resources and preparation activities for the acquisition and consolidation of knowledge. The pupil creates digital content, relating to the subject matter and motivates other pupils to learn the foreign language. Activities prepared by the author in the online classroom are: creative writing in the forum, entering new words in the dictionary, solving quizzes and polls, searching and posting interesting resources, current information (the dates of the tests, questions for the test). A pupil in the role of a teacher is a motivator for learning because the classmates search for and send links to useful resources on the web as well.

Učimo se drug od drugega ob podpori e-listovnika in formativnega spremljanja

Students learning from each other with the support of EUfolio and AFL

Tina Petkovšek, SŠ za farmacijo, kozmetiko in zdravstvo, Ljubljana

Povzetek: V predstavitvi se bom usmerila na prikaz dobre prakse pri pouku, ko smo temo »priprava na prvo zaposlitev« z dijaki razširili na mali projekt, ki je ob uporabi spletnega okolja listovnika in formativnega spremljanja zelo lepo zaživel. Poudarek je bil na tem, da smo vsi dobili priložnost, da se drug od drugega učimo. Želela sem, da ne bom le jaz podajala snovi, ampak da se bo posamezni dijak poglobil v tisti del priprave na prvo zaposlitev, česar sam še ne zna/obvlada, in to temo na kratko predstavil sošolcem. Tako so se učili drug od drugega. Izkazalo se je, da je tak način dela tudi priložnost, da se sama marsičesa naučim od dijakov. Kasneje pa smo k pouku povabili še učiteljico praktičnega pouka; tako sva s sodelavko imeli priložnost, da sva se tudi druga od druge naučili česa novega. Sama aktivnost dijakov je bila razdeljena na štiri etape. Najprej so si za ogrevanje vsak zase izmislili slogan za samopromocijo. V prvi fazi so tudi individualno izpolnili vprašalnik o pripravi na zaposlitev in tako analizirali svoja šibka področja. Izbrano temo so v napovedanem terminu čim bolj ustvarjalno predstavili sošolcem kot predstavitev v Preziju ali PowerPointu, potem pa jo še objavili in delili v listovniku vsem sošolcem. Pomembno je bilo, da so navajali tudi literaturo – spletne vire za morebitno poglobljeno nadaljnje učenje sošolcev. Tretja faza je bila objava nasveta glede iskanja zaposlitve, ki ga je vsak dijak pridobil zunaj šole pri starših, prijateljih, morda celo kadroviku ... Zadnja etapa pa je bila ponovno samoocenjevanje s pomočjo vprašalnika ter dokončanje zavihka Moje učenje. Formativno spremljanje mi je omogočilo spremljanje napredka, dijakom pa je prineslo priložnost za razvijanje samoregulacije v procesu učenja. Moj namen je opogumiti druge učitelje za raziskovanje z učenjem drug od drugega, uporabo listovnika in AFL.

Abstract: In my presentation I will focus on good practice at class when the students extended the topic »preparations for employment« into a small project using Web platform Mahara and AFL which came fully to life. The emphasis was on the fact that we all got an opportunity to learn from each other. I did not want to be the only teacher, I wanted them to go into more depths of that part of »preparation for employment« which they found unknown and show this to other students in a short presentation. In this way they learned from each other. Later a teacher of practical work was invited to our class, so my colleague and I had an opportunity to learn something new from each other

as well. The activity of the students was divided into 4 stages. As a warming-up activity, each of them had to make up a slogan for his/her self-promotion. In the first phase they also filled in a questionnaire about preparation for employment and thus analysed their weak points. They chose which topic they would deal with independently. In the pre-arranged time they introduced their chosen topic to their classmates as a presentation in Prezi and PowerPoint in a most creative way. It was important that they also quoted the sources – the Internet sources in case their classmates would like to study more about that topic. The third phase was the publication of advice regarding looking for employment which each of the students got outside school, either from their parents, friends or personnel managers. The last stage was again self-assessment by the help of questionnaire about preparation for employment and finishing the folder »my learning with evaluation«. AFL enabled me to follow the progress of the students and they got an opportunity for developing self-regulation in a learning process. My intension is to encourage other teachers to explore learning from each other and use folio and AFL.

Sodelovalno in samoregulativno učenje s pomočjo e-listovnika pri pouku športne vzgoje

Collaborative and self-regulatory learning with e-portfolio at P.E.

Neja Markelj, SŠ za farmacijo, kozmetiko in zdravstvo, Ljubljana

Povzetek: V prispevku predstavljam izkušnjo formativnega učenja z vključevanjem e-listovnika (v sklopu projekta EUfolio) in sodelovalnega učenja pri pouku športne vzgoje v srednji šoli. Poleg običajnih vsebinskih ciljev tematskega sklopa skok v daljino sem zasledovala naslednji procesni cilj: razvijati spretnosti sodelovalnega in samoregulativnega učenja. Dijakinjam 3. letnika sem napovedala temo naslednjega srečanja. Za domačo nalogo so izpolnile rubriko predznanje v zavihku Moje učenje v e-listovniku. Aktivirale so svoje predznanje o tehnikah skoka v daljino, značilnostih faz skoka in dejavnikih, ki vplivajo na dolžino skoka, zapisale so tudi, kaj že vedo o sodelovalnem učenju. Na prvi uri smo se pogovorile o njihovih zapisih ter obnovile znanje o teh temah. Dekleta so se razdelile v delovne pare. Z i-Padom so druga drugi posnele skoke. V e-listovniku so analizirale tehniko skoka (dobre stvari in pomanjkljivosti), oblikovale cilje in strategije do ciljev ter sošolki podale povratne informacije o njenih zapisih. Pri naslednjih urah smo vadile tehniko skoka v daljino, v paru so si sproti podajale povratne informacije. Ocena skoka v daljino z naravno tehniko je bila sestavljena iz učiteljeve ocene skoka, ocene dveh sošolk in uspešnosti ocenjevanja skoka sošolke. Naloga učitelja v vseh fazah je, da pozorno spremlja aktivnosti, vzpodbuja sodelovanje in pomaga, ko se stvari zataknejo.

Abstract: In this paper I present an experience of formative and collaborative learning at Physical Education in the 3rd year of high school by integrating e-portfolio (project EUfolio). In addition to the common learning objectives of the long jump, I additionally followed the following objectives: to develop collaborative and self-regulatory learning skills. The learning started with the announcement of the next class theme. Students fulfilled My-Learning tab in the e-portfolio for homework. They activated their prior knowledge of the techniques of long jumping, jump phases and the factors that influence the length of the jump, and at the same time they tried to remember what they already knew about collaborative learning. In the first class we discussed their notes on these topics. The girls were divided into pairs. They filmed each others jumps with i-Pad. In the e-portfolio they analyzed their own jump technique, set their learning goals and strategies to meet them. Schoolmates submitted feedback on their notes. In the next classes we practiced jump technique and

regularly provided feedback in the pair. The assessment score of the student long jump performance consisted of teacher's assessment, two classmates' assessments and student's evaluation of the schoolmate's jump performance. Teacher's task at all stages is to closely monitor the students activities, encourage collaboration and help when students have problems.

2.2

Pod žarometi • Spotlight

Pod žarometi

Spotlight

Na konferenci SIRIKT 2015 vpeljujemo novo izvedbeno obliko, ki smo jo poimenovali Pod žarometi. Ta oblika združuje elemente dosedanjih kratkih predstavitev z razpravo in panelnih razprav. Z žarometi ne bomo usmerjali svetlobe, ampak našo pozornost, tako da bomo predstavljali, osvetljevali, raziskovali izbrane aktualne teme s področja IKT.

Za iztočnico bodo vabljeni gostje predstavili svoje poglede, izkušnje, mnenja itd. o izbrani temi ter se nato predali čim bolj vsebinski in dinamični razpravi s sodelujočimi. Nekaj aktualnih tem: Learning analytics , Sinergija e-projektov, I-učbeniki prihodnosti, IKT – kaj dogaja pri sosedih ...

SIRikt 2015 introduces a new presentation form called Spotlight. It combines elements of previous short presentations and panel discussions. By presenting, highlighting, and researching we will direct our attention at certain current ICT-related topics, thus putting them in the spotlight.

As a starting point, invited guests will present their views, experiences, opinions, etc. on the selected topic and then initiate a lively and content-rich discussion with the participants. Some potential topics: learning analytics, synergy of e-projects, i-textbooks of the future, ICT – what's up at the neighbours', etc.

Digitalna kompetenca učencev
IZTOČNICE GOSTOV

Digital competence of pupils
GUESTS' STARTING POINT

SIRikt 2015 • Učimo se drug od drugega • Learning from each other • 156

Mitja Čepič Vogrinčič, PI

V Sloveniji in v svetu smo računalniško in informacijsko pismenost učencev 8. razredov izmerili prvič, in sicer z Mednarodno raziskavo računalniške in informacijske pismenosti ICCS 2013 (International Computer and Information Literacy Study). Raziskavo koordinira Mednarodna organizacija za evalviranje izobraževalnih dosežkov (IEA – International Association for the Evaluation of Educational Achievement).

Z raziskavo smo želeli preveriti računalniško in informacijsko pismenost učencev, t. j. sposobnost posameznika, da uporablja računalnik za raziskovanje, ustvarjanje in sporazumevanje, da lahko učinkovito sodeluje doma, v šoli, na delovnem mestu.

V raziskavi je sodelovalo 219 osnovnih šol (3740 učencev 8. razredov in 2787 učiteljev). Dosežki slovenskih učencev so bili nekoliko nad mednarodnim povprečjem. Med 14 državami uvrščenimi v primerjavo so slovenski osmošolci s 511 točkami (pri povprečju 500) uvrstili med mesti 7. in 10.

Bolj kot rang lestvice so pomembne vsebinske ugotovitve raziskave. V raziskavi, v kateri smo vrednotili tehnične, receptivne, produkcijske veščine učencev, kot tudi sposobnost evalvacije ter varne in etične rabe digitalnih informacij, se je izkazalo, da učenci računalniške in informacijske pismenosti ne pridobivajo z »osmotskimi« procesi in da je podoba današnjih mladostnikov kot digitalnih domorodcev prej kot ne mitološka. Računalniška in informacijska pismenost je tako kot druge »pismenosti« pomembno odvisna od pedagoškega dela.

The International Computer and Information Literacy Study (ICILS 2013) is the first international study that measured the computer and information literacy (CIL) of 8th graders in Slovenia and other countries. The study was coordinated by the International Association for the Evaluation of Educational Achievement (IEA).

Through the study we wanted to measure the CIL of the students, defined as the ability of the individual to use computers to investigate, create and communicate in order to participate effectively at home, at school, in the workplace.

219 Slovenian primary schools (3740 8th grade students and 2787 teachers) were involved in the study. The achievement of Slovenian students was slightly above the international average. Out of 14 countries whose result allowed for comparison Slovenia's 8th graders came out between ranks 7 and 10 with the average score of 511 (the international average was 500).

Other findings of the study seem to be more important than rankings. The study assessed technical, receptive and productive skills of students, but also the evaluation skills and safe and ethical use of computer-based information. It showed that CIL in students is not acquired via some kind of "osmotic" processes and it also challenged the notion of contemporary youth as being digitally native. CIL as other "literacies" is in many ways dependent on the teacher's work.

Lidija Kralj, OŠ Veliki Bukovec, Hrvaška

Generacije koje se trenutno školuju, kao i one koje tek dolaze, trebale bi se pripremiti za svakodnevno korištenje informacijskih i komunikacijskih tehnologija. Europski Parlament i Vijeće Europe uvrstili su digitalne kompetencije u ključne kompetencije koje svaki čovjek mora posjedovati kako bi se prilagodio okolini koja se brzo mijenja. Njihova definicija digitalne kompetencije, kao i znanje i vještine, uključuje kritički odnos prema odgovornom korištenju IK tehnologija. Hrvatska trenutno nema nacionalnu strategiju za sigurnost na internetu, a kurikulum ne propisuje čak niti minimum znanja o odgovornom i sigurnom korištenju interneta koje bi djeca trebala imati. U Hrvatskoj se digitalne kompetencije stječu gotovo isključivo u okviru predmeta Informatika koji je izborni predmet od 5. do 8. razreda, a obavezan samo u 1. razredu srednje škole. Kurikulum informatike je star deset godina i neprimjeren današnjim uvjetima.

OŠ Veliki Bukovec, zajedno s partnerskim školama OŠ Popovača, OŠ »Mladost«, OŠ Gripe i OŠ »Mato Lovrak«, provela je projekt "Sigurnost djece na internetu" financiran iz Europskog socijalnog fonda. Svrha projekta bila je razvoj novog školskog kurikuluma za sigurnost djece na internetu za učenike od 7 do 14 godina, njihove roditelje, učitelje i lokalnu zajednicu. Kurikulum se sastoji od pedagoško-didaktičkog modela, politika prihvatljivog korištenja, multimedijskih obrazovnih sadržaja, udžbenika i priručnika a njegov cilj je unaprijediti digitalne kompetencije djece, poticati djecu da preuzmu odgovornost za vlastitu sigurnost s naglaskom na osnaživanju i isticanju odgovornog ponašanja i digitalnog građanstva te općenito povećati znanje i razumijevanje problema koji se pojavljuju u području sigurnosti djece na internetu kod učenika, učitelja, roditelja i šire javnosti skladu s Europskim politikama. Svi sadržaji dostupni su na mrežnim stranicama http://petzanet.hr.

Generations that are currently receiving their education and those yet to come should get prepared for everyday interaction with information and communication technology. European Parliament and the Council of the European Union included digital competence in key competencies which each person needs to possess in order to adapt to the rapidly changing world. Their definition of digital competence, along with knowledge and skills, include critical attitude toward the responsible use of ICT. At the moment, Croatia does not have a national strategy for the internet safety and not even the minimum of children's knowledge about appropriate and safe use of internet is obligatory in school curriculum. Currently, students in compulsory schools in Croatia have a chance to obtain digital competencies and knowledge only if they choose an elective subject - Informatics in grades 5 to 8, or if similar extra-curriculum activity is enabled for grades 1 to 4. Curriculum for Informatics is ten years old and not aligned with today's conditions.

OŠ Veliki Bukovec together with partners OŠ Popovača, OŠ »Mladost«, OŠ »Gripe« and OŠ »Mato Lovrak«, finished a 16-month European Union-funded project » Children's safety on the Internet » developing new school curriculum area for children's safety on the Internet for students aged 7 -14, their parents, teachers and local community. Curriculum consist of pedagogical-didactical model, acceptable use policies, multimedia resources, textbooks and guides. The project aims to improve students' digital competences and encourage children to assume responsibility for their own safety with a focus on empowerment, emphasizing responsible behaviour and digital citizenship and to raise student teacher, parents and general public awareness and understanding of issues relating to children's safety online in synergy with the EU policies. All educational resources are available on project web site http://petzanet.hr.

Nives Kreuh, ZRSŠ

Ko se sprašujemo, kaj pomeni digitalna kompetenca učencev, pomislimo najprej na digitalne domorodce in Marca Prenskyja izpred štirinajst let. In takrat še ni bilo Facebooka, Twitterja, YouTuba ipd. Medtem ko smo te napovedi sprejemali in zdaj vsi govorimo o njih kot o dejstvu, se spremembe odvijajo še naprej in koncept digitalnih domorodcev se spreminja v smeri drugačne kulture in ne toliko tehnologije.

Kakšna je torej prihodnost izobraževanja? Zamisli že obstajajo: danes ne moremo več govoriti o učenju, ampak o tem, kako postati – dober, sposoben človek, ki bo izboljšal ta svet; tehnologija je podaljšek našega uma v fizičnem in metaforičnem smislu (ne samo v smislu pametnih oblačil), kar je za nas popolna novost, spreminja pa že družbo. Dejstvo je, da potrebujemo popolnoma nov kurikul, v katerem ne bo več klasičnih predmetov, ampak predmeti, kot so učinkovito razmišljanje, ravnanje, odnosi, dosežki ... ob močni podpori tehnologije.

Tovrstno izobraževanje bi moralo biti tudi del profesionalnega razvoja vsakega posameznika in še posebej izobraževalcev otrok. V mednarodnem projektu MENTEP bo izdelano spletno orodje za samovrednotenje učiteljevih digitalnih kompetenc z namenom spodbuditi profesionalni razvoj učiteljev, področja samovrednotenja pa so zastavljena v smeri novega kurikula. En drobec ...

When we ask ourselves what student digital competence stands for, we think of digital natives and March Prensky who defined the term already fourteen years ago. However, at that time there was no Facebook, Twitter, YouTube, etc. While we accepted these views and now everyone is talking about them, another set of changes has been taking place and the concept of digital natives is changing in the direction of a different culture rather than technology.

So what is the future of education? Ideas already exist: we can no longer talk about learning, but rather becoming – becoming a good, capable, world-improving person; technology is an extension of our mind in the physical and metaphorical sense (not only in terms of smart clothes) which is a complete novelty for us, yet it is already changing society. The fact is that we need a completely new curriculum which will no longer be classics, but will consist of subjects such as effective thinking, behaviour, relationships, achievements, etc. with the strong support of technology.

Such education should also be part of the professional development of each individual and especially educators. The international project MENTEP will produce online self-assessment tool for teacher digital competences with the aim to encouraging professional development for teachers, and the areas of self-assessment are based in the direction of the new curriculum. A little fragment ...

Neža Barbara Brečko, FDV, UL

Digitalna kompetenca je ena od osmih ključnih kompetenc, ki naj bi jo pridobili tudi v času šolanja. Pod okriljem Evropske kompetence je bil razvit Okvir digitalne kompetence. Okvir je predstavljen kot matrika, sestavljen je iz petih področij digitalnih kompetenc (informacije, komunikacije, ustvarjanje vsebin, varnost in reševanje problemov) ter pripadajočih 21 kompetenc.

Predlagani okvir lahko služi kot ogrodje oziroma metaokvir, znotraj katerega se lahko najdejo tudi drugi okviri, iniciative, kurikuli in certifikati. Čeprav je okvir podroben v naštevanju in opisovanju kompetenc, ki jih potrebujemo, da lahko delujemo v digitalnem okolju, dovoljuje, da se kompetence aplicirajo na različne načine, odvisno od konteksta in uporabe. Vprašanje, ki si ga zastavljamo, je, katere digitalne kompetence naj bi učenci in dijaki pridobili v času šolanja in kako jih meriti.

Digital competence is one of the eight key competences which should be acquired during the schooling. Under the auspices of the European Commission, the Digital competence framework was developed. The framework is represented as a matrix composed of five areas of digital competence (information, communication, content creation, security, and problem solving) and competencies belonging to those areas.

The proposed framework can serve as a meta framework within which can other frameworks, initiatives, curricula and certifications can be found. Although the framework is very detailed in the listing and describing the competencies needed today for being able to operate in the digital environment it allows the competencies to be administered in various ways, depending on context and use (also in education, curriculum development etc). The question that we pose is, which digital skills should pupils acquire during schooling, in what way they should be acquired and how should these competencies be mesured.

Radovan Krajnc, ZRSŠ

Velja prepričanje, da današnja generacija obvlada računalništvo. Ne bo držalo. Računalništvo je znanstvena veda, ki ni vključena v obvezni predmetnik osnovne in srednjih šol. Na šolah obstajajo krožki, interesne dejavnosti in izbirni predmeti računalništva, ki jih obiskuje določen odstotek učencev. Večina učencev se teh aktivnosti ne udeležuje.

Če pod pojmom računalništvo razumemo digitalne kompetence, potem raziskava ICILS 2013, ugotavlja, da le 16 % osmošolcev zna z računalnikom samostojno rešiti neki problem. Kaj lahko šole in učitelji storimo za izboljšanje tega stanja?

Pomembno je, da prepričanje iz uvoda zamenjamo z novim prepričanjem. Učenci se ne rodijo z znanjem, in če se nečesa ne učijo, potem lahko zanesljivo sklepamo, da teh znanj ne morejo imeti. Govorimo o vseh učencih, predvsem pa o tistih, ki ne živijo v ugodnem socialno-ekonomskem okolju, nimajo izobraženih staršev in ne vedo, kako se digitalna oprema uporablja smiselno in koristno. Tukaj bi morala svojo vlogo opraviti šola. Šola mora zmanjševati razlike, zato bi bilo smiselno, da na šolah razmislijo o tem, kako usklajeno razvijati digitalne kompetence pri vseh predmetih po celotni vertikali. Nikogar ni, ki bi to opravil namesto nas. Pri usklajevanju in načrtovanju morata glavno vlogo opraviti ravnatelj in ROID.

It is believed that today's generation has mastered computer science. That is not true. Computer science is the science that is not included in the compulsory curriculum of primary and secondary school. In schools, there are clubs, extracurricular activities and elective computing subjects attended by a certain percentage of students. The majority of students are not attending these activities.

International survey ICILS 2013 noted that only 16% of 8th graders know how to independently solve a problem with the computer. What can schools and teachers do to improve this situation?

It is important that the belief in the introduction replace with a new belief. Students are not born with the knowledge and if something is not learned, then we can reliably assume that these knowledge is not present. We have in mind all students, especially those who do not live in a favorable social and economic environment, who not have educated parents and do not know how to use digital equipment meaningful and useful. Here the school should carry out its role. The school should reduce the differences among students, so it would make sense that schools make a reflection on how coordinatingly develop the digital competences in all subjects across the vertical. There is no one who could do it instead of us. By coordination and planning the main role should take the principal and the so called ROID (organizer of computing activities).

Sinergija e-projektov ali učimo se drug od drugega
IZTOČNICE GOSTOV

Synergy of e-project or learn from each other
GUESTS' STARTING POINT

Amela Sambolić Beganović, ZRSŠ

Na ZRSŠ je v zadnjih dveh letih sočasno potekalo pet e-projektov: E-učbeniki s poudarkom naravoslovnih predmetih v OŠ, Inovativna pedagogika 1 : 1 v luči kompetenc 21. stoletja, EUfolio, Ustvarjalni razred in e-Šolska torba. Število pedagoških svetovalcev na ZRSŠ-ju je končno in ob tako velikem številu projektov je razumljivo, da so nekateri (beri skoraj vsi) svetovalci bili vključeni v razvojno delo vseh omenjenih e-projektov. Ob tem dejstvu je razumljivo, da je bila sinergija med e-projekti edina logična rešitev, ki je zagotavljala kakovostno pripravljene in izvedene aktivnosti v povezavi s cilji in pričakovanimi rezultati e-projektov. Med mnogimi aktivnostmi, ki so potekale v e-projektih, bom predstavila pripravo in izvedbo 4 e-delavnic, ki so nastale kot rezultat sinergije med e-projekti.

The National Education Institute of The Republic of Slovenia (NEIS) has been engaged in the following five e-projects during the last two years: e- Textbooks - focusing on science subjects, Innovative Pedagogy 1-to-1 in light of the 21st century competences, Eufolio, the Creative Classroom and the e-School Bag project. Almost all the NEIS consultants have been involved in various, mostly paralelly run and complementary project activities. Successful and quality implementation of the designed project goals and expected results was made possible through the synergy and co-operative interaction among the five project groups. I will present the design and implementation of four e-workshops which were created as a result of the synergy among some, out of the numerous, e-project activities.

Simona Granfol, Gimnazija Jožeta Plečnika

Projekt Creative Classroom koordinira European Schoolnet in povezuje delo partnerjev iz Avstrije, Belgije, Češke, Italije, Litve, Portugalske, Slovenije in Velike Britanije. Spremljavo in evalvacijo udeleženih šol ter evalvacijo inovativnih praks je vodila in izvajala Univerza Wolverhampton iz Velike Britanije.

Projekt je spodbujal inovativnost na različnih nivojih organizacije, izvajanja in razvijanja pedagoške prakse. Inovativno je bilo sodelovanje učiteljev, predstavnikov industrije, ki so ponudili v uporabo posamezno strojno in programsko opremo za testiranje in uporabo, in predstavnikov nacionalnih izobraževalnih institucij, ki načrtujejo vpeljevanje IKT v izobraževalni sistem.

V projektnih timih, ki so bili sestavljeni iz učiteljev različnih držav in šol, smo razvijali pedagoške scenarije in inovativne prakse na področju projektnosodelovalnega dela, individualizacije poučevanja, *flipped* poučevanja in učenja z ustvarjanjem gradiv.

Učenci so pri izvajanju posameznih učnih dejavnosti razvijali kompetence 21. stoletja, učitelji so jih vključevali v proces načrtovanja učnih dejavnosti

in (samo)evalvacijo učnih dosežkov, da bi prevzeli (so)odgovornost za svoje učenje in dosežke.

V projektu smo se poglobili v proces učenja učenja in kako načrtovati in izvajati pedagoški proces, da ta učence čim bolj podpira. Pri razvijanju in raziskovanju inovativnih pedagoških praks smo se učitelji poskušali odmakniti od ustaljenih vzorcev poučevanja in s pomočjo novih medijev odkrivali nove načine in poglede na učenje.

Creative Classroom project is coordinated by European Schoolnet and brings together the work of partners from Austria, Belgium, Czech Republic, Italy, Lithuania, Portugal, slovenia and Great Britain. monitoring and evaluation of the participating schools and evaluation of innovative practices led and implemented by University of Wolverhampton in the UK.

The project encouraged innovation at different levels of the organization, implementation and development of teaching practice. Innovative was the participation of teachers, representatives of industry, who offered the use of a single hardware and software for testing and use, and representatives of national educational institutions planning to introduce ICT into the education system.

In project teams, which consisted of teachers of different countries and schools, we develop educational scenarios and innovative practices in the field of projektnosodelovalnega work, individualization of teaching, flipped teaching and learning by creating learning materials.

Pupils in the implementation of individual learning activities to develop competencies of the 21st century, teachers were involved in the planning process of learning activities and (self-) evaluation of learning outcomes in order to take over (co) responsibility for their learning and achievements.

In this project, we delve into the learning process and learning how to plan and implement the educational process, that it does support the students as much as possible. In developing and researching innovative pedagogical practices are teachers try to move away from entrenched patterns of teaching and using new media to explore new ways and perspectives on learning.

Maja Vičič Krabonja, ZAMS

Ena izmed pomembnejših kompetenc 21. stoletja je sodelovanje. V šoli mu včasih še zmeraj rečemo goljufanje pri ocenjevanju, učitelji pa nadvse ljubimo svoje avtorsko delo in ga le redko delimo z drugimi. No, včasih je bilo tako. Sodelujoči v e-projektih se zavedamo, da več glav več ve, zato smo v staknili glave ter se učili drug od drugega, razmišljali, kaj so v šolah primeri obetavne rabe, in skupaj pripravili nekaj usposabljanj za učitelje. Nastali so kriteriji, po katerih lahko učitelji samovrednotijo zasnovo svojih učnih ur, in obrazec za zapis priprave, ki učitelje usmerja k premišljeni rabi IKT v različnih fazah pouka in povezovanju aktivnosti dijakov z zastavljenimi cilji.

Cooperation is one of the most important competencies of the 21st century. At school, we sometimes still call it cheating and teachers very much love our copyrighted work and rarely share it with others. Well, it used to be so in the past. Participants in e-projects are aware that more heads are better than one, so we sat with each other and learned from each other. We were discussing what the examples of the best teaching praxis are, in cooperation we prepared some training for teachers, formed criteria by which teachers can design a self-evaluation of their lessons and created a common form, that directs teachers to the thoughtful use of ICT in various stages of teaching and learning and links activities of students with the pursued objectives.

Dragana Kupres, CARNET

CARNet već niz godina provodi projekte u obrazovanju i tehnologiji na nacionalnoj i internacionalnoj razini. Korištenje strukturnih fondova europske unije prvi puta u Hrvatskoj otvara mogućnosti financiranja velikih, financijski i organizacijski zahtjevnih projekata. Neka od pitanja koja se pri tome otvaraju su vezana uz skaliranje takvih projekata, dostatnost kapaciteta za njihovo provođenje, način evaluacije i održivosti projektnih rezultata.

Širenje opsega pilot projekata na nacionalni doseg osim povećanja financijskih sredstava implicira i širenje organizacijskih kapaciteta ali i promjene u načinu organizacije poslovanja. U kojem trenutku korist od strukturnih projekata postaje veća od ulaganja u njihovu administraciju i upravljanje? Imamo li kapaciteta za provođenje tako velikih projekata? Što podrazumijeva njihovo jačanje?

Na koji način mjeriti uspješnost takvih projekata? Možemo li koristiti gotove modele i koje? Spomenut će se dva modela evaluacije koje CARNet razmatra za evaluaciju i praćenje svog projekta e-Škole.

Otvoreno pitanje (koje će se postaviti i publici) ostaje jesmo li spremni na razmjenu rezultata među različitim projektima i što bi to podrazumijevalo?

CARNet has an extensive experience in implementing projects in technology and education on a national and international level. European structural funds offer new opportunities for investments in large-scale projects. However, these demanding projects are challenging the way how our organizational processes are defined, organizational capacities for implementing project activities, how to evaluate the success of the project results and finally, how to sustain them after investment period.

Scaling-up pilot projects to a national level, except for raising costs, implicates the need for building organizational capacities and also how the organization is structured.

When it comes to evaluation of large-scale projects, the question is what to measure, for how long, and can we use some already existing models for evaluating large-scale e-education projects?

Sustainability of such projects is still an open question, especially in terms of exchanging project results between different projects, funding programmes, even countries. Are we ready for that and what would be the next step?

2.3

e-Šolska torba • e-Schoolbag

e-Šolska torba

e-Schoolbag

Opis

V preteklih dveh letih so na šolah, vključenih v pilotni projekt uporabe, uvajanja in preizkušanja e-vsebin in e-storitev, pri pouku in za samostojno delo učencev uporabljali e-učbenike in e-storitve, razvite v okviru projekta e-Šolska torba. Na zaključni konferenci projekta e-Šolska torba bodo vabljeni predavatelji prikazali različne načine uporabe e-vsebin in e-storitev pri učenju in poučevanju ter udeležencem konference prikazali primere praks, v katerih se učenci učijo od učiteljev, učitelji od učencev in učenci drug od drugega.

Način predstavitve

Vabljeni predavatelji na zaključni konferenci e-Šolska torba bodo pred neobičajnim izzivom.

Pripraviti morajo predstavitev iz natanko 20 slik, pri čemer se ena slika lahko pred očmi slušateljev prikazuje največ 20 sekund. Slike se po 20 sekundah avtomatično zamenjajo. Predavateljev besedni nastop mora slediti tempu, ki ga narekuje menjanje slik, in vsebini, ki je prikazana na njih.

Če bi zgornje besedilo preoblikovali v besedilno nalogo iz matematike, bi se lahko vprašali po času, ki ga dejansko ima na voljo posamezni predavatelj.

Izračunali smo, da ima posamezni predavatelj za svojo predstavitev ob 20 slikah natanko 6 minut in 40 sekund časa.
20 x 20s = 400s
400s = 6 x 60s + 40s

Format 20 x 20 je v svetu znan pod imenom PechaKucha. Format predstavitve sta zasnovala Astrid Klein in Mark Dytham. Prvi PechaKucha Night je potekal v Tokiu februarja 2003.

Na konferenci SIRIKT 2015 ga vpeljujemo kot novo obliko predstavitve. Udeleženca zaključne konference e-Šolska torba, ki bo naslov PechaKucha duhovito in izvirno poslovenil ter v času predstavitev tvitnil s ključnikom #pechakucha na @sirikt, bomo nagradili.

Description

During the last two years, schools involved in the pilot project e-Schoolbag – Introduction and Use of E-content and E-services have been applying e-textbooks and e-services in lessons as well as for students' individual learning.
The textbooks and services have been developed in the framework of the project. At the closing conference different uses of e-content and e-services for learning and teaching will be presented by the invited speakers. They will present examples of good practice, where learners learn from teachers, teachers from learners, and learners from other learners.

Presentation Form

The invited presenters will face an unusual challenge. They will have to prepare a presentation of 20 slides that will be shown for 20 seconds each. Slides will automatically change after 20 seconds. The presenter will have to follow the pace of the slides and the content of each slide.

In the language of mathematics, each presenter will have 6 minutes and 40 seconds available:
20 x 20 s = 400 s
400 s = 6 min 40 s

The 20 x 20 style is widely known as PechaKucha. PechaKucha was devised by Astird Klein and Mark Dytham in Tokyo in 2003.

At SIRikt 2015 we are introducing it as a new presentation style. We are going to award the participant of the e-Schoolbag closing conference who will find a funny and innovative Slovene translation, and tweet it using #pechakucha at @sirikt.

20 značk projekta e-Šolska torba

20 badges of the e-Schoolbag project

Andreja Čuk, **Amela Sambolić Beganović**, ZRSŠ

Povzetek: Na zaključni konferenci projekta e-Šolska torba bomo v 400 sekundah prikazali in predstavili 20 najbolj odmevnih dosežkov projekta. Sprehodili se bomo po novonastalih interaktivnih učbenikih, rezultatih pilotnega projekta, evalvaciji projekta, razvitih e-storitvah, podpori v obliki krajših in daljših delavnic, spletišču SIO, e-urejevelniku, shrambi e-vsebin, Kolesarju, zborniku ... Odgovorili bomo na vprašanje, ali so s projektom e-Šolska torba postale šolske torbe naših učencev in dijakov lažje. Vse to in še več v eni predstavitvi z 20 slikami!

Abstract: At the closing conference of the e-Schoolbag project we will present the most notable achievements of the project. We will sneak a peek into newly developed interactive textbooks, present the results of the pilot project, the evaluation of the project, developed e-services, teacher support, the SIO Website, the e-editor, the edustore, etc. We will answer the question if pupils' school bags have become less heavy. All this and more in presentations of 20 slides in 400 seconds.

Kaj vam prinašamo v e-Šolski torbi

What we bring you in e-Schoolbag

Tomi Dolenc, **Janko Harej**, Arnes

Povzetek: Ob uvajanju novih e-storitev pogosto dobimo občutek, da nas e-novosti le še dodatno obremenjujejo, namesto da naredile naše vsakdanje življenje enostavnejše. Zato smo k razvoju storitev v e-Šolski torbi pristopili z druge strani – izhajali smo iz realnih želja uporabnikov ter pripravili rešitve, ki pokrivajo potrebe, ki so uporabnikom s celotne vertikale izobraževanja zares pomembne. In jih seveda naredili tudi dostopnejše. Na primer prek mobilnih naprav.

Verjetno ste že opazili, da je dostop do storitev na portalu SIO znatno preprostejši, gotovo pa še ne poznate vrste orodij, ki vam lahko delo še dodatno poenostavijo. Izdaja in hranjenje potrdil o vaših izobraževanjih na primer. Ali ne bi bilo preprosteje, če bi bile informacije o potrdilih s področja izobraževanj IKT zbrane na enem mestu? Prav tako si boste lahko vse dokumente, ki ste jih sicer shranjevali v različnih oblačnih storitvah, kot so Dropbox, Flickr,Google in druge, zelo preprosto shranili v vaš Listovnik. Verjetno ni treba posebej poudarjati, da bodo dokumenti, shranjeni v Listovniku, ostali v Sloveniji in da bo strah, da ponudnik oblačne storitve propade in s tem izginejo tudi vaši dokumenti, končno popolnoma odveč. Ali že veste, kaj je e-izkaznica šole, kje se jo lahko vidi in kakšen je pravzaprav njen glavni namen? Kje so danes in kje bodo jutri vaše spletne strani in spletne učilnice? V e-Šolski torbi pa smo izboljšali in z enotno prijavo povezali tudi tiste pomembne storitve, ki vam že zdaj lajšajo delo – na primer spletne ankete.

Skupnost uporabnikov portala SIO in storitev e-Šolske torbe se bo v prihodnosti izjemno hitro povečevala in gotovo ste ali pa boste del te skupnosti tudi vi. Zato je zelo koristno, da se seznanite s storitvami, ki so vam na razpolago in s katerimi si lahko olajšate vaše vsakdanje delo in profesionalni razvoj, pa tudi s tem, kako se lahko rešite nekaterih skrbi in jih preložite na Arnes.

Abstract: When introducing new e-services we often get the feeling that our e-news only further burden instead make our everyday life easier. Therefore, we have to develop services in the e-Schoolbag approached from the other side – we have derived from the real desires of our customers and prepared solutions that cover the needs expressed by the users of the entire vertical of education which really matter. And of course, they were also made accessible, e.g. by mobile devices.

You've probably noticed that the access to services on the portal SIO is considerably simpler but you do not know several tools that can simplify your work even more. One of such problems is certification and keepingf of your certificates re. training sessions. Would not it be easier if the information

on certificates in the field of ICT education were collected and stored in one place? Also, you can easily store in your Portfolio all the documents that you have previously stored in various cloud services, e.g. Dropbox, Flickr, Google,etc. Needless to say, that the documents stored in the Portfolio will remain in Slovenia. Therefore the fear that the provider of the cloud services fails and disappears (together with your documents) is superfluous. Do you know what e-card of the school is, where you can see it and what actually is its main purpose? Do you know where your website and online classroom are today and will be tomorrow?, We have improved the e-Schoolbag and linked it to those important services that already facilitate you work, e.g. online surveys. Community of the SIO and e-Schoolbag users will in the future grow extremely rapidly and surely you will be part of this community, too. Therefore it is very helpful if you know the services which can facilitate your daily work and professional development and which are already available to you through Arnes.

Od učiteljev s palico in razpadajočimi učbeniki v roki do nasmejanih učiteljev z e-tablicami in e-učbeniki na klopi

From teachers with sticks and run down textbooks in their hands to friendly teachers with e-tablets and e-textbooks on their desks

Klavdija Križovik, OŠ Mislinja

Povzetek: Živimo v času, ko naš vsakdan obdajajo različne nove tehnologije. Uporaba teh pri pouku pa je učencem danes blizu, saj je internet že vsakdanji kanal sporazumevanja z ljudmi in nepogrešljiv vir pri iskanju informacij mladih. Temeljni namen dela z e-tablico, e-gradivi ter dostopnimi aplikacijami je, da nudi učencem večjo prostorsko in časovno predstavljivost dogodkov, ponudi učenje naravoslovnih predmetov na drugačen, njim zanimiv način ter bogatenje besedišča maternega, angleškega in nemškega jezika. Učenci so tako bili aktivni »soustvarjalci« usvajanja znanja, učitelj pa njihov moderator/usmerjevalec. S tem smo sledili sodobnim metodičnim usmeritvam pouka v osnovni šoli, katerega cilj je postopno uvajanje učencev v samostojno ustvarjalno-kritično mišljenje, učenje z odkrivanjem in raziskovanjem. S pomočjo refleksije smo ugotovili, da so učenci takšen način preverjanja znanja in dela sprejeli bolje kot pa tradicionalne oblike, saj so se učili nezavedno in zabavno. Seveda je obstajala možnost, da bodo nekatere informacije za posamezne učence popolnoma nove, drugi učenci pa bodo svoje znanje le še poglobili in utrdili. Tako smo skušali upoštevati individualnost učencev. Z ustreznim stopnjevanjem, osebnim stilom poučevanja ter s sodelovanjem učencev smo dosegli zmagovito kombinacijo znanja, razumevanja, pomnjenja, zabave, spoštovanja in strpnosti.

Abstract: Modern technology has become an integral part of our daily lives. Students are becoming increasingly familiar with modern technology, e.g. smartphones and tablets. They use the Internet as a means of daily communication and as an indispensable source of information. The main purpose of using e-tablets, e-sources and other available apps is to help students acquire a better spatial and chronological understanding of historical events, make Science learning more approachable and provide opportunity to acquire and use new words and phrases in their mother tongue as well as in English and German languages. Students became active “co-creators” of the teaching process while teachers took the role of moderators. Modern methods of primary school teaching were meticulously followed to ensure students become independent, creative, develop critical thinking and use analytical

strategies when learning. During the analysis of our lessons we came to the conclusion that students prefer learning with modern technology rather than the traditional way of learning and assessing their knowledge. Students are unaware that they are learning by having fun. There is of course the possibility that some information will be completely new to a few students while others will only deepen and strengthen their knowledge. The individuality of students had to be taken into account. We achieved greater level of student knowledge, understanding, retention, fun, respect and tolerance by appropriately raising the difficulty of content using our own personal teaching methods as well as ensuring cooperative learning among students.

Učenje s tablicami na razredni stopnji

Learning with tablets at the Primary Level

Irena Gole, OŠ Bršljin

Povzetek: Sodobna tehnologija dopolnjuje tradicionalno izobraževanje z interaktivnimi vajami in dejavnostmi, povezanimi s tabličnim računalnikom. Učitelj tako naredi pouk interaktiven in zanimivejši, hkrati pa spodbuja sodelovalno učenje. S tem se spremeni njegova vloga, saj ni več samo podajalec informacij, temveč učence vodi in jih spodbuja k aktivnejšemu učenju in hkrati h kritičnemu razmišljanju o učnih vsebinah ter vsakdanjih stvareh. Praksa v pilotnem projektu Uvajanje in uporaba e-vsebin in e-storitev (ZRSŠ) je pokazala, da ima vsaka vpeljava tehnologije tako prednosti kot tudi slabosti, in smiselno je, da učitelj učni pripomoček najprej preizkusi in šele nato vpelje v učni proces. Učenci so zelo dovzetni za vse novosti, vendar če niso vpeljane premišljeno, se jih hitro naveličajo, s tem pa se izgubi prvotni namen njihovega uvajanja. Prav tako primeri dobre prakse kažejo, da lahko tablični računalnik, e-vsebine in e-gradiva uporabimo pri vseh predmetih, pri vseh etapah učenja ne glede na to, ali gre za spoznavanje in usvajanje nove učne snovi ali pa za utrjevanje ter preverjanje znanja. Lažji sta tudi evalvacija in analiza dela, saj tablični računalnik omogoča vrsto dejavnosti, ki pripravijo učenca, da razmišlja o svojem delu ter izmenjuje izkušnje in mnenja.

Abstract: Modern technologies complement traditional education with interactive exercises and activities related to the tablet PC. In this way the teacher makes lessons more interactive and interesting, while also promoting cooperative learning. This changes the role of the teacher who is no longer just an information transmitter but leads the students and encourages them to actively learn and also to think critically about learning content and everyday things. The practice in the pilot project 'Implementation and use of e-content and e-services' (National Education Institute) showed that the implementation of any technology has both, advantages as well as disadvantages and that it is appropriate that the teacher tests a teaching tool before introducing it into the learning process. Students are very receptive to all innovations. But when these are not introduced wisely, students quickly get bored which ruins the original purpose of introducing them. The examples of good practice also indicate that the tablet PC, e-content and e-learning materials can be used in all subjects, at all stages of learning regardless of whether it is to learn and acquire new content or to revise and mark it. It is also easier to evaluate and analyze work because the tablet PC provides a range of activities that prepare the students to think about their work and exchange experiences and opinions.

Ključne prednosti uporabe tabličnega računalnika na različnih predmetnih področjih osnovnošolskega izobraževanja

Key advantages of using the tablet in different school fields at elementary education stage

Lidija Grubelnik, **Vladimir Grubelnik**, OŠ Sladki Vrh

Povzetek: Sodoben način učenja, pri katerem si učenec na podlagi različnih virov in metod dela sam konstruira svoje znanje, je spodbudil potrebo po individualni uporabi informacijsko-komunikacijske tehnologije. Velik korak v tej smeri je vpeljava tabličnih računalnikov v šole. Na različnih predmetnih področjih se ti kažejo kot pomemben učni pripomoček pri dostopu do informacij svetovnega spleta, prikazu multimedijskih gradnikov in predvsem preučevanju interaktivnih vsebin. Ob dobri osnovi i-učbenika in mentorski vlogi učitelja je s tem učencu omogočeno samostojno pridobivanje znanja na višjih taksonomskih ravneh. Z uporabo spletnih učilnic se pomembna vloga tabličnih računalnikov kaže tudi v pridobivanju sprotnih povratnih informacij o rezultatih učenčevega napredka v znanju, kar je dobro izhodišče pri načrtovanju poteka učnih ur. Na področju naravoslovja velja izpostaviti še, da lahko tablični računalnik z ustreznimi aplikacijami uspešno nadomesti obsežno eksperimentalno opremo in omogoča virtualno preučevanje vplivov posameznih parametrov na dinamiko sistemov. Pri preučevanju družboslovnih vsebin pa smo pokazali, da dostopnost interaktivnih zemljevidov, satelitskih slik in virtualnih ogledov objektov omogoča boljšo poznavanje geografskih in zgodovinskih vsebin, dostopnost do interaktivnih slovarjev in prevajalnikov ter spletno komuniciranje pa omogočata boljše učenje jezikov.

Abstract: Contemporary way of learning where the student works with different sources and methods and therefore builds his own knowledge, stimulates the need for individual use of ICT. Huge step towards this is the implementation of tablets into schools. In several school subjects it is reported that tablets are being a massive support in access to the information on the Web, displaying multimedia tools and most of all studying the interactive contents. With the help of i-course books and teachers' mentorship it is enabled for the students to reach higher level of knowledge. With the usage of online classrooms the significant role of the tablets is also shown in receiving the immediate feedback regarding their learning progress which creates a great starting point to plan a teaching process. It is also important to point out that the tablets with useful applications can easily substitute some experimental equipment and enable virtual studying of the influence of different parameters on system dynamics, especially in Science classes. While studying the sociological classes, we came

to conclusion that the access to interactive maps, satellite images and virtual tours enables better perception of geographical and historical contents, while the access to interactive dictionaries and translators supports better learning of foreign languages.

Predstavitev sodelovanja učencev 9. razreda Prve OŠ Slovenj Gradec v projektu Uvajanje in uporaba e-vsebin in e-storitev

Presentation of pupil's participation of 9th class of Prva osnovna šola Slovenj Gradec in the project Introduction and use of e-contents and e-services

Sašo Herlah, Prva OŠ Slovenj Gradec

Povzetek: V projekt Uvajanje in uporaba e-vsebin in e-storitev ter v projektih E-učbeniki s poudarkom na naravoslovnih predmetih v OŠ in e-Šolska torba smo vključeni učenci 9. razreda in učitelji različnih predmetnih področij Prve OŠ Slovenj Gradec. V uporabo smo dobili tablične računalnike z Androidom za učence in učitelje. Učenci so z odprtostjo sprejeli uporabo tablic in e-učbenikov pri pouku. V prvem letu projekta (lansko leto) so bili e-učbeniki v nastajanju, zato smo imeli v začetku pri njihovi uporabi nekaj težav, ublažili smo jih s tem, da smo na spletu v trgovini poiskali uporabna orodja (aplikacije), ki smo jih uporabili pri pouku. V čem je prednost uporabe e-učenikov? Poleg besedil in slik ponujajo animacije in videoposnetke poskusov, ki si jih lahko učenci v učbeniku poljubno ogledujejo, ustavljajo in ponavljajo, v učilnici pa jih je teže izvajati in večkrat ponoviti. Interaktivne vaje se generirajo vedno znova in omogočajo večkratno reševanje in preverjanje rešitev, kot bi vsakič reševali drugo nalogo. Tudi učitelji imamo svojo vlogo, izvajamo načrtovane vzorčne učne ure z uporabo tabličnih računalnikov. Te ure so odprte vsem vedoželjnim sodelavcem v projektu in drugim učiteljem, ki jih zanima uporaba tablic. Prav tako izvajalci povabimo svetovalce Zavoda za šolstvo RS za posamezno predmetno področje, da si ogledajo pouk z uporabo tabličnih računalnikov, in po izvedbi skupaj analiziramo uro.

Abstract: 9th grade pupils and teachers of different subjects of Prva osnovna šola Slovenj Gradec are collaborating in the project Introduction and use of e-contents and e-services as well as in the projects e-Schoolbag and E-textbooks that focus on Science subjects. We were able to provide Android tablet PCs for pupils and teachers. Pupils openly excepted the work with tablet PCs and e-textbooks. In first year of the project (which was last year) e-books had just been starting to develop. In the beginning we had some problems with its use, however we found some useful online tools (applications in online store) that were also used during the lessons. Which ate the advantages of using e-textbooks? In addition to text and images, they offer animations and video clips of experiments which pupils can watch, stop and repeat at anytime since

it is more difficult to implement such event several times. Interactive exercises are generated again and again which allows to solve them multiple times and to examine the solution. Each time a different exercise is originated. Teachers, for example, perform planned sample lessons using tablet PCs. These lessons are open to all inquisitive co-workers in the project and also other teachers who are interested in the use of tablets. We also invite consultants of the National Education Institute of the Republic of Slovenia for each subject area to examine and consult each lesson where we use tablet PCs.

E-zgodba OŠ Selnica ob Dravi (uporaba tabličnih računalnikov na področju naravoslovja)

E-story – Primary School Selnica ob Dravi (the usage of tablet computers in Science classes)

Manja Kokalj, OŠ Selnica ob Dravi

Povzetek: Med prednostne naloge naše šole smo zapisali: uporaba IKT pri pouku, uvajanje e-vsebin in e-storitev ter razvoj digitalne pismenosti. Da smo lahko te naloge uspešno realizirali, smo se vključili v e-projekt in v 7. razredu izvajali pouk s tabličnimi računalniki. V vse dele učnih ur smo vključevali delo z e-učbeniki in ovrednotili njihovo kakovost ter prednosti uporabe. Aktivno smo delali v spletnih učilnicah – učenci so samostojno pridobivali novo znanje z različnimi metodami in oblikami dela ter se tako učili tudi drug od drugega. Pri urah smo uporabljali različne e-vsebine, e-storitve, e-vire in mobilne aplikacije. Predstavitev temelji na prikazu konkretnih primerov, ki smo jih pri naravoslovju uporabljali najpogosteje (s poudarkom na obrnjenem učenju in v kombinaciji z bralno-učnimi strategijami). Zanimiva je bila tudi uporaba tablic pri praktičnem delu. Spremljali smo delo in dosežke učencev ter preverjali, kako dosegajo učne cilje in nadgrajujejo svoje IKT-veščine. Ugotavljali smo tudi, ali uporaba e-vsebin in e-storitev izboljša razumevanje oz. znanje učencev in ali spodbuja njihove miselne procese na višjih kognitivnih stopnjah. Naredili smo povzetke evalvacij posameznih ur in ugotovili, v katerih primerih uporaba tablic res omogoči kakovostnejši pouk.

Abstract: As our school priorities we defined: ICT usage in the course of instruction, introduction of e-contents and e-services as well as the development of digital literacy. In order to efficiently perform these tasks we joined the e-project which enabled us to use tablet computers in grade 7 instruction. All components of our lessons contained work with i-textbooks which made it possible to evaluate both, their quality as well as the advantages of their use. We were active in virtual classrooms – the students were able to gain new knowledge independently and via different methods of work. Besides that they learnt from each other. During our lessons we used different e-contents, e-services, e-sources and mobile applications. The presentation is based on concrete examples which were most frequently used in Science classes (with focus on the flipped learning combined with reading and learning strategies). The usage of tablet computers with practical work also proved to be interesting. At the same time we assessed the students work and evaluated to what extent the learning objectives were reached and ICT skills upgraded. Besides that we tried to establish whether the usage of e-contents and e-services ameliorated

the students understanding or knowledge and whether it activated higher order thinking in them. We summarized the feedback of observed lessons and tried to find out in which cases the usage of tablet computers contributed to the higher quality of instruction.

E-Prva gimnazija Maribor

E-Prva gimnazija Maribor

Mitja Kobale, **Aljoša Kancler**, Prva gimnazija Maribor

Povzetek: Z razširjeno uporabo tabličnih računalnikov se uporaba le-teh vpeljuje tudi v pouk. Prva gimnazija Maribor je bila izbrana kot sodelujoča šola v pilotnem projektu e-Šolska torba in projektu Uvajanje in uporaba e-vsebin in e-storitev. V okviru projekta smo na gimnaziji uvajali in preverjali uporabo e-gradiv s pomočjo tabličnih računalnikov. Skupaj s svetovalci Zavoda RS za šolstvo smo se pri določenih predmetih lotili načrtovanja, izvajanja in spremljave pouka ob uporabi e-storitev in e-vsebin. Spopadli smo se z razvojem novih oziroma z dopolnitvijo obstoječih modelov poučevanja in učenja z e-vsebinami in e-storitvami. Pozorni smo bili predvsem na to, kako bo uporaba e-vsebin vplivala na metode pri pouku ter kako jih bodo sprejeli dijaki. Nadalje smo ugotavljali, kakšen je izplen znanja dijakov v projektnem oddelku, tako da smo njihovo znanje primerjali z znanjem v kontrolnem oddelku. Celoten projekt zaokrožuje končna evalvacija, kjer primerjamo kakovost e-učbenika v primerjavi s klasičnim, vpliv e-učbenika na učenje dijaka in vpliv e-učbenika na poučevanje učitelja. V okviru predstavitve na konferenci SIRikt bodo predstavljene tako pozitivne kot negativne izkušnje uporabe e-vsebin ter uporaba izkušenj projekta e-Šolska torba za širjenje znanja in izkušenj na druge učitelje in za širjenje metod dela na preostale oddelke.

Abstract: Due to their extended use, tablet computers were introduced into schools. Prva gimnazija Maribor was chosen as a partner school in the pilot project e-Schoolbag and in addition in another project Introduction and use of e-contents and e-services. Within the project e-materials were introduced and tested with tabs. Together with the advisers from The National Education Institute of the Republic of Slovenia we began planning, executing and following classes of particular subjects by using e-contents and e-services. We tackled the development of new and completion of existing teaching and studying models with e-contents and e-materials. A focus was especially on how the use of e-contents influences the existing teaching methods and how these are accepted by the students. Furthermore, the yield in the project class was tested since their results were compared to the results in the control class. This whole project is being rounded up by a final evaluation in which quality of the e-course books is compared to the classical ones, their influence on the way students study and finally, the influence of the e-course books on the way teachers teach. In the context of the presentation at the SIRikt Conference, positive and negative experiences of using the e-contents will be presented as well as possibilities of extended application at our grammar school, like expansion of knowledge and experiences to other teachers at school and their dissemination to other classes.

Tablica zaživela na Gimnaziji Novo mesto

Tablets brought to life at Gimnazija Novo mesto

Anita Nose, Gimnazija Novo mesto

Povzetek: Naša šola sodeluje v pilotnem projektu Uvajanje in uporaba e-vsebin in e-storitev. Projekt nam je v začetku omogočil tablice za en oddelek 1. letnika. Začeli smo z ozaveščanjem varne rabe interneta in določili pravila uporabe tablic kot učnega pripomočka pri pouku. Tim šestih učiteljev je začel počasi, a vztrajno uvajati novosti, ki jih pri pouku nudi tablica. V začetni fazi njenega vključevanja v pouk smo veliko časa namenili pripravi na pouk, iskanju in primerni izbiri gradiv ter orodij, učenju uporabe novih orodij, pripravi gradiv ipd. Gradiva smo zbirali v svojih spletnih učilnicah, ki smo jih v času projekta zelo obogatili. Brez dobre tehnične podpore bi bil projekt zelo otežen. Na začetku tako dijaki kot profesorji še nismo bili vešči njihove uporabe, zato so začetne ure potekale ob navzočnosti svetovalca za tehnično podporo. Sčasoma pa smo se nekatere tehnične težave naučili odpraviti tudi sami. Pouk s tablicami je bolj dinamičen, usmerjen predvsem v dijaka in njegovo aktivnost, kar pripomore tudi k večji motivaciji. Njihova uporaba omogoča takojšnjo povratno informacijo učitelju. Pri vključevanju tablic v pouk se držimo načela zmernosti, ne vedno in ne celo uro, temveč takrat, ko tablica prinese dodano vrednost pri pouku. Moramo pa se zavedati, da tehnologija ne more nadomestiti učiteljeve razlage in pristne komunikacije med učiteljem in dijakom. Projektni tim na šoli predstavlja tudi podporo in pomoč preostalim učiteljem pri uvajanju e-vsebin in e-storitev v pouk.

Abstract: Our school has joined the project called Introduction and use of e-contents and e-services. It enabled the school to use tablets in one first-year. We first focused on raising Internet safety awareness among students, and set ground rules for using tablets in class. Slowly a team of six teachers began introducing novelties that tablets facilitate. In the initial stage, most of our time and effort was devoted to lesson planning, searching for useful resources, tools and teaching the use of them, etc. We assembled a variety of resources and classroom materials in our respective e-classrooms which have greatly improved since the project started. Without a reliable technical support the project would not run smoothly. At the beginning both teachers and students could hardly imagine a lesson without it. Eventually teachers were able to deal with technical problems on their own. Lessons with tablets are dynamic, student-centred which increases motivation. The use of tablets enables bot students and teachers to get instant feedback on the work done. Keeping moderation in mind, we should use tablets when they actually bring added value to class, not necessarily every at lesson or the whole lesson. We have to be aware of the fact that technology cannot replace lecture-explanation techniques, and teacher-student rapport. The project team provides support for the colleagues who would like to introduce or improve the use of e-resources and services in class.

Pozor, tablice prihajajo

Attention, tablets are coming

Nataša Jeras, **Živa Škrinjar**, OŠ Šmartno pod Šmarno goro

Povzetek: V šolskem letu 2013/2014 smo se vključili v projekt Uvajanje e-gradiv in e-storitev s poudarkom na naravoslovnih vsebinah. Vsi učenci enega četrtega razreda so dobili na uporabo tablice. Naša naloga je bila, da tablice preizkušamo pri pouku pri različnih predmetih in ugotavljamo smiselnost njihove uporabe. Skupaj z učenci smo iskali različne možnosti uporabe. Tablice smo uporabljali vsi učitelji, ki smo poučevali izbrani 4. razred, seveda takrat, ko se nam je zdela uporaba tablic smiselna. Uporabljali smo jih pri različnih predmetih, pri različnih stopnjah učnega procesa. Občasno smo jih posojali tudi drugim učiteljem in učencem. Četrtošolci so z veseljem priskočili tudi na pomoč mlajšim učencem in jim pomagali pri prvih stikih z novo tehnologijo. Letošnje leto je v projekt vključen nov 4. razred. Tudi ti učenci so novo tehnologijo hitro usvojili in skupaj z učiteljico uspešno iščejo nove načine vključevanja v pouk. Vsi ugotavljamo, da je pouk s premišljeno uporabo tablic lahko zanimivejši, kakovostnejši in dopušča nove sodobne pristope pri poučevanju.

Abstract: In the school year 2013/2014 we became joined the project Introducing e-contents and e-services with emphasis on Science. Each 4th grade pupil was given a tablet since our main assignment was testing the usage of tablets at different school subjects while at the same time evaluating whether the use of the tablet is indeed worthwhile at a particular school lesson or topic. Tablets were used by all teachers of the 4th grade which was chosen for the project, but only after carefully reflecting whether using the tablet will actually benefit the lesson. They were used at different school subjects and at different stages of the learning process. We also occasionaly lent the tablets to other teachers and pupils. Fourth graders were happy to assist younger pupils and help them get acquainted with the new technology. The pupils were of course included in exploring different possible ways and strategies of the use of tablets. A new 4th grade is involved in the project this year and they have also managed to grasp the new teaching aid very quickly. With their teacher they have been successfully exploring different ways of using the tablets at school work. We all agree that lessons with a careful and planned use of tablets are indeed better and more interesting, and that the use of tablets also allows new modern approaches toward teaching.

S tablico aktivnejši in bolj odgovorni

More active and responsible when using the tablet

Frančiška Hvalc, **Suzana Plemenitaš**, **Lea Senica**, OŠ Dobje

Povzetek: S projektom Uvajanje e-gradiv in e-storitev v pouk smo ogromno pridobili tako učitelji kot tudi učenci. Za končni cilj si nismo zadali »uporabljati tablice«, temveč »s pomočjo tablic« izboljšati pouk. Po dveh letih ugotavljamo, da nam je uspelo. Učenci zaradi novih metod in oblik dela prevzemajo aktivno vlogo pri učenju, so odgovornejši in samostojnejši. Učitelj se pojavlja v vlogi usmerjevalca pouka, frontalnega oz. tradicionalnega poučevanja skoraj ni, prevladuje sodelovalno učenje. Ker ima vsak učenec svojo tablico, so omogočeni hitro preverjanje znanja z raznimi orodji (Socrative, Google Drive, Mahara), hitra povratna informacija ter vpogled v predznanje oz. doseženo znanje učencev tako učitelju kot učencu. Učenci s tablico samostojno iščejo podatke in gradiva na spletu, delajo v lastnem tempu, videoposnetke in animacije si lahko ogledajo ponovno ali po delih, fotografirajo, snemajo … Delo je laže diferencirati in učencem ponuditi odprt način poučevanja. E-učbeniki, ki so na voljo in smo jih testno uporabljali, imajo mnogo animacij, dobrih ponazoritvenih fotografij, interaktivnih nalog za usvajanje in utrjevanje snovi, pouk je nazornejši. Učencem tablica že sama po sebi predstavlja dodatno motivacijo. Vsekakor pa mora biti učna ura dobro načrtovana in nadzorovana, učitelj mora vedeti, zakaj tablico vključuje v pouk, učenci pa poznati pravila za delo.

Abstract: Teachers and students gain a lot by being part of the project Introducing e-contents and e-services. Our final goal was not to use tablets but to improve lessons while we were using them. After two years we can say that we have succeeded. Students, due to new methods and forms of work assume an active role in learning; they are more responsible and more independent. Teacher appears in the role of a facilitator in the classroom. Cooperative learning dominates traditional, frontal teaching. Because each student has his own tablet, checking the knowledge by different tools (Socrative, Google Drive, Mahara), fast feedback and insight into students' prior or achieved knowledge is possible for the teacher and the student. Students use tablets and seek information and materials on the Web. They work as fast as they want, videos and animations can be seen again or split; they take photos and make films, etc. We can differentiate lessons easier and offer students an open way of teaching. E-textbooks that are available and that we have tested have many animations, good illustrative photos, interactive exercises for assimilating knowledge and practising. Tablet itself is already an additional motivation for the students. However, a lesson must be well planned and controlled; the teacher needs to know why the tablet is used in the classroom and pupils should know the rules of work.

Uporaba tabličnega računalnika pri pouku fizike

The use of a tablet computer at Physics

Špela Knez, OŠ Naklo

Povzetek: Slika ali še bolje film večkrat povesta več kot tisoč besed. Prav slednje se je pokazalo za najbolj hvaležni del uporabe tabličnega računalnika pri pouku fizike. Obstoječi učbeniki za fiziko že sicer niso usklajeni z novim učnim načrtom, še manj z modernim načinom podajanja snovi. Tablični računalniki z aplikacijami, prilagojenimi za poučevanje fizike, pa so se izkazali kot izvrsten dodatek obstoječim načinom in možnostim poučevanja. Konkreten primer je astronomija. Plastični prikaz našega Osončja, gibanja planetov, Zemlje, Lune, zvezd se je ne samo vtisnil učencem v spomin, pač pa je prikaz služil za odlično podlago pri običajnem podajanju snovi, saj so učenci natančno vedeli, o čem učitelj govori in kaj se bodo pri tej konkretni uri pouka naučili. Tablični računalnik je pri utrjevanju in ponavljanju snovi učencem predstavljal popestritev in razbijanje monotonosti ustaljenega preverjanja pridobljenega znanja. Najbolj pa se je njegova uporaba izkazala pri skupinskem eksperimentiranju. Zanimivo je bilo opazovati, kako so učenci v skupini tablični računalnik uporabljali za različne namene. Nekdo samo kot videokamero, drugi kot štoparico, tretji kot vir pridobivanja informacij. Torej – ne samo da se je izkazal kot zanimiv učni pripomoček za samo podajanje snovi, pač pa tudi kot vir za lastno učenčevo iniciativo ter vzpodbujevalec idej in zamisli.

Abstract: Many times a picture or even better a film can tell us more than a thousand words. The latter has proved to be the most important part of using a tablet computer in at Physics lesson. The existing course books are not compatible with the new curriculum and even less with a modern way of teaching. Tablet computers with the applications adapted for teaching Physics have proved to be an excellent addition to the existing ways and methods of teaching. An actual example is Astronomy. A vivid demonstration of our Solar system, the movement of the planets, the Earth, the Moon and the stars has not only impressed the students but also served as an excellent basis for ordinary lectures because the students knew what the teacher was talking about and what they would learn in that lesson. While revising and repeating subject matters a tablet computer represented diversification and breaking the monotony of regular testing of acquired knowledge. Its use was best proved in group experiments. It was interesting to observe how the students used tablet computers in their groups for different purposes. Some used it merely as a video camera, others as a stopwatch and some as a means of getting information. Not only has the use of a tablet computer proved to be an interesting teaching accessory for giving lectures but it has also proved to be a source for students' own initiative and a stimulator of their own ideas.

Pot uvajanja in uporabe e-vsebin in storitev na Šolskem centru Novo mesto, Srednji elektro šoli in tehniški gimnaziji

The path of introducing and using e-contents and services at the School Centre Novo mesto, the Secondary school of electronics and technical grammar school

Dragica B. Banović,
Šolski center Novo mesto, Srednja elektro šola in tehniška gimnazija

Povzetek: V preteklem šolskem letu se je Srednja elektro šola in tehniška gimnazija Šolskega centra Novo mesto vključila v projekt Zavoda RS za šolstvo Uvajanje in uporaba e-vsebin in storitev. Na skupno pot se je sočasno podala s štirinajstimi pilotnimi šolami (tako osnovnimi šolami kot gimnazijami) s celotnega območja Republike Slovenije, ki so kot glavno orodje prejele tablične računalnike, s katerimi je vsaka šola opremila pilotni oddelek.

Danes tako že drugo leto z dijaki 3. letnika tehniške gimnazije testiramo e-učbenike s področja naravoslovja (kemije in matematike) kot tudi druga e-gradiva, ki nastajajo. Sproti raziskujemo knjižnico različnih programov in apletov s ciljem poiskati take, ki bi na eni strani delovali kot motivacijsko sredstvo, na drugi strani pa učiteljem omogočali razvoj kritičnega mišljenja pri dijakih kot tudi doseganje višjih taksonomskih stopenj vedenja.

Glavna pridobitev projekta zagotovo niso bili le tablični računalniki in e-gradiva. Pogled nazaj, na realizirane učne situacije, razkriva timsko delo učiteljev in sodelovalno učenje dijakov. Timsko delo učiteljev se je odražalo v izmenjavi idej in izkušenj. Sodelovalno učenje med dijaki pa je bilo v pomoči drug drugemu pri delu s sodobno IKT. Sodelovanje med dijaki in profesorji je potekalo brez zadržkov, učili so se drug od drugega. To je glavni dosežek, ki smo ga dosegli na poti uvajanja in uporabe e-vsebin in storitev – znati delati v timu.

Abstract: In the previous school year the Secondary school of electronics and technical grammar school of the School Centre Novo mesto took part in the project of the National Education Institute of the Republic of Slovenia Introducing and using e-contents and services. We started working in the project together with fourteen pilot schools (secondary schools as well as grammar schools) from all parts of Slovenia, which received tablet computers as their primary tools that were used in each school in a pilot class.

At present we have been testing the existing Science (Chemistry) and Mathematics e-textbooks as well as other e-materials that are being produced. We are regularly researching the library of different programmes and applets in order to find those that would present a motivational means on one hand, while on the other hand they would enable the development of students' critical thinking as well as the achievement of higher taxonomic levels of their knowledge.

The main achievement of the project were neither tablet computers nor e-materials but team work of teachers and collaborative learning of students. The teachers' team work was reflected in exchanging ideas and experiences. Collaborative learning of students was helpful for everyone when working with modern ICT. Students and teachers worked together without any restraint which proved to be successful and beneficial for both sides. That is the main achievement on our path to introducing and using e-contents and services – knowing how to work in a team.

Projekt e-Šolska torba na ŠC Nova Gorica

Project e-Schoolbag on ŠC Nova Gorica

Mirijam Pirc, ŠC Nova Gorica

Povzetek: Na Šolskem centru Nova Gorica so bili v projekt e-Šolska torba vključeni predmeti: slovenščina, matematika, kemija biologija in fizika. Pri posameznih predmetih smo učitelji dobili bogate izkušnje o uporabi e-učbenikov in e-storitev pri pouku. Slovenščina sodi med predmete humanističnega področja in enakovredno sodeluje z uporabo sodobne tehnologije pri pouku. Ob novih didaktičnih pristopih, ki se ne nanašajo le na organizacijo pouka, temveč tudi na sodelovanje med učitelji, poskušamo slovenisti uvajati v pouk slovenščine na gimnazijah tudi digitalni medij. To nam najprej priporoča učni načrt, ki je bil za slovenščino v gimnaziji potrjen leta 2008 in je že takrat predvidel spremembo pouka slovenščine v tem smislu. Spodbuda za poglabljanje takih pristopov je prišla tudi od institucij (ZRSŠ), ki so nam ponudile orodje, ki ga lahko izkoristimo pri pouku, in nazadnje elektronski učbenik. Pri matematiki je e-gradivo zelo kakovostno in predstavlja pomemben prispevek k obogatitvi učnih metod in strategij pri učenju in poučevanju. Naloge so zastavljene tako, da na različne načine preverjajo razumevanje. Učitelj mora zelo natančno premisliti, katere dele gradiva bo uporabljal, da bo dosegel zastavljene cilje oziroma da se dijaki ne bodo »izgubili« v gradivu. E-gradivo za kemijo se lahko uporablja za preverjanje znanja iz OŠ, za obravnavanje nove snovi in za utrjevanje že usvojene snovi. Učitelj mora biti pazljiv pri izbiri strategije in metod dela, da doseže željene cilje. Dogodi se lahko, da dijake prenasičimo s številom novih pojmov oz. čezmerno uporabo medija. Pri naravoslovnih predmetih, biologiji in fiziki, smo učitelji uporabljali različna orodja, ki so bila na voljo na svetovnem spletu: programa Socrative in Nearpod, sodelovalne karte Cram.com, aplikacijo Exe, oblak Google drive ter Vernier merilnike.

Abstract: Teachers and students at the School Centre Nova Gorica took part in the project e-Schoolbag. The subjects included in the project were Slovenian, Mathematics, Chemistry, Biology and Physics. The teachers gained valuable experience in using e-books and e-services in the classroom. Slovene is one of the subjects of the humanities and keeps pace using modern technology in class. Alongside new didactical approaches which not only cover lesson organisation but cooperation between teachers as well, we try to incorporate the digital media into the teaching of Slovene at our high schools. First and foremost, this is suggested in the curriculum adopted in 2008 for high school Slovene which had already anticipated a change of teaching methods in this regard. The pursuit of modern methods has been encouraged by official institutions as well (The National Education Institute of the Republic of Slovenia) which have provided the tools we can use during lessons, and a digital workbook.

At Mathematics, the quality of e-learning material is very high and e-textbox represents an important contribution to the enrichment of methods and strategies in teaching and learning. The tasks check students' understanding in many different ways. Consequently, the teacher should consider very carefully which parts of the material to use to achieve specific learning targets and not to make the students "lose" themselves in the e-textbook. E-learning at Chemistry can be used to check the students' primary school knowledge, to learn new facts and to consolidate the established knowledge. In order to achieve the desired goals, the teacher must choose the strategies and methods very carefully. Students can be "supersaturated" with the abundance of new concepts and e-learning methods. At Science subjects like Biology and Physics teachers use a variety of tools which are available on the World Wide Web: Socrative programme, collaborative cards Cram.com, application Exe, Google's drive and Vernier sensors.

2.4

Male tehno skrivnosti: DEMO

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Little techno secrets: DEMO

Male tehno skrivnosti: DEMO

Little techno secrets: DEMO

Opis

Digitalne tehnologije omogočajo učiteljem in učencem raznolike možnosti učenja, poučevanja, menjave vlog in medsebojnega podpiranja. Vsak dan se pojavljajo nove aplikacije in orodja, ki zahtevajo skrben razmislek o smiselni rabi v učnem procesu. Če ste s kakšnim orodjem učinkovitejši in če ste vi ali učenci z njim laže dosegli zastavljene učne cilje, vas vabimo, da svojo "tehnoskrivnost" in izkušnjo delite z nami. Zaželeni so prispevki, ki prikazujejo novost ali novo rabo že znanega orodja.

Način predstavitve

Avtorji boste imeli za predstavitev na voljo 10 minut. Predstavitev naj bo praktičen prikaz rabe orodja, s katerim vi ali učenci rešite neki problem. Predstavite problem, vaše razmišljanje glede možnih poti reševanja, orodje, ki ste ga izbrali, in evalvacijo orodja ter opišite prednosti in slabosti rešitev. Dodajte tudi oceno dodane vrednosti v primerjavi z drugimi rešitvami.

Description

Digital technologies offer teachers and students a variety of learning and teaching opportunities as well as mutual support and a change in their roles. Every day new applications and tools appear, requiring careful consideration of reasonable use in the learning process. If you have reached any of your learning goals efficiently or more easily by means of a certain tool, we invite you to share your "techno-secret" and experience with us. All contributions presenting a novelty or a new way of use of an already known tool are welcome.

Presentation form

Presenters will have 10 minutes available for the presentation. It should be a practical presentation of the use of the tool by means of which you or your students have solved a problem. Present a problem, your reflections regarding the possible ways of solving it, the chosen tool, your evaluation of the tool, and describe advantages and disadvantages of the solutions. Add also an estimation of the benefits when compared with other solutions.

Interaktivni tridimenzionalni modeli kot pomoč pri učenju otrok s posebnimi potrebami

Interactive three-dimensional models as an aid in learning of children with special needs

Martina Kolar, OŠ Poldeta Stražišarja Jesenice

Povzetek: Corinth Classroom je aplikacija, ki jo je razvil Corinth. Vsebuje lepe in zelo jasne tridimenzionalne interaktivne modele z različnih področij: biologija človeka, biologija živali, biologija rastlin ter geologija. Na naši osnovni šoli sodelujemo v projektu uvajanja aplikacije v šolah (Classroom Pilot). Učenci si lahko s pomočjo uporabe računalnika ali interaktivne table ogledujejo tridimenzionalne modele človeškega telesa, npr. srca, pljuč itd. Modele lahko povečujejo in jih obračajo ter si jih tako ogledajo z različnih perspektiv. Aplikacija omogoča tudi, da tridimenzionalno sliko, denimo srca, projicirajo na svoje telo. Sama sem jo uporabila pri poučevanju naravoslovja v 4. razredu posebnega programa z nižjim izobrazbenim standardom, pri enoti Človeško telo. Učenci z lažjo motnjo v duševnem razvoju si s pomočjo konkretizacije notranjih organov le-te veliko laže predstavljajo ter si zato bolje zapomnijo znanje o njih. Učenje poteka skozi igro, medsebojno komunikacijo in prek različnih senzornih poti.

Abstract: Corinth Classroom is an application developed by Corinth. It contains beautiful and very clear three-dimensional interactive models from different fields: human biology, animal biology, plant biology and geology. At the elementary school where I work, we joined the project Introduction of applications in schools (Classroom Pilot). Students can view three-dimensional models of the human body, e.g. heart, lungs, etc. They can increase and turn them, and see them in different perspectives by the use of a computer or interactive whiteboard. The application also allows three-dimensional image, e. g. heart projected on pupil's body. I have used the application in the teaching of Science (the unit Human Body) in the 4th grade of the special programme with lower educational standards. Pupils with mild mental disabilities learned about human internal organs much easier due to the concrete 3D models and they remembered more. Learning takes place through play, and communication with one another through different sensory channels.

Reprap 3D-tiskanje – Razvojna priložnost za naše izobraževalne procese

Reprap 3D printing – Development opportunities for our educational process

Andrej Kološvari, OŠ Franceta Prešerna Kranj

Povzetek: Učenci se v osnovni šoli srečujejo pri različnih predmetih z modeliranjem v prostoru, ko prenašajo idejo v tridimenzionalno sliko. Tako razvijajo prostorsko inteligenco. Za oblikovanje digitalnega modela uporabljajo tudi različna programska orodja. Pri urah tehnične vzgoje se pogosto dogaja, da ko učenci natisnejo 3D-risbo modela, proces obstane. Ideji, skici, tehnični risbi in kosovnici ne sledi izdelava izdelka oziroma prototipa. Učenec lahko ustvari nepopoln miselni vzorec. Tehnična risba ni sama sebi namen. Uporaba 3D-tiskalnika je morda ena od rešitev. Množično uporabo 3D-tiskalnikov je omogočila tudi tehnologija RepRap. Uporabne predmete tiskamo kar doma. Čas od ideje do prototipa se je skrajšal. Digitalna tehnologija spreminja proizvodne, izobraževalne in družbene procese. Rojeva se nov poklic, 3D-tiskar. Šola sledi dosežkom znanosti in tehnologije. 3D-tiskalnik postaja pomemben didaktični pripomoček pri pouku tehnične vzgoje, likovne umetnosti, robotike, risanja v geometriji in tehniki, fizike in tudi pri drugih predmetih. Nova tehnologija prinaša spremembe učnih metod, pripomočkov in gradiv. Reprap 3D-tiskalniki ponujajo odprto polje rešitev v izobraževanju in tudi drugje v družbi.

Abstract: Pupils in primary school are faced with spatial modeling at several different school subjects when they transfer an idea into a three-dimensional image. With that they develop spatial intelligence. Different software tools are used to create a digital model. At Technical Education class it is often the case that once pupils have printed their drawing of a 3D model all further processes are stopped. Ideas, sketches, technical drawings and BOM are not followed by any manufactured product or prototype. The pupil can only produce an incomplete mindmap. Technical Drawing is not an end in itself. Using a 3D printer is perhaps one of the solutions. RepRap technology also allows the massive use of 3D printers. Useful items can be printed at home. The time from idea to prototype has been shortened. Digital technology is changing manufacturing, educational and social processes. Giving birth to a new profession 3D printer. The school follows the achievements of Science and Technology. 3D printer is becoming an important teaching aid for teaching Technical Education, Fine Arts, Robotics, Drawing in Geometry and Engineering, Physics and other subjects. New technology brings changes in teaching methods, devices and materials. RepRap 3D printers offer an open field solutions in education and elsewhere in society.

Naj se vidim!
Spodbujanje medsebojnega učenja s fotografijami in videoposnetki pouka

Let me see!
Using photos and video to facilitate student and teacher learning

Ines Celin, OŠ Antona Žnideršiča Ilirska Bistrica

Povzetek: Namen prispevka je skozi študijo primera predstaviti možnosti uporabe fotografij in posnetkov pouka z namenom spodbuditi medsebojno učenje učenca in učitelja. Ob uvajanju fotografiranja in videoposnetkov kot načina za formativno spremljanje napredka učenca sem spoznala vrednost tehnologije kot pripomočka, ki omogoči uvid na eni strani učencu in na drugi strani učitelju. V učnem procesu učitelji težko usmerimo pozornost na vse, kar se dogaja, in se pogosto ne zavedamo, kako komuniciramo ali kako se odzivamo na obnašanja učenca. Da bi dosegli ugodne učinke, je nujno potrebno, da najprej z učencem vzpostavimo dober odnos in zaupanje. Bistveno je, da tehnologijo uporabljamo s pozitivno naravnanostjo, da sprva analiziramo le uspešne poskuse ter se usmerimo na to, kaj je učenec naredil dobro. Ob takšnem pristopu hitro vidimo napredek v motivaciji otroka (se trudi, sam predlaga snemanje). Sama sem po drugi strani ob posnetkih prišla do dragocenih spoznanj o svojem delu in s spremembo svojega pristopa dosegla premike tudi pri učencu. Ta izkušnja je bila zame preizkus zrelosti (sprejeti sebe in svoje šibkosti), opozorila pa me je tudi na pomen etičnega ravnanja z gradivom, ki lahko okrepi ali pa ob neustreznem ravnanju hitro skrha odnos med učiteljem, učencem in starši.

Abstract: The aim of this article is to present through a case study the possibilities of using photographs and video recordings of classes in order to encourage the mutual learning of both, pupil and teacher. By introducing photography and video recording as the ways of monitoring the pupil's progress I learned the value of technology as a means which provides insight to both, pupils and teachers. During the learning progress, it is difficult for teachers to focus their attention on everything that is happening and they are often oblivious of their communication and reactions to pupil's behaviour. It is necessary to first establish a good and trusting relationship with the pupil in order to achieve positive effects. It is essential to use technology in a positive way, to analyse only positive attempts at first and focus on what the pupil did well. Using this approach, we can observe quick progress in the pupil's motivation (they try

harder, they themselves propose recording). On the other hand, the recordings led me to valuable discoveries about my work and helped me make progress with students by changing my approach. For me this experience was a test of maturity (to accept myself and my weaknesses) and it also made me aware of the meaning of ethical handling of material which can either strengthen or, if used wrongly, aggravate the relationship between the teacher, pupils and parents.

Elektronska pripomočka za pomoč učencem s težavami pri branju in pisanju

Digital aid for pupils with difficulties in reading and writing

Gregor Skumavc, OŠ Poldeta Stražišarja Jesenice

Povzetek: Delež učencev, ki imajo težave pri branju in pisanju, se v zadnjih letih vztrajno povečuje. Disleksija se kot vodilna težava na področju branja in pisanja omenja na vseh nivojih šolanja, pa tudi v odrasli dobi. Kljub vedno več potem pridobivanja znanja (e-učbeniki, multimedijski viri ipd.) učenje prek branja in izdelava zapiskov še vedno predstavljata pretežni del izobraževalnega procesa. Ker je uporaba računalnika danes v obdobju šolanja samoumevna, imajo učenci s težavami branja na voljo preprost pripomoček, ki jim lahko znatno olajša branje na zaslonu računalnika. Predstavili bomo delovanje programa T-bar, ki nadomešča bralno ravnilce za uporabo na zaslonu. Z njim lahko učenci zmanjšajo kontrast med podlago in besedilom in si poenostavijo sledenje besedilu v katerem koli programu. V drugem delu bomo predstavili didaktične možnosti uporabe pametnega pisala za urejanje zapiskov ter izdelavo pencastov, s katerimi lahko učitelji konkretno pojasnjujejo reševanje matematičnih postopkov, urejanje formul ipd. Z uporabo pametnega pisala učenci (ob predhodnem soglasju učiteljev) lahko posnamejo razlago, s čimer ne zamudijo ničesar, posnetek pa si lahko neštetokrat ponovno predvajajo.

Abstract: We are witnessing a steady increase of pupils with difficulties in reading and writing in the past years. Dyslexia is one of most commonly referred problems regarding reading and writing in the primary school as well as in adulthood. Taking notes and learning by reading are still main processes in education, although there are many other options of obtaining information (e-books, multi-media etc.). Using a computer is normal in school nowadays and pupils with reading problems are able to use a simple tool to simplify their reading from the computer screen. We will introduce T-bar, a color “reading ruler” for the screen in the form of an application. It can be used to minimize the contrast between letters and the background and to simplify the visual tracking of letters and words. In the second part we will introduce didactic opportunities for using the smartpen. It can be used to organize and digitize notes, to produce pencasts, a form of document through which teachers can effectively prepare and deliver complex explanations of various topics. With prior agreement from their teachers, students can record sounds during lessons, leaving nothing behind. The recording can then be played back infinitely.

Uporaba humanoidnega robota pri poučevanju nepravilnih angleških glagolov

Using a humanoid robot to teach English irregular verbs

Boštjan Resinovič, Šolski center Celje

Povzetek: Informacijsko tehnologijo v izobraževanju uporabljamo v različne namene: za večjo nazornost in zanimivost, poenostavitev postopkov, dvig produktivnosti in/ali motivacije, zmanjšanje napora itd. Prispevek prikazuje uporabo humanoidnega robota Nao z namenom dviga motivacije in pozornosti dijakov ter posledično boljšega učinka pri spoznavanju nove snovi in njenem utrjevanju. Za demonstracijo možnosti, ki jih ponuja uporaba humanoidnega robota, je bila izbrana klasična tema poučevanja tujih jezikov: angleški nepravilni glagoli. V ta namen je bil napisan program, s katerim zna robot prepoznati katero koli od oblik nepravilnega glagola in povedati vse tri, črkovati vse oblike, predvajati vnaprej posnet »rap« o nepravilnih glagolih ali pa ga samostojno recitirati ali pa »rap« prekiniti po povedanem nedoločniku in počakati, da dijaki povejo preostali dve obliki. Program omogoča tako uvajanje nove snovi in njeno utrjevanje kot tudi ocenjevanje, hkrati pa prikazuje, kako se lahko učitelji različnih strok učimo drug od drugega in nato ustvarjamo nove izobraževalne produkte, v tem primeru robota, od katerega se lahko učijo dijaki.

Abstract: ICT is used in education for different purposes: to make concepts more graphical and interesting, simplify procedures, increase productivity and/or motivation, decrease necessary strain, etc. This presentation shows how to use Nao, a humanoid robot, to increase students' motivation and focus and consequently achieve better effects in learning new material and in knowledge consolidation. To demonstrate the possibilities offered by the usage of a humanoid robot a classical theme in learning foreign languages was chosen, namely English irregular verbs. In order to achieve this the programme that enables a robot to recognize any form of an irregular verb and lets it say or spell all three forms, play a prerecorded irregular verbs rap, recite it or stop it after an infinitive to let students give the remaining two forms. The programme helps the teacher to introduce and consolidate new material as well as to grade students and at the same time demonstrates how teachers of different professions can learn from each other and create new educational products, in this case a robot students can learn from.

Učenje programiranja v navideznem svetu, podprtem s formativnim spremljanjem

Learning computer programming in the virtual world supported by formative assessment

Boštjan Ravnjak, **Franc Jakoš**, OŠ Janka Glazerja Ruše

Povzetek: Prispevek opisuje uvod v učenje programiranja v večuporabniškem navideznem svetu s pomočjo izobraževalne igre Aladin in njegova leteča preproga. Novost učnega okolja so prvine formativnega spremljanja, implementirane v izobraževalno igro. V ta namen sva uporabila funkcionalnost Webintercom, ki je del vtičnika SloodleSet 1.2 za izobraževalno okolje Moodle in navidezno okolje Opensimulator. Vtičnik je omogočil povezavo med navideznim in izobraževalnim okoljem. Zapisana besedila učencev v navideznem svetu so se shranjevala v MaySQL-bazi podatkov Moodlovega okolja. Napisati je bilo treba program za izpisovanje zapisanega besedila na objektih v obliki tekstur v navideznem svetu. Za poučevanje sva izbrala popoldanske delavnice za nadarjene učence 6. razreda, ki se v učnem procesu še niso srečali s programiranjem. V ta namen sva v proces vključila prvine formativnega spremljanja, ki so tako učencem kot učiteljema pomagale pri spremljanju napredka in pri razumevanju konceptov programiranja. Spremljala sva tri ključne faze: predznanje, strategije in samoevalvacijo učencev. Umestila sva jih v področja igre, kjer sva poskušala več časa nameniti razmišljanju o pravilih igre, reševanju zapletov, programiranju. Učenci so v procesu faz lahko spoznali razmišljanje preostalih vključenih učencev in si tako pridobili možnost temeljiteje razumeti izobraževalno igro. Samoevalvacije učencev kažejo na to, da so s takšnim načinom dela laže reševali naloge.

Abstract: This paper describes an introduction to learning computer programming in a multi-user virtual world through educational game Aladin and his flying carpet. The novelty regarding learning environment is formative assessment, implemented in the educational game. For this purpose we used functionality of Webintercom which is part of the plugin SloodleSet 1.2 for learning environment Moodle and virtual environment Opensimulator. Connection between the virtual and the educational environment was enabled by plugin. All text written in the virtual world by pupils is stored in the MySQL database of the Moodle environment. We had to write a programme to print the written text on objects in the virtual world in form of textures. We chose to work with gifted 6th grade pupils who had not met with computer programming in the learning process yet. We integrated elements of formative assessment in the process in order to assist us in monitoring pupils' progress and in

understanding of programming concepts. We monitored three key phases: previous knowledge, strategies and self-evaluation of pupils. Phases were placed in areas of the game where we wanted pupils to spend more time thinking about the rules of the game and solving programming problems. In these phases pupils were able to see what other pupils are thinking about and detect other solutions of the same problem. By doing so, pupils gained deeper insight into the educational game. Their self-evaluations show that this method provides easier solving of the tasks.

IKT-pomoč pri vrednotenju in spremljanju učenčeve uspešnosti

ICT help at assessment and monitoring of student's progress

Simon Dražič, OŠ Šmarje pri Kopru

Povzetek: Informacijsko-komunikacijska tehnologija nam lahko olajša in pospeši pridobivanje povratne informacije o znanju oz. razumevanju naših učencev. Zato potrebujemo orodje, ki je zastonj, preprosto za uporabo in z veliko dodatnimi možnostmi. Predstavljeno orodje je zasnoval učitelj in ustreza gornjim kriterijem. Z njim bomo lahko hitreje vrednotili naloge, preverjanja, kvize, teste idr. Googlovo storitev Drive že uporablja veliko učiteljev, pa tudi učencev in dijakov. Z dodatkom za Googlove preglednice Flubaroo in vprašalnikom, ki ga sestavimo v Googlovih obrazcih, tako hitro: a) pregledamo rezultate vsakega posameznega učenca/dijaka in b) ugotovimo, kdo izmed njih potrebuje dodatno pomoč, c) Dobimo povprečno oceno vsakega vprašanja in č) histogram z razporeditvijo rezultatov, d) Odkrijemo nalogo, s katero so imeli učenci največ težav (oz. je bila prelahka), in e) učencem po elektronski pošti sporočimo njihov dosežkek in po želji tudi z dodatno sporočilo za celotno skupino ali posameznega učenca. Poleg omenjene analize rezultatov, ki jo lahko uporabimo za izboljšanje svojega dela in rezultatov učencev, je pomembno, da (za razliko od večine preostalih učnih okolij) lahko kvize za preverjanje znanja sestavljajo tudi učenci (sami ali v sodelovanju) in se tako aktivneje vključijo v učni proces, se učijo drug od drugega itd. Orodje je primerno tudi za mlajše učence, saj prijava ni potrebna.

Abstract: ICT can speed up our work and make it easier when gathering information about knowledge and understanding of our students. That is why we need a tool that is free, efficient, with many additional options and user-friendly. The presented tool was designed by a teacher and meets the above criteria. With it we can speedily evaluate tasks, quizzes, tests, etc. A lot of teachers and students are already using Google Drive. With a Flubaroo add on, and a questionnaire in Google Forms a teacher can • quickly review the results of every student and • figure out which one of them needs extra help. • Get an average score on each question and • a histogram of the distribution of results. • Discover a question or task in which students had the most problems (or it was too easy), and • sent students an e-mail with a report re. their achievement and optionally an additional message for the wohle group or individual student. In addition to this learning analytics, which can be used to improve our work as teachers and students' achievements, it is important that (unlike in the most other LMS) students can make quizzes on their own (individually or in a team)

and so become active partners in learning process, learn form each other, etc. The tool is also appropriate for younger students, since for solving quizzes the application is not required.

Uvajanje elementov formativnega spremljanja z digitalnimi orodji

Implementation of formative assessment with digital tools

Marjeta Borstner, ZRSŠ,
Nataša Kralj, Prva gimnazija Maribor,
Suzana Ramšak, ZRSŠ

Povzetek: V prispevku bomo predstavili uvajanje elementov formativnega spremljanja v procese pouka tujih jezikov na gimnazijah in v osnovnih šolah. Za formativno spremljanje je značilno, da poteka s pomočjo številnih orodij, s katerimi učitelj zbira dokazila o poteku procesov učenja učencev, preverja njihovo razumevanje in napredek. Formativno spremljanje je tudi proces, ki spodbuja interaktivno sodelovanje med učitelji in učenci ter med učenci samimi in hkrati vodi učitelja pri prilagajanju ter nadgrajevanju pristopov v poučevanju v skladu z učenčevimi potrebami. V prispevku bomo na primerih dobre prakse predstavili uporabo digitalnih orodij v različnih fazah procesa pouka, od ugotavljanja predznanja (Clickers, Poll Anywhere), skupnega načrtovanja ciljev pouka (spletne učilnice, Wiki) in spodbujanja vrstniškega sodelovanja (Google Docs, spletne ankete, Padlet) do komentiranja ter evalviranja učnih procesov s strani učiteljev in učencev. Za usmerjanje in samoregulacijo procesov učenja učencev bomo prikazali uporabo e-listovnika v spletni aplikaciji Mahara, pri čemer se bomo osredotočili na vsebinski zavihek Moje učenje, ki učencem omogoča, da v dinamičnem učnem spletnem okolju svoje učenje načrtujejo, ga ob sprotnih povratnih informacijah učitelja in vrstnikov izboljšujejo ter ga vrednotijo. Uporaba digitalnih orodij je pokazala povečano motivacijo učencev za aktivno sodelovanje pri pouku in odgovornost do znanja ter procesov učenja, hkrati pa olajšala zbiranje dokazil o poteku procesa učenja učencev ter omogočila preverjanje razumevanja oz. evalvacijo učnih procesov na transparentnejši in dostopnejši način.

Abstract: In the article the implementation of formative assessment into the instruction of foreign languages in the grammar schools and elementary schools will be presented. In the processes of formative assessment different tools are used, and so teachers can gather evidences for learning processes, students' understanding and progress. Formative assessment also stimulates interactions between teachers and students and among students themselves. What is more, formative assessment enables teachers to adapt and develop teaching strategies according to the students needs. The examples of good practices will be presented with the implementation of digital tools for different phases

in the instruction processes: testing pre-knowledge (Clickers, Poll Anywhere), common planning of goals and objectives (virtual classrooms, Wiki), fostering peer cooperation (Google Docs, Poll, Padlet) and giving feedback and evaluation of learning processes by teachers and students. For guiding and self-regulation of students' learning processes, the use of ePortfolio created in the Web application Mahara will be shown, whereby we will focus on the content tab My learning which enables students to plan their learning, improve it with regular teachers and peers feedbacks, reflect on it and evaluate it. The use of digital tools in instruction prooved to be benificial because students' motivation and responsibility for learning and knowledge have grown. At the same time gathing of evidences, checking understading and evaluation of learning processes were carried out in a more transparent and accessible way.

Timsko delo v oblaku

Teamwork in the Cloud

Vesna Kolenc Potočnik, **Bogdan Škof**,
DOBA Fakulteta za uporabne poslovne in družbene študije Maribor

Povzetek: V magistrskem študiju na DOBA Fakulteti, kjer poteka študij v celoti online, se soočamo z vrsto izzivov, kako omogočiti timsko delo na daljavo in zagotoviti njegovo kakovost. Delo študentov poteka prek sinhrone in asinhrone komunikacije. Na tem mestu se bomo osredotočili na izziv izvedbe timskih vaj na virtualnem srečanju z učiteljem, ki smo ga rešili z vključitvijo dodatnih orodij, ki jih poleg orodij v virtualnem učnem okolju Blackboard (forum, blog, wiki, opravila, izmenjava datotek) nudita okolji Blackboard Collaborate in Microsoft Office 365. Okolje Blackboard Collaborate predstavlja virtualno učilnico, ki omogoča vizualno, govorno in pisno komunikacijo med učiteljem in študenti v timu. Učitelj lahko študente razporedi (ali pa se razporedijo sami) v posamezne virtualne sobe, kjer komunicirajo v timih, sam pa se lahko sprehaja med timi in spremlja njihovo delo, jim svetuje ter odgovarja na vprašanja. Študenti svoje izdelke oblikujejo v dokumentih, ki so shranjeni v oblaku (OneDrive) in jih lahko vsi hkrati urejajo v Office Online orodjih (Word, Excel, OneNote). Po opravljenem delu lahko učitelj vrne vse študente v glavno virtualno učilnico, kjer lahko predstavijo svoje izdelke vsem timom. Z vpeljavo in integracijo novih orodji, ki omogočajo večjo učinkovitost (časa), boljšo komunikacijo in možnost oblikovanja in urejanja besedil, smo tako omogočili večjo kakovost virtualnega timskega dela.

Abstract: The Masters study programme at DOBA Faculty which runs fully online is faced with numerous challenges on how to enable distance teamwork and ensure a high quality of such teamwork. Students work using synchronous and asynchronous communication. In this respect we focus on the challenges that accompany the implementation of team tasks at a virtual meeting with the teacher which were solved by including additional tools to the ones offered by the Blackboard learning environment (Forum, Blog, Wiki, Tasks, File Exchange), i.e. tools offered by Blackboard Collaborate and Microsoft Office 365. Blackboard Collaborate is a virtual classroom that allows for video, audio and chat communication between the teacher and students in the team. The teacher can assign students (or they can assign themselves) to individual virtual rooms where they communicate in teams while the teacher can move through the teams and monitor their work, provide advice and answers their questions. The students prepare their assignments in documents that are saved in their cloud (OneDrive) and that can be simultaneously edited by using Office Online tools (Word, Excel, OneNote). When the assignment has been completed, the teacher can return all students to the main virtual classroom where they can

present their products to all teams. The introduction and integration of new tools which enable greater efficiency (time), better communication and better text formatting and editing options has thus ensured higher quality of the team work in virtual environment.

2.5

Učenje brez meja – videokonferenca

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Learning beyond limits – videoconference

Učenje brez meja – videokonferenca

Learning beyond limits – videoconference

Opis

Lani je bilo videti, da bo samo zabavno druženje s štirimi zanimivimi gosti, nastal pa je pouk in učenje o kulturi, fiziki, športu in umetnosti, ki so ga oblikovali svetovni prvak, komik in prevajalec, Cernski znanstvenik in glasbenica; trije na daljavo, eden iz studia. S tem smo podpirali zamisel Odprte učilnice, da je to, kaj se učimo in kako, pomembnejše od tega, kje se učimo.

Tokrat bosta gosta dva. Medse smo povabili dva gosta – enega uglednega in enega zanimivega –, ki bosta poučevala učence, dijake in učitelje in se od njih tudi učila. Prvi »skrivnostni gost« bo učitelj državljanske in domovinske vzgoje, človekovih pravic in demokracije, drugi bo učil o glasbi, besedah, motiviranju, sporočanju, izražanju stališč in ga lahko spremljate na tviterju, prek kanala @ Trkaj.

V polurnem nastopu bo gost najprej na kratko predstavil temo. Zatem bodo postavljali vprašanja otroci, učenci, dijaki, učitelji in vzgojitelji iz desetih šol, ki bodo videokonferenčno neposredno povezani, in seveda udeleženci konference SIRikt. Ob koncu bomo odgovarjali na vprašanja, ki jih bodo s tvitanjem poslali gledalci, saj bomo pogovor neposredno prenašali prek spleta.

Description

Last year we predicted it to be only a fun social event with four interesting guests, but it turned into a learning event about the culture, physics, sports and art, co-designed by a world champion, a comedian and a translator, a CERN scientist, and a musician. Three of them joined us virtually, the fourth was with us in the studio. We were supporting the idea of the Open Space Classroom: it is what and how we learn that is important, not where.

This year we will host two guests: we invited one distinguished and one very interesting guest who will teach pupils, students and teachers and at the same time learn from them. The first “mysterious” guest is a teacher of Civics, Human Rights and Democracy; the other one will teach us about music, words, motivation, communication, expression of opinion and you can follow him on Twitter @Trkaj.

In half an hour the guests will first present the topic, and then children, pupils, students, teachers and other educators from ten schools will be able to bring up their questions via video conference link. Of course, the SIRikt 2015 participants will have an opportunity to send in their questions, too. Moreover, at the end our guests will also deal with questions sent to Twitter during the event which will be live-streamed.

2.6

Delavnice • Workshops

Delavnice

Workshops

Opis

V šolah imamo dostop do e-vsebin in e-naprav in smo skoraj vedno omreženi. Drug od drugega se učimo vedno in povsod. Kakšno je pri tem vaše razvojno in raziskovalno delo ter rešitve? Kako ga/jih merite? Delite svoje znanje in prispevajte primere iz prakse, ki naj bodo usmerjeni v “Pokaži mi in me nauči, kako naj se učimo drug od drugega”.

Description

Schools have a continuous access to e-contents and e-devices; we are online virtually all the time. We learn from each other all the time and everywhere.

What is your research and development work in this sphere like? What are your solutions? How do you measure it? Share your knowledge and contribute a practical example, oriented into “Show me and teach me how to learn from each other”.

Od virtualne do fizične mobilnosti

From virtual to physical mobility

Urška Šraj, CMEPIUS

Povzetek: Delavnica je namenjena vsem učiteljem, vzgojiteljem in preostalim pedagoškim delavcem, ki si želijo popestriti učne ure s sodelovanjem v mednarodnih projektih in tako svojim učencem/dijakom ponuditi drugačen način učenja. Študija o učinkih mednarodnega sodelovanja na šole je med drugim pokazala tudi to, da tovrstne aktivnosti pozitivno vplivajo na sodelovanje vodstva šole z učitelji in obratno ter tudi na medpredmetno povezovanje učiteljev, učenci pa pridobijo predvsem na nekognitivnem polju učenja. Vse to kaže, da je mednarodno sodelovanje lahko pomemben element za razvoj komunikacije in sodelovanja na šoli in zunaj nje, kar pa je temelj za grajenje učeče se skupnosti in uvajanje sprememb. Na delavnici vam bomo predstavili tako manj zahtevne eTwinning projekte kot tudi tiste kompleksnejše, ki zahtevajo aktivno sodelovanje sodelavcev in tudi vodstva. Glavni poudarek bo na sodelovalnem delu znotraj eTwinninga, ki poleg spletne učilnice in baze več kot 300.000 učiteljev iz vse Evrope in širše nudi možnosti udeležbe na fizičnih in virtualnih izobraževalnih dogodkih ter prostor za izmenjavo mnenj in izkušenj … Dotaknili se bomo tudi programa Erasmus+ in možnosti, ki jih le-ta ponuja šoli/vrtcu. Z delavnico želimo spodbuditi zanimanje za mednarodno sodelovanje, tako virtualno kot tudi fizično.

Abstract: The workshop focuses on all teachers, pre-school teachers and other teaching staff who would like to enrich their lessons with participation in international projects, thus offering their students a different way of learning. A study about the effects of international cooperation on schools has shown that this kind of activities positively influences not only the cooperation between school management and teachers, but also cross-curricular cooperation of teachers, and the advantages for students are shown primarily on non-cognitive areas. All this shows that international cooperation can be an important element for the development of communication and cooperation in and outside schools, which is the basis for building a learning community and the introduction of changes. In the workshop we will not only present some less demanding eTwinning projects, but also those more demanding and complex which require active participation from all partners and the project coordinators. The emphasis will be on the cooperation within eTwinning which besides a virtual classroom and a database of more than 300,000 teacher from all Europe and wider offers a possibility of taking part at physical and virtual educational events as well as a place for exchange of opinions and experiences. We will also mention the Erasmus+ programme and the possibilities it offers for schools and pre-schools. With the workshop we want to encourage interest in international cooperation, virtual and physical.

ABC Mahare za boljši strokovni razvoj zaposlenih in učencev

ABC Mahara for better professional development of teachers and students

Suzana Plemenitaš, **Magdalena Doberšek**, OŠ Dobje

Povzetek: Na začetku poti in uvajanja sprememb so vedno pomisleki in dvomi. Na OŠ Dobje se je pred začetkom uvajanja projekta e-listovnik porajalo več vprašanj: Je orodje Mahara primerno za vodenje profesionalnega razvoja? Imamo dovolj znanj oz. smo dovolj kompetentni? Je naša vizija dovolj jasna? So spremembe sploh potrebne ali ostanemo pri ustaljenem? Najprej se je treba rešiti stereotipnega razmišljanja o lastnih pričakovanjih. Le-ta so po navadi drugačna od pričakovanj tistih, s katerimi sodelujemo v procesu učenja. Treba je razmišljati o lastnem delu, delu zaposlenih (ali učencev) in tu se proces, ki vodi prek ugotavljanja predznanja, postavljanja ciljev, iskanja dokazov o delu, kritičnem vrednotenju svojega dela in dela tistih, s katerimi sodelujemo, in na koncu poglobljene samorefleksije šele začne. »Na tej poti« nastane veliko dobrih izdelkov, ki jih hranimo v Mahari in zaradi katerih smo »na koncu poti« ponosni in samozavestnejši. Čeprav na videz neprivlačna Mahara nudi ogromno možnosti za dobro načrtovano vodenje profesionalnega razvoja vseh deležnikov vzgoje in izobraževanja. S poznavanjem filozofije e-listovnika lahko ravnatelj načrtneje vodi profesionalni razvoj zaposlenih, učitelji pa usmerjajo učence, da najdejo svoja najmočnejša področja. Rezultat so merljivi dosežki vseh, ki sodelujejo v procesu profesionalnega razvoja.

Abstract: At the beginning of the way of introducing changes, there are always doubts and concern. Before starting the E-portfolio project at primary school Dobje we were confronted with several questions: Is Mahara a suitable tool for managing professional development? Do we have enough knowledge and are we competent enough? Is our vision clear enough? Are changes really needed or can we stay where we are? First, we had to get rid of stereotyped thinking about our own expectations. They are often different from the expectations of our partners in learning. You need to think about your own work, the work of the employees (or students), and only at this point the process begins which goes from prior knowledge, setting goals, searching for proofs of work, critical evaluation of one's own work as well as the work of one's partners, to – finally – deep self-reflection. On this path a lot of products are created which are kept in Mahara and because of which at the end of the path we are more proud and more self-confident. Although Mahara may look uninteresting at first glance, it offers a number of possibilities for a well-planned professional development

management of all involved in education. By knowing the e-portfolio ‘philosophy’ the headmaster can manage the professional development of his staff more premeditated, and the teachers can guide students to find their strengths. Results are measurable outcomes of all the involved in the professional development process.

Značke – dokaz mojega znanja?

Badges – evidence of my knowledge?

Gregor Anželj, Gimnazija Bežigrad

Povzetek: Značke po sistemu OpenBadges predstavljajo rešitev, ki vsakemu deležniku ponujajo dovolj podatkov o tem, kdo kaj zna, hkrati pa ne razkrivajo preveč podatkov o lastniku značke/znanja. Na delavnici bodo udeleženci spoznali, kako sistem deluje in kako svoje značke prenašajo iz enega sistema v drugega (Moodle, listovnik, Openbadges, Linkedin, etc.) – jih objavijo ali skrijejo. Razloženo in prikazano bo tudi, kakšna je razlika med značkami in potrdili ter kako sta lahko sistema povezana. Z uporabo značk se poenostavi izmenjava vedenja o tem, kdo kaj zna. Na delavnici bo demonstrirano tudi, kako imajo ravnatelji možnost dobiti preprost pregled nad pridobljenim znanjem svojih učiteljev. Pregledali bodo lahko tudi značke, ki smo jih dodeljevali v projektu e-Šolska torba.

Abstract: Open Badges is an online standard that enables users to show their achivements without revealing too much of their personal data.
The aim of the workshop is to show users how the system of Open Badges works and how they can transfer their badges between various systems (Moodle, Mahara, OpenBadges Backpack, LinkedIn, etc.) – how they can display or hide their badges. We will also demonstrate the differences between badges and certificates and how those two systems are interconnected. The use of badges greatly simplifies the excange of users' knowledge. We will also demonstate how the headmasters can obtain an easy overview of their teachers' gained knowledge. The participants will also be able to review the badges that were awarded during "e-Šolska torba" (e-Schoolbag) project.

Ustvarjalnica CCL

Creative workshop

Simona Granfol, **Maja Vičič Krabonja**, **Bernardka Radej**, **Jerica Glavan**,
Andreja Pečovnik Menciger, **Saša Divjak**, FRI,
Anita Poberžnik, ZRSŠ

Povzetek: V Ustvarjalnici bo osrednja tema vrednotenje projektno sodelovalnega dela z uporabo IKT. Skupaj bomo raziskovali možnosti in načine, kje spremljamo, preverjamo in ocenjujemo dosežke in sodelovanje dijakov pri projektnem sodelovalnem delu in kako. Pri tem se bomo osredotočili na spremljavo, vrednotenje in povratno informacijo na nivojih učitelj – dijak in skupina, dijak – dijak ter skupine med seboj. Preizkusili bomo nekatera IKT-orodja, ki nam pri tem procesu omogočajo lažje in boljše sodelovanje, učenje drug od drugega, spremljanje dela učencev in podajanje kakovostne povratne informacije. Dejavnosti v Ustvarjalnici bomo tudi spremljali s kamero IRIS in oblačnim sistemom, ki nam daje možnost učenja drug od drugega, (samo)evalvacijo in strokovno refleksijo pedagoškega procesa.

Abstract: The Creative workshop will be the central theme of the evaluation of the collaborative project work using ICT. Together we will explore ways and means where to monitor, investigate and assess the achievements and participation of students in collaborative project work and how. In doing so, we will focus on monitoring, evaluation and feedback on the level of teacher-student and group, student – student, and group - group relationship. We will test some ICT tools that facilitate better cooperation, learning from each other, monitoring of students' work and delivering quality feedback. Creative activities will also be monitored with a camera IRIS and cloud system which gives us the opportunity to learn from one another, (self)evaluation and professional reflection on the teaching process.

Kako zasnovati pouk, ki motivira za učenje (drug od drugega)?

How to design classes that motivate students to learn (from each other)?

Jan Žitnik, **Sašo Puppis**, **Stanko Levičar**, **Eva Zule**, **Danilo Flisar**,
Ekonomska šola Ljubljana

Povzetek: Če želimo, da se bomo v šoli učili drug od drugega, tega ne smemo prepustiti naključju, ampak moramo pouk zasnovati s tem namenom. Pri tem glavni izziv ni, katere tehnologije uporabiti, ampak kako sodelujoče motivirati za delo. Namen delavnice je udeležencem omogočili izkušnjo aktivnega sodelovanja pri pouku, ki je zasnovan z namenom spodbuditi sodelujoče, da se učijo drug od drugega, jih naučiti načel priprave takšnega pouka in predstaviti konkretne tehnološke rešitve, ki jih uporabljamo. Na koncu delavnice bo vsak udeleženec s pomočjo naših aplikacij izdelal primer učne ure s svojega področja. Pouk, ki smo ga razvili na Ekonomski šoli Ljubljana, temelji na konceptu igrifikacije in se je izkazal za izjemno uspešnega. Evalvacija je pokazala, da smo dosegli višjo motiviranost dijakov za delo (merjeno z delom v šoli in doma), boljše ocene (v primerjavi s prejšnjim letom in razredi, kjer takšnega pouka nismo izvajali), boljše znanje (po oceni profesorja in dijakov samih) in boljše počutje dijakov (po oceni dijakov samih). Bistveno se je povečal tudi obseg medsebojnega sodelovanja dijakov – v živo in prek socialnih omrežij so drug drugega učili in si pomagali pri reševanju nalog. Prednost predstavljenih aplikacij je v tem, da jih lahko uporabimo v kakršni koli učni situaciji.

Abstract: If we want students in our schools to learn from each other, we cannot leave it to chance. We must design our classes in such a way that they encourage it. The main challenge we face is not which technologies to use, but rather how to motivate the participants. The purpose of the workshop is to enable the participants to experience a class that was designed to encourage learning from each other, teach them the basic principles of designing such classes and show specific technological solutions that we use. The approach that has been developed at Ekonomska šola Ljubljana is based on a concept called “gamification” and has proven to be extremely effective. Evaluation showed that we achieved a higher level of motivation (measured by schoolwork at home and in school), better grades (compared to the previous year and the classes, where this approach was not used), higher level of knowledge (according to the teacher and students themselves) and higher level of student satisfaction (according to the students). The level of student cooperation increased significantly as well, both person to person and through social

networks. Students taught each other and helped each other with their assignments. The advantage of presented applications is that they can be used in any kind of teaching/learning situation.

Cmap – orodje za izdelavo pojmovnih mrež

Cmap – concept maps tool

Lea Nemec, Gimnazija Ledina

Povzetek: Pojmovne mreže so grafični prikazi strukture informacij, pojmov in odnosov med njimi (Novak, Gowin, 1984). Pravzaprav so slike, ki povedo, kako so pojmi med seboj povezani (Freeman, 2004). V sklopu delavnice se bomo osredotočili predvsem na pojmovne mreže z vidika učnih tehnik (poudarek na obliki zapisa) in orodij (poudarek na programski opremi za izdelavo zapisa/orodje Cmap). V sklopu delavnice bomo:

- na konkretnih primerih predstavili sestavne dele pojmovnih mrež (pojmi, povezovalne besede, trditve, hierarhične stopnje, križne povezave, primeri, slikovno in grafično gradivo);
- predstavili sedem »zlatih pravil« zapisa pojmovne mreže (pojmi morajo biti zapisani v okvirčkih; glavni pojmi so zapisani na vrhu, specifični pa pod njimi; vsak pojem je lahko zapisan samo enkrat; puščice usmerjajo branje; na puščicah morajo biti zapisane povezovalne besede; iz enega pojma lahko vodi poljubno število povezav k drugemu pojmu; pojmovne mreže ne smejo biti preveč »natrpane«);
- v programu Cmap prikazali: – postopek oblikovanja, shranjevanja, poimenovanja map, – delo z orodjem Style (izbor/velikost/barva pisave, poravnava, vnašanje simbolov, oblikovanje okvirčkov za zapis pojmov, oblikovanje puščic itd.), – vnos slikovnega, grafičnega in besedilnega gradiva v pojmovno mrežo. Končni cilj delavnice je, da udeleženci samostojno izdelajo pojmovno mrežo in jo predstavijo preostalim.

Abstract: Concept maps are graphic representations of information structures, concepts and their relationships (Novak, Gowin, 1984). These are images that depict concept links (Freeman, 2004). During the workshop we will focus on concept maps as a learning technique (focusing on the format) and as tools (focusing on the software/CMAPS tools). During the workshop we will:

- Present the key parts of concept maps using examples (concepts, linking words, hierarchical levels, cross-references, examples, images and graphics).
- Present the seven “golden rules” of concept maps format (concepts must be put into frames, the main concepts are on the top and more specific concepts on the bottom, each concept can only be used once, one concept can be have a number of links to another concept, the concept maps must not contain too much information).
- Show the following in the CMAPS software: – How to design, save and name

folders,– How to work with the Style tool (font type/size/color, alignment, inserting symbols, formatting concept frames, formatting arrows, etc.),
– How to insert images, graphics or text into the concept map. The main goal of the workshop is for the participants to create their own concept map and present it.

Uporaba iPadov pri likovni umetnosti

The use of iPads in Art class

Katja Gajšek, OŠ Hruševec Šentjur

Povzetek: Pedagogika ena na ena je novost sodobnega šolstva. Vključevanje tabličnih računalnikov v pouk je vedno pogostejše. Vendarle pa se pojavlja vprašanje, ali je smiselno tablične računalnike vključiti tudi v pouk likovne umetnosti. In če jih vključimo, kako to izvesti? V okviru projekta Inovativna pedagogika 1 : 1 smo z učenci preverjali uporabo različnih aplikacij ter zmožnosti tabličnega računalnika pri pouku. iPade smo uporabljali v različnih fazah pouka od načrtovanja ali izvedbe likovnega izdelka, spoznavanja in utrjevanja nove snovi do spoznavanja novih oblik likovnega izražanja. Uporaba iPadov se je izkazala za uporaben pripomoček na različnih likovnih področjih ali pri likovnih tehnikah. Učenci so spoznavali tudi druge oblike likovnega izražanja, kot so animacija, grafično oblikovanje in izdelava videoposnetkov. Namen predstavitve je prikazati zmožnosti, ki jih uporaba iPada prinese k likovnemu pouku. Predstavljene bodo aplikacije, ki so se izkazale za uporabne pri izvedbi pouka likovne umetnosti, kot tudi uporaba e-učbenikov za likovno umetnost.

Abstract: One on one pedagogics is a novelty in our school system. Including tablet computers in class is something that happens more and more often. But the question remains: Does the use of tablet computers make sense in Art class? And if so, how do we go by it? During the project Innovative pedagogics 1 : 1 we were checking the use of different applicants and abilities of tablet computers in class. We used iPads in different aspects during the class: from planning to making of art products, learning and revision of new subjects and learning new forms of art expressions. We found the use of iPads as a good tool in different art subjects and techniques. The students have learned new forms of art expressions such as animation, graphic design and video design. The aim was to show the capabilities that can be brought to art class by using iPads. I will show different applications that are useful for Art class and the use of e-textbooks during class.

Zgradimo zagonsko (start-up) kulturo v svoji organizaciji

Building a 'start up' culture in our organisation

Dominic Graveson

Povzetek: Ali se bojite drznih in pogumnih odločitev? Preizkušanja novih idej? Drzno stopati na 'še ne uhojena' področja? V 60-minutni delavnici se boste naučili, kako uporabiti tehnike, ki so del t. i. vitkega razvoja programske opreme (Lean and Agile software development), in ustvarili prototipe novih programov, uporabnih pri učenju, podprtim z IKT. Naučite se, kako oblikovati in navdahniti prostorazmišljujoče, inovativne, samoorganizirajoče se skupine, katerih delo bo osredotočeno na vnaprej dogovorjene cilje in zmožnosti. Pridobite uvid v procese in okvire, ki se osredotočajo na končni cilj – tj. predvsem na »zakaj« in ne toliko na »kako«, s katerim smo že kar obsedeni. Praktične aktivnosti in orodja vam bodo pomagali razumeti prednosti pogostih začetnih neuspehov in vas opolnomočili za t. i. zagonsko (start-up) kulturo znotraj vaše šole, instituta ali organizacije.

Abstract: Are your people afraid to make bold and brave decisions? To try new ideas? To 'boldly go where no-one has gone before'? In this 60min workshop you will learn how to use techniques from Lean and Agile software development to build prototypes for new programmes for technology assisted learning. Learn how to create and inspire free-thinking, innovative, self organising teams who's work will focus on agreed outcomes and capabilities. Get an introduction to processes and frameworks that focus on the end goal – the 'why' rather than the problematic obsession we have with 'how'. There will be practical activities and tools to help you understand the benefits of failing often and early, and to enable a 'start up' culture within your school, institute or organisation.

Spletni učitelj programiranja

Web programming teacher

Matija Pretnar, UL, Fakulteta za matematiko in fiziko

Povzetek: Programiranje je veščina, ki se je lahko naučimo le tako, da napišemo čim več programov. Programiranja se ne bomo naučili, dokler ne bomo sedli za računalnik in sami začeli pisati program. Poučevanje programiranja je najučinkovitejše, kadar učenec naloge rešuje samostojno, učitelj pa ga opozarja na pomanjkljivosti in pomaga pri odpravljanju napak. A če želi učitelj to početi učinkovito, potrebuje ustrezna orodja, ki mu pri tem pomagajo. V delavnici si bomo ogledali spletno storitev Projekt Tomo, ki smo jo za pomoč pri učenju programiranja razvili na Fakulteti za matematiko in fiziko. Storitev omogoča, da učenci samostojno rešujejo naloge (pišejo programe) in avtomatsko dobijo takojšen odziv glede pravilnosti njihove rešitve. Učitelj lahko na enem mestu spremlja uspešnost reševanja učencev, vidi vse njihove oddaje in tako lahko ustrezno usmerja svojo pomoč. V sklopu delavnice si bomo ogledali tako način uporabe sistema s stališča učenca kot tudi s stališča učitelja. Pogledali bomo način, kako lahko učitelji pripravljajo svoje naloge, svoje testne primere, kako si lahko pripravljene naloge izmenjujejo in seveda kakšen vpogled imajo v izdelke učencev. Ogledali si bomo tudi nekaj izdelkov, ki so jih za sistem pripravili učitelji, ki so že preizkusili uporabo tega sistema.

Abstract: Programming is a skill and skills can only be acquired by performing them. Thus programming can only be learned by writing as many programmes as possible. No one can learn how to programme a computer unless they actually sit at a computer and start writing programmes. The learning process is most effective when the students solve the tasks on their own and the teachers only point out the shortcomings and help the students correct the mistakes. However, if the teachers want to be effective, they need appropriate tools. The workshop will present the Projekt Tomo web service. It was developed at the Faculty of Mathematics and Physics, Ljubljana in order to assist the teachers who are teaching computer programming courses. The service enables the students to perform tasks (write programmes) on their own and automatically receive instant feedback regarding the accuracy of their solutions. The teachers can follow the students' success rates and see all their solutions in a single place, and thus they can direct the help as needed. The workshop will provide a demonstration of using the service from a student's point of view as well as from a teacher's point of view. The workshop will demonstrate the teachers' preparation of tasks, and tests; how the teachers can exchange their work and how they can view their students' work. Some examples prepared by the teachers who had already tested the service, will also be available for observation.

Mikroskopiranje s tablicami

Microscopy with tablets

Marija Vok Lipovšek, OŠ Hruševec-Šentjur

Povzetek: Učenci se srečujejo z metodo mikroskopiranja že v 6. razredu osnovne šole. Klasična metoda mikroskopiranja ima prednost v tem, da učenci sami pripravljajo preparate in opazujejo pripravljeno. Slabost pa je, da učitelj težko pregleda opazovano in to predstavi še drugim učencem v razredu. Poleg tega so učenčeve skice opazovanih predmetov velikokrat manj jasne. Mikroskopiranje, ki vključuje WiFi-kamero Motic, ima prednosti v tem, da z učenci lahko opazovane predmete delimo s pomočjo aplikacije MotiConnectPro na tablicah vseh učencev. Učenci še vedno praktično mikroskopirajo. Učitelj izbere najboljše sveže preparate skupine ali dvojic in jih postavi pod objektiv mikroskopa ter deli z učenci. Učenci si slike izbranih preparatov shranijo in obdelajo glede na zahtevano nalogo, npr. označijo in izmerijo velikosti organov, tkiv, celic in celičnih organelov itd. Obdelane fotografije shranijo in vložijo v učno predlogo učitelju, ki jim takoj da povratno informacijo. Druga možnost je obdelava mikroskopskih slik kot domače delo učencev in hkrati boljši spomin na vajo. Učenci tako dobijo nabor velikega števila mikroskopskih slik, ki si jih sistematično uredijo za morebitno kasnejše preučevanje.

Abstract: Pupils start to use microscope already in the 6th grade. The advantage of the classical method is that the pupils prepare the preparations by themselves and then they observe them when all is ready. The weak side of this method is that is impossible for a teacher to control and give the comments to all pupils. Its also difficult to represent each pair work to the others in the class. Beside this the pupils sketches of the observed objects are often less clear. Observing under the microscope with a WiFi-camera Motic has got the advantage because pupils can share the observed objects by using the application MotiConnectPro on tabs, anyway they still observe under microscope practically. The teacher chooses the most fresh preparations of one group or a pair, he puts them under the lens and shares all these with pupils. The pupils save the pictures of the chosen preparations and they analyze them. For example: they mark and measure the size of the organs, tissues, cells and cell organelles, etc. They save the treated pictures and send them to the teacher for checking. The teacher can analyze the pictures already during the teaching process together with the pupils who get the feedback at the same time. The second choice is the process of the microscopic pictures as homework and for better for better memorization of the exercise. During the school year the pupils get a lot of the microscopic pictures which they can organize systematically until the next observing.

ATS 2020
Od e-listovnika do formativnega spremljanja transverzalnih veščin: predstavitev mednarodnega projekta ATS 2020 in povabilo k prijavi

ATS 2020
From ePortfolio towards formative assessment transversal skills: the introduction of international project ATS 2020 and the invitation to apply

Tanja Rupnik Vec, ZRSŠ,
Borut Čampelj, MIZŠ

Povzetek: V delavnici ATS 2020 bomo predstavili mednarodni projekt Formativno spremljanje in vrednotenje razvoja transversalnih veščin učencev s pomočjo IKT (Assessment of transversal skills) z namenom, da vas povabimo k prijavi oz. k triletnemu sodelovanju. Projekt ATS 2020 predstavlja nadgradnjo projekta, ki se pravkar končuje, namreč EUfolio (EUropean ePortfolio Classrooms). Prestavili bomo nekaj modelov transverzalnih veščin in simulirali pouk, naravnan na formativno spremljanje s pomočjo razvojnega eListovnika ene izmed veščin z namenom, da pokažemo, kaj bo razvojni izziv učiteljev, vključenih v projekt.

Abstract: In this workshop we will introduce the international project Assessment of Transversal Skills 2020 with the aim in mind to invite schools to apply for 3-year cooperation with NEI. The project is in the essence the upgrade of the international EUfolio project (European ePortfolio Classrooms). We will simulate the lesson, focused on formative assessment of one of the transversal skills, with the aim in mind to show what will be the developmental challenge for the teachers in the future.

O dostopnosti spletnih gradiv za učence s posebnimi potrebami

On the accessibility of Web materials for students with special needs

Matjaž Debevc, **Ines Kožuh**,
UM, Fakulteta za elektrotehniko, računalništvo in informatiko

Povzetek: Učenci s posebnimi potrebami potrebujejo drugačne pristope in rešitve grafičnega oblikovanja spletnih strani in izvedbe interaktivnih aktivnosti v e-izobraževanju. Da bi lahko to omogočili, potrebujemo najprej znanje o možnostih in omejitvah učencev s posebnimi potrebami, poznati pa moramo tudi standarde, ki zahtevajo prilagoditve spletnih strani zanje, kot je to WCAG 2.0. Na delavnici se bomo tako seznanili z zahtevami učencev, s pravnimi vidiki in razlogi, zakaj je treba uvajati dostopnost v e-izobraževanju in kako. Predstavili bomo tudi primere dobre prakse, ki smo jih razvili na Univerzi v Mariboru. Na delavnici bomo tudi praktično preizkusili kratko in učinkovito metodo ocenjevanja, ki smo jo razvili na Univerzi v Mariboru v ta namen, ki vključuje vprašalnik za preverjanje dostopnosti po standardu WCAG 2.0 in hevristično analizo, znano na področju uporabniške izkušnje.

Abstract: Students with special needs need different approaches and solutions of Web pages graphic design and the execution of interactive activities in e-education. To make this possible we need knowledge about possibilities and limitations of students with special needs. We also need to know the standards which require the adaptation of Web pages for them, such as WCAG 2.0. In the workshop we will get to know with students' requirements, legal aspects and reasons why and how it is necessary to introduce accessibility into e-education. We will present some good-practice cases which have been developed at the University of Maribor. We will also try out a short and effective method of grading which has also been developed at the University of Maribor, and which includes a questionnaire for checking the accessibility in accordance with WCAG 2.0 standard. It also includes a heuristic analysis which is well known in the area of user experience.

Interaktivno in sodelavno poučevanje računalništva v razredu

Interactive and collaborative teaching of computer science in classroom

Saša Divjak, UL, Fakulteta za računalništvo in informatijo

Povzetek: Delavnica je namenjena učiteljem računalništva. V njej bomo spoznali nekaj praktičnih primerov didaktičnih programskih pripomočkov za bolj dinamično, interaktivno in sodelavno poučevanje računalništva v razredu, v katerem imajo učenci svoje, po možnosti prenosne računalnike oziroma tablice. Spoznali bomo tudi, kako lahko sami priredimo svoje didaktične spletne aplikacije za sodelavno delo. Udeleženci bodo lahko primere preskušali tudi na svojih prenosnih računalnikih ali tablicah. V okviru delavnice lahko pride tudi do novih idej, povezanih z uvajanjem sodelavnega dela v razredu.

Abstract: The workshop is dedicated to the teachers of Computer Science. They will get experience with some practical examples of dydactic programme applications for a more dynamic, interactive and collaborative teaching of Computer Science in classroom where the learners have their portable computers or tablets. The participants will also learn how they can adapt their own dydactic applications for a collaborative work. They will be able to try such applications on their own devices. The workshop could lead to new ideas concerning the collaborative work in the classroom.

E-eksperimenti – Moderno poučevanje naravoslovja in tehnike z uporabo fleksibilnega merilnega sistema z odprtokodnim programjem

E-experiments – Modern Science and Technology teaching with the use of a flexible measurement system with Open Source software

Dejan Križaj, UL, Fakulteta za elektrotehniko

Povzetek: Na delavnici bomo predstavili projekt E-eksperimenti, namenjen nadgraditvi pouka naravoslovja in tehnike na srednjih (in delno tudi osnovnih) šolah s spletno platformo, ki omogoča izvajanje realnih eksperimentov. Spletna merilna platforma omogoča izvajanje realnih eksperimentov prek spletnih aplikacij z uporabo zmogljive merilne kartice in senzorjev. Eksperimenti tako lahko služijo kot e-storitev v demonstracijske in izobraževalne namene. Aplikacije omogočajo kreativno izvajanje eksperimentov, ki jih uporabniki lahko tudi sami spreminjajo in nadgrajujejo. Osnovne aplikacije podpirajo uporabo naprave kot osciloskopa, generatorja električnih signalov poljubnih oblik ter kot merilnika napetosti in toka. V okviru projekta nameravamo izdelati še dodatne aplikacije z različnimi senzorji, kar bo omogočalo merjenje pospeškov, svetlobnega toka, temperature, pritiska itd. S tem bomo zajeli velik del vsebin naravoslovnih predmetov v osnovnih in srednjih šolah. Vse aplikacije bo mogoče izvajati na različnih operacijskih sistemih (Windows, Linux, iOS, Android), saj bo uporabnik za izvajanje potreboval le spletni brskalnik. Merilno platformo lahko uporabljamo neposredno na mestu izvajanja eksperimenta, pa tudi kot eksperiment na daljavo. Projekt eEksperimenti bo tako obogatil in nadgradil načine poučevanja naravoslovja in tehnike ter dodatno motiviral učence za ti dve področji.

Abstract: The project E-experiments will be presented at the workshop. The main goal of the project is to supplement and upgrade Science and Technology lessons in secondary schools (and partly also in primary schools) with a Web-based platform for performing real experiments. Web-based measuring platform enables performing physical experiments through Web applications, using high-performance measurement (DAQ) card and attached sensors. The experiments can be used as an e-service for demonstrations and educational purposes. Applications enable creative usage of the experiments, as the experiments can be adapted and upgraded by the users. The basic applications use the device as an oscilloscope, as a generator of arbitrary shaped electrical signals, or as a measuring tool for electrical current and voltage. Within the project we plan to develop applications for usage of different sensors which will assist in measuring

acceleration, luminosity, temperature, pressure, etc. Thus we will cover the content of majority Science courses in primary and secondary schools. All applications can be performed on different operating systems (Windows, Linux, iOS, Android) as the user needs only a Web browser for running the experiments. The measuring platform can be used directly on the spot or as an remote experiment. E-experiments will certainly enrich and enhance approaches to teaching Science and Technology, consequently additionally motivating students for these areas.

Mineštra v Moodlu

Minestrone in Moodle

Boris Volarič, Arnes

Povzetek: Na delavnici se bomo učili z izdelki in o izdelkih, ki so nastali v projektu e-Šolska torba. V ospredje bomo postavili učbenike in jih povezali s spletnimi učilnicami. Na delavnici bomo odgovorili na vprašanje, kako se lahko učitelji učimo od učencev in učenci drug od drugega, če je v spletni učilnici postavljena povezava do vsebin v i-učbeniku. Spletna učilnica omogoča, da zbiramo dokaze o učenju učencev in pri tem uporabljamo podatke. Z udeleženci delavnice se bomo v spletni učilnici (vsak v svoji) naučili pripraviti nalogo, prek katere učenci pokažejo razumevanje, poznavanje ali uporabo pridobljenega znanja. Udeležencem bomo predstavili didaktično vrednost/potencial "priznanj" (badge), ki jih je moč izdelati v spletni učilnici, in se naučili izdelati "priznanja", ki jih bodo prejeli njihovi učenci za uspešno opravljene naloge.

Abstract: The workshop will be taught by and about products that were generated in the project e-Šolska torba (e-Schoolbag). We will mainly focus on textbooks and linking them with online classrooms. In the workshop we will answer the question of how teachers can learn from pupils and pupils from each other, if the online classroom sets up a link to the content in i-textbook. An online classroom allows us to collect evidence of students learning and by doing that we use data. The participants of the workshop will learn how to prepare a task through which learners demonstrate understanding, knowledge or use of knowledge acquired, by using an online classroom (each their own). Participants will be presented the didactic value/potential of "badges" which can be created in an online classroom. They will also learn how to make "badges" for their students for tasks well done.

Primeri uporabe bralnih učnih strategij z i-učbenikom

Reading strategies and i-textbooks: exploring some possibilities

Samo Božič, **Berta Kogoj**, ZRSŠ

Povzetek: Smo uspeli z uporabo pred kratkim nastalih i-učbenikov na področju razvijanja bralnih učnih strategij narediti kak korak naprej? Si lahko v i-učbeniku kaj označim, dopišem ali shranim svoj odziv, kar vse naj bi prispevalo k boljšemu razumevanju besedila in k zapomnitvi? Na ta in podobna vprašanja bomo skozi dejavnosti skušali odgovoriti v delavnici Primeri uporabe bralnih učnih strategij z i-učbenikom. Izbrana besedila iz i-učbenikov bomo opremili s primeri ključnih bralnih učnih strategij in raziskali dodatne možnosti, ki jih tudi v izobraževalne namene omogoča uporaba široko dostopne aplikacije na svetovnem spletu.

Abstract: Have we managed to make a step forward in developing reading strategies by using our recently developed i-textbooks? Is it possible to highlight, take notes or make annotations in digital texts which is all considered to contribute to better reading comprehension, memorisation and recall? These issues will be explored in our activity-based workshop Reading strategies and i-textbooks: exploring some possibilities. We shall focus on using key reading strategies with selected i-textbook texts and explore other options which a widely available Internet tool offers for educational purposes.

Z igrami v svet programiranja

Playfully into the world of programming

Matija Lokar, UL, Fakulteta za matematiko in fiziko

Povzetek: O uporabnosti računalniških iger pri učenju je znano že veliko. Zato ni čudno, da tudi za učenje programiranja obstajajo številne primerne igre. Izkušnje kažejo, da z njimi lahko dosežemo odlične rezultate tako pri osnovnih konceptih, kot so zaporedje ukazov, vejitev, zanka, kot tudi pri vpeljavi zahtevnejših konceptov. Med njimi omenimo funkcijo (podprogram) in rekurzijo. Pri številnih tovrstnih igrah gre za to, da imamo na voljo določen nabor zelo preprostih vnaprej pripravljenih ukazov. Z njimi upravljamo določeno figuro, ki mora rešiti različne naloge (prižgati žarnico, ujeti pujska, prevoziti vse poti itd.). To storimo tako, da ukaze s pomočjo vlečenja postavimo na ustrezna »programska mesta« in s tem sestavimo program. Že z zelo omejenim naborom ukazov učence lahko seznanimo s prijemi, kot so pomembnost pravilnega zaporedja ukazov, odločitev (pogojni stavek), pojem funkcije, klic funkcije, učinkovitost programa, rekurzija itd. Prav tako lahko uporabljamo zelo različne aktivnosti: spremeni program, popravi program, dopolni program, poišči več rešitev itd. Ogledali si bomo nekaj tipičnih predstavnikov tovrstnih iger, kot so:

- Teci, Marko (http://www.allcancode.com/)
- Code Monkey (http://www.codemonkey.co.il/)
- Code Combat (http://codecombat.com/play)
- Flappy (http://studio.code.org/flappy/1)

Abstract: It is common knowledge that computer games are great learning tools. Therefore it is not surprising that there are many games available for learning how to programme a computer. Experience has shown that games provide excellent results – be it when they are used for the learning of the first basic steps and concepts (command sequences, branching, loop) or when they are used for learning more advanced concepts (such as function – sub-program, and recursion). Many such games are based on the premise that they only provide a selection of a very limited number of simple, pre-set commands. These are used to control a character that has to perform different tasks (turn on the light bulb, catch the piglet, follow all the paths, or feed the monkey, etc.). A programme is then constructed by “dragging and dropping” commands into appropriate spaces. A very limited number of commands can be used to teach the students the importance of the correct sequence of commands, decisions (conditional statements), the notion of function, function call, the efficiency of a program, recursion, etc. Many different activities can be used as well: change the programme, fix the programme, complete the programme, find different solutions ...

Some typical games used for teaching programming are:

- Teci, Marko (http://www.allcancode.com/)
- Code Monkey (http://www.codemonkey.co.il/)
- Code Combat (http://codecombat.com/play)
- Flappy (http://studio.code.org/flappy/1)

Kako aktivno vzpodbuditi samostojno delo dijaka?

How to stimulate active student work?

Uroš Mikolič, Biotehniška šola Maribor

Povzetek: Namen delavnice je predstaviti možen pristop k vzpodbuditvi dijaka k samostojnemu delu in razvijanju ključnih kompetenc – semorefleksija ter kritično razmišljanje. Cilj je, razviti pristop, ki je učinkovit tako za dijaka kot tudi učitelja. Možen način bo prikazan na delavnici z uporabo programske opreme Evernote ter Skitch.

Abstract: The main goal of the workshop is to demonstrate possible ways of actively stimulating indipendent student work which include critical thinking and self reflection. The aim is to make things interesting and efficient both, for the student and for the teacher. A possible alternative will be shown in the workshop with the use of the Evernote/Skitch software.

Preizkusi E-listovnik

Take a try with E-portfolio

Bojana Breznikar, OŠ 8 talcev Logatec

Povzetek: E-listovnik (okolje Mahara) predstavlja eno od orodij, ki vsakemu udeležencu omogoča aktivno vključevanje v dogajanje; komuniciranje s skrbnikom in z vsemi preostalimi člani skupine. Zato je uporaben medij za formativno spremljanje. Vzpostavitev učnega okolja v e-listovniku ni prehuda naloga. Vse akterje (npr. vse učence oddelka) vključim v skupino ter jih seznanim z vsebino e-listovnika. V vlogi učitelja skrbnika skupine kreiram vsebinski okvir, potem pa se učni proces lahko začne. Odvisno od cilja, ki ga zasledujem, lahko učence izzovem bodisi k pridobivanju znanja bodisi usmerim v proces (samo)načrtovanja, (samo)spremljanja, (samo)evalvacije. Na vsaki točki učnega procesa je možnost medsebojnega komuniciranja odprta. Komunikacija lahko poteka ena na ena, z več ali z vsemi udeleženci. V vlogi učitelja skrbnika lahko proces komuniciranja tudi usmerjaš. Udeležence želim popeljati v lastno izkušnjo dela z e-listovnikom. Na delavnici bomo izvedli vse faze procesa: prijava, vključitev v skupino, kratek pregled vsebine e-listovnika, izvedba naloge (postavljanje cilja), medsebojno dajanje povratnih informacij v e-listovniku, refleksija na vsebino delavnice. Ocenjujem, da bodo udeleženci tako spoznali e-listovnik, prepoznali možnosti, ki jih ponuja za interakcijo v različnih odnosih (učitelj/učenec, učenec/učenec, učitelj/učitelj). Računam na to, da bo udeležencem delavnice izkušnja dovoljšen izziv za nadaljnje samostojno raziskovanje e-listovnika.

Abstract: E-portfolio in Mahara is one of the tools that allows each participant to actively participate; facilitate communication with administrator and all other members of the group. Therefore it is a useful medium for formative assessment. Establishing a learning environment in E-portfolio is not too difficult. You have to include all participants (e.g. all pupils in class) in the group and familiarize them with the content of E-portfolio. Then teacher administrator creates conceptual framework, and after that the learning process can begin. I may invite pupils either to broaden their knowledge either in the process (self)planning, (self)monitoring, (self)evaluation. There is an open possibility of mutual communication at each point of the learning process. Communication can take place one on one, with several or all of the participants. The teacher in the role of administrator can also direct the process of communication. I want to take the participants through their own experience with E-portfolio. At the workshop we will carry out all stages of the process: registration, inclusion in a group, a brief overview of the contents of E-portfolio, completion of the task (goal setting), each giving feedback, the reflection of the workshop. I expect the participants will

learn about E-Portfolio, identify the opportunities offered by the interaction at different levels (teacher / student, student / pupil, teacher / teacher). I expect also the participants of the workshop will be stimulated to carry out further independent research of E-Portfolio.

Kako se učim od svojih dijakov v spletnem okolju Moodle

How can I learn from my students in the virtual environment Moodle

Breda Poličar, Gimnazija Poljane

Povzetek: V delavnici Kako se učim od svojih dijakov v spletnem okolju Moodle želim pokazati, kakšne možnosti ponuja spletna učilnica Moodle za spremljanje dela dijakov. Delavnica je namenjena predvsem učiteljem matematike in naravoslovja. Spletno učilnico s svojimi dijaki uporabljam že dolgo in vedno znova me preseneča z možnostmi, ki jih ponuja. Trenutno sodelujem že v drugem evropskem projektu na temo uporabe spletne učilnice pri pouku matematike in naravoslovja. Po uspešno zaključenem projektu ITEMS leta 2010 smo septembra lani začeli nov projekt, imenovan MUST (Maths Understanding Using Science and Technology). V projektu želimo poglobljeno raziskati in uporabiti kvize, še posebej se nam zdi uporaben nov tip vprašanj, ki omogoča generiranje podatkov v nalogah in preverjanje algebrskih odgovorov (formule). V vprašanja tipa formule je mogoče generirane podatke uporabiti tudi v jsx-grafih funkcij, kar nam omogoča ustvarjanje zelo zanimivih vprašanj. Na primerih svojega dela z dijaki želim pokazati, kako lahko kot učitelj delo dijakov analiziram in skupaj z dijaki odkrivam, pri čem imajo težave. V delavnici pa želim udeležencem pokazati, kako lahko tudi sami pripravljajo preprosta vprašanja v Moodlu, kakšne možnosti ponuja analiza odgovorov dijakov in kako ustvarjati preprosta vprašanja tipa formule.

Abstract: I want to demonstrate the possibilities offered by the Moodle regarding monitoring of the students' work. The workshop is dedicated especially to Math and Science teachers. I have been using Moodle with my students for long time. The possibilities it offers always surprise me. At present I am participating in my second European project using Moodle in Math and Science classes. Having successfully finished project ITEMS in 2010 we have started a new project named MUST (Maths Understanding Using Science and Technology) in September 2014. With this project we wish to research and use the quizzes. It seems that the new type of questions, formulae questions, enables generating of data and checking the solutions of algebraic expressions. In this type of questions it is possible to use the generated data also in the graphs of functions. This enables a creation of interesting questions. Using the examples of my students work I want to show how a teacher can analyze their work and together with them define their difficulties. In the workshop I want to show to the participants how they can create simple questions in Moddle and what possibilities offers the analysis of students' answers.

Kocka, tablica in matematika

Cube, tablet and Math

Irena Gole, OŠ Bršljin

Povzetek: Učenje, poučevanje in vloga učitelja se z uvajanjem sodobne tehnologije spreminjajo. Tablični računalnik je odlično motivacijsko sredstvo, ki je hkrati še veliko več. Seveda je od učitelja odvisno, kako ga bo izkoristil in kdaj ga bo uporabil, kajti že sama tablica ponuja drugačen način učenja in poučevanja, ki hkrati ruši meje učilnice. Ne glede na vse ne smemo zanemariti konkretnih dejavnosti in izkušenj, ki jih sodobna tehnologija ne more nadomestiti, tako da tablico uporabimo bolj kot pripomoček za podporo pri učenju učnih vsebin. Vsa e-orodja in e-gradiva, ki so trenutno na voljo, pripomorejo, da so učenci aktivnejši pri spremljanju učnega procesa in hkrati spoznajo uporabnost sodobne tehnologije tudi za učenje. Dosedanja praksa kaže, da lahko tablico uporabimo v vseh fazah učenja, saj omogoča vrsto dejavnosti, ki pripravijo učenca, da razmišlja o svojem delu, ga evalvira, širi svoje znanje in se ob tem navaja na sodelovanje. Tu pa se nekoliko spremeni vloga učitelja, ki ni več le prenašalec znanja, temveč učenca vodi k novim spoznanjem in v nove oblike učenja.

Abstract: Learning, teaching and the teacher's role are changing with the introduction of modern technologies. A tablet PC is a great motivational tool and much more. Of course, it depends on the teacher how and when it will be used in the class because the tablet itself stimulates a different ways of teaching and learning and at the same time breaks down the boundaries of the classroom. However, we must not neglect the concrete activities and experiences that modern technology cannot replace so that the tablet is used more as a tool to support learning content. All e-tools and e-learning materials that are currently available help the students to be more active in monitoring their learning process and at the same time help them to learn about the usefulness of modern technology for learning. Current practice shows that the tablet can be used in all stages of learning because it allows a range of activities that prepare students to think about their work, evaluate it, expand their knowledge while encouraging them to participate. Here is a slightly changed role of the teacher who is no longer just a knowledge transmitter but leads the students to new discoveries and new forms of learning.

eTwinning – sodelovanje na daljavo za začetnike

eTwinning – telecooperation for beginners

Tatjana Gulič, **Dejan Kramžar**, **Irena Rimc Voglar**, CMEPIUS

Povzetek: Na delavnici eTwinning, namenjeni začetnikom, bomo predstavili portal, ki omogoča projektno sodelovanje učiteljev na mednarodnem, lahko pa tudi na nacionalnem nivoju. V projekte lahko vključite učence, dijake in tudi starše, ki se tekom projekta povezujejo v time, da bi dosegli zastavljene cilje. Poleg sodelovanja s tujimi učitelji in učenci omogočajo eTwinning projekti tudi odlično priložnost medpredmetnega sodelovanja na šoli in tako prispevajo k doseganju kakovostnejših rezultatov projektov.

Na praktični delavnici vam bomo pokazali, kako začeti s sodelovalnim delom na portalu eTwinning, na katerem je registriranih več kot 300.000 učiteljev iz vse Evrope in širše. Delavnico bodo vodili eTwinning ambasadorji, učitelji, ki imajo dolgoletne izkušnje v mednarodnem projektnem sodelovanju. Njihovo delo je bilo nagrajeno tako na nacionalnem kot mednarodnem nivoju.

Abstract: In the eTwinning workshop for beginners we are going to introduce the portal, which provides teachers with support for project collaboration, both at the international as well as on the national level. To reach your project goals, you can include pupils, students and parents who all build groups and teams. Besides collaborative work with teachers and students from abroad, the eTwinning projects also offer an excellent opportunity for cross-curricular learning within the school, thus contributing to better, high-quality project results.

In a practical workshop we will show you how to start collaborative work on the eTwinning portal, where more than 300,000 teachers from all over Europe and wider are registered. The workshop will be moderated by eTwinning ambassadors, i.e. teachers, who have long years of experience in international project collaboration. Their work has been awarded several times at the national as well as at the international level.

2.7

Sponzorske delavnice • Sponsor Workshops

Sponzorske predstavitve • Sponsor Presentations

Samsung Smart School pri pouku tujih jezikov

Samsung Smart School in foreign language teaching

Snježana Fištrović, Osnovna šola Generalski Stol, Hrvaška

Povzetek: Udeleženci bodo s praktičnim delom in ob primerih spoznali sistem za upravljanje učenja (LMS) Samsung Smart School, izobraževalno rešitev za boljšo interakcijo pri pouku, ki učitelju pomeni veliko pomoč pri organizaciji razreda s tabličnimi računalniki. Aktivno bodo sodelovali pri učnih aktivnostih, ki bodo temeljile na sodobnih didaktičnih pristopih. Ob temi kultura in civilizacija bodo izkusili učenje z raziskovanjem tako z individualnim kot skupinskim načinom dela. Spoznali bodo tudi prosto dostopno orodje za izdelavo spletnih kvizov.

Abstract: Through practical work and examples the participants will get familiar with the classroom management system Samsung Smart School – an educational solution that increases classroom interaction – which is an enormous help for the teachers in organizing classes using tablets, and they will actively participate in educational activities based on current teaching approaches. They will experience a research-based type of classes by working on topics about culture and civilization through individual and group work and they will get to know the free Web tool for the design of online quizzes.

SAMSUNG

Znamo odgovorno komunicirati na spletu?

Do we know how to responsibly communicate online?

Maša Ribnikar,
Računalniške novice/Moja občina – Prims d.o.o. (Nevtron&Company)

Povzetek: Splet z vsemi vključujočimi mediji prestavlja odlična orodja za komuniciranje z javnostmi, pri čemer pa ne gre prezreti, da obenem predstavlja tudi nevarnosti pri obvladovanju sporočil in osebnih podatkov. Velikokrat z namenom informiranja javnosti uporabljamo orodja, kot so spletne strani, spletni mediji, e-poštna sporočila, družbena omrežja, vendar pa se postavlja vprašanje, ali jih znamo odgovorno in smiselno povezovati. Na delavnici bomo govorili o tem, kako lahko prenašamo znanja o uporabi le-teh med učenci in učitelji ter učitelji med seboj z namenom odgovorno komunicirati na spletu.

Ključne cilje delavnice lahko strnemo v naslednje točke:

Različne izkušnje sodelavcev na družbenih omrežjih lahko z ustrezno izmenjavo informacij tvorijo odlično učno podlago za uporabo družbenih omrežij. Učenci mnogokrat prednjačijo v uporabi omenjenih orodij in tako lahko učitelji z njihovo pomočjo spoznavajo načine uporabe in s tem prepoznajo potencialna tveganja pri uporabi omrežij.

Zaradi hitrega tempa življenja je elektronska pošta vse pogostejše orodje za obveščanje staršev. Na kaj moramo biti pozorni pri obveščanju prek elektronske pošte, kako prenašati uspešne prakse sodelavcev in katera so orodja za e-obveščanje ter kako lahko e-projektno vodenje postane vir za prenos znanja med učitelji?

Kako ravnati z avtorsko vsebino pri komuniciranju na spletu, kako se lahko učenci učijo spoštovati avtorske izdelke drugih učencev, kako lahko uporabijo spletna orodja za delo pri projektih in si tako zagotovijo uspešen prenos znanja?

Odgovornost vsakega učitelja pa je prenos zavedanja o vseh plateh spletnega komuniciranja na mlajše, zato bomo na delavnici govorili tudi o problematiki uporabe spletnih orodij učencev in dijakov in njihove aktivnosti na spletu ter kako lahko učitelji spremljajo in zbirajo podatke za podporo načrtovanja prihodnjih učnih procesov na temo e-kompetenc.

Delavnica bo sestavljena iz dveh sklopov, in sicer je prvi del namenjen splošnim osnovam o ustreznem in dogovornem komuniciranju na spletu, drugi del pa bo obarvan s praktičnimi dilemami, s katerimi se učitelji vsakodnevno srečujete pri objavi na spletu.

Abstract: Internet with all the tools presents a great opportunity to communicate with public, however we should not overlook the danger of controlling the messages and personal data. There are times that the need to inform the public demands the use of several tools, like Web pages, social media, e-mail, Web media, etc. In use of different media we should ask ourselves whether we know how to use them responsible. In the workshop we will discuss transmitting of knowledge, the safe use of online tools and responsible communicating online.

Key goal of the workshop is to find answers to the following questions:

Different experiences and sharing those experiences regarding the use of social media can give teachers a good learning grounds for working process and learning programmes. Students are often more experienced users of social media and they can share experiences with teachers in order to minimize risks that social media bring.

E-mails are often chosen for informing parents about school activities. How to transfer good practices between teachers for informing parents and how can teachers share good practice with project work?

How to handle intellectual property online, how can students gain knowledge about intellectual property and how they can use online tools for their project works anf for good transfer of knowledge.

The responsibility of each teacher is to pass forward the knowledge about responsible online communication. That is why we will also discuss the subject of Web tools that students use and their online activity. We will talk about how teachers can gather information for planning their further learning process for improving their e-competences.

Workshop will be divided in two parts. The first part will cover theoretical information regarding the subject, while the second part will focus on practical dilemmas teachers deal with every day when they face online publishing.

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For improved productivity, easier cooperation and learning from each other

Uroš Kastelic, **Marina Dražetič**, Microsoft Slovenija

Povzetek: Programski paket Microsoft Office je učencem in učiteljem poznan že več generacij. S pomočjo programa PowerPoint je narejenih veliko število predstavitev, v programu Word napisanih veliko nalog, za zapisovanje zapiskov med predavanjem in po njempa se uporablja orodje OneNote.

Za spremljavo učnih predmetov šole že nekaj let uporabljajo Moodle, odprtokodni sistem za upravljanje učnih vsebin, ki omogoča učencem lažje sledenje predavani snovi. Sistem med drugimi omogoča zbiranje gradiv na enem mestu, reševanje nalog prek interneta in možnost izmenjave mnenj med predavateljem in učenci.

S pojavom novih trendov in tehnologije oblaka se odpirajo nove možnosti integracije različnih programskih orodij in storitev, ki omogočajo boljšo produktivnost in lažje sodelovanje. Microsoft je v začetku leta predstavil programski vtičnik, s pomočjo katerega se omogoči integracijo priljubljenih Microsoft Office 365 orodij in storitev ter sistem Moodle.

Na delavnici bomo spoznali, kaj je Office 365, ter pokazali, kaj vse omenjena integracija z Moodlom omogoča končnim uporabnikom, kako je treba izvesti namestitev in s tem vklopiti to možnost tudi v sistemu Moodle. Prikazali bomo tudi nekaj primerov iz prakse, ki vam bodo pomagali pri vpeljavi v učni proces.

Abstract: Microsoft Office programmes are well known to the students and teachers for many generations. Using PowerPoint great number of presentations has been made, lots of texts work have been written in Word, for taking notes during or after the lectures OneNote is used.

For many years schools have been using Moodle, an open-source Learning Platform which helps students to follow lectures. Among other things system enables collecting the resources on one place, solving the tasks over the Internet and the ability to exchange opinions between lecturer and students.

With the emergence of new trends and cloud technology new options for integration between software tools and services are opening which enables better productivity and easier collaboration. In the beginning of this year Microsoft introduced software plug-in which enables integration of popular Microsoft Office 365 tools and services with the system Moodle.

During this workshop we will present Office 365 and show what the integration with Moodle enables the end user, and how configuration has to be made in order to enable this option in the Moodle. We will also present some cases from practice that can be applied to curricula.

Kako lahko povečamo sodelovanje učencev z uporabo orodij in dodatkov v SMART Notebook 2015

How can we increase the participation of pupils with tools and accessories in SMART Notebook 2015.

Aleš Celcar, Steljes Evropa d.o.o.

Povzetek: Uporaba interaktivne table in programske opreme dobi še večji didaktični pomen, če jo znamo uporabljati in z njo ustrezno motivirati učence. SMART v zadnjih letih pospešeno razvija programsko opremo, v kateri imajo učitelji na voljo različna orodja in dodatke za pripravo učnih gradiv, ki pospešujejo in spodbujajo sodelovanje učencev.

Na delavnici bomo s pomočjo najnovejše različice programske opreme SMART Notebook 2015 spodbujali učenje drug od drugega ter spoznavali, kako lahko s smiselno uporabo orodij in dodatkov omogočimo sodelovanje med učitelji in učenci ter med učenci samimi.

Še posebej se bomo posvetili naslednjim dodatkom:

- **SMART Math Tools** – že znani dodatek za matematiko, ki bo sedaj del osnovnega SMART Notebook programa
- **Concept Mapping** – dodatek, s katerim lahko tako učitelji kot tudi učenci kreirajo miselne vzorce
- **Lesson Activity Builder / Graditelj aktivnosti** – nekoliko spremenjeni graditelj aktivnosti bo omogočal še hitrejšo in enostavnejšo pripravo aktivnosti.

Prav ti dodatki pospešujejo sodelovanje med učenci in na relaciji učitelj-učenec. Ob vsem tem bomo s pomočjo "BYOD" predstavili, kako lahko v razredu učitelj z različnimi orodji učence prek mobilnih naprav (tablic, računalnikov, telefonov) povabi k soustvarjanju učne ure, aktivni udeležbi v vseh fazah učnega procesa, deljenju izkušenj in izkazovanju pridobljenega znanja neposredno s pomočjo mobilne naprave.

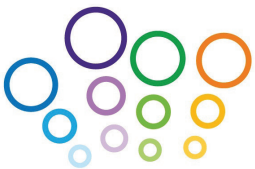
Abstract: The use of the interactive whiteboard and the software is even more important to the education if we know how to use it and motivate pupils accordingly. In the last couple of years SMART is accelerating the development of the software, in which there are various tools and accessories available for teachers for the preparation of teaching materials that accelerate and encourage participation of pupils.

At the workshop with the help of the newest version of the SMART Notebook 2015 software we will encourage learning from each other and learn, how we can enable cooperation between teachers and pupils and between pupils themselves with a worthwhile use of tools and accessories.

We will pay special attention to the following accessories:

- **SMART Math Tools** – a known accessory for Math that is now a part of the basic SMART Notebook program
- **Concept Mapping** – an accessory, teachers and pupils can create mind maps with
- **Lesson Activity Builder** – a somewhat altered Lesson Activity Builder will enable a faster and simpler activity preparation.

These accessories accelerate the cooperation between pupils and between teachers and pupils. Among others, with the help of “BYOD”, we will show, how a teacher in a class with the use of various tools can invite pupils through mobile devices (tablets, computers, phones) to help create a lesson activity, to participate actively in all phases of the learning process, to share experience and to demonstrate the gained knowledge directly through a mobile device.



SMART Notebook »Lesson Activity Builder« – delavnica kreiranja aktivnosti

SMART Notebook “Lesson Activity Builder” - a workshop for creating an activity

Špela Logar, Steljes Evropa d.o.o.

Povzetek: Z novo različico SMART Notebook 2015 je prišel tudi nov dodatek Lesson Activity Builder (LAB). Sam dodatek je eden od najenostavnejših graditeljev interaktivnih aktivnosti, saj omogoča hitro in enostavno kreiranje interaktivnih nalog. Na delavnici bodo udeleženci sami kreirali svoje aktivnosti, predhodno pa bo vodja delavnice predstavil različne primere aktivnosti za različne učne predmete ter prikazal, kako lahko na podlagi pripravljenih aktivnosti delijo svoje znanje ali pa učenci sami pripravijo aktivnost in tako podajo svoja dognanja in spoznanja.

Z uporabo graditelja aktivnosti učitelj ustvarja aktivnost, kjer učenec lahko povezuje in razvršča vsebino in s tem orodjem ustvarja vsebino za utrjevanje oziroma preverjanje znanja. Cilj LAB je, da se aktivnosti pripravijo na način, da omogoča razvrščanje po skupinah, lastnostih, ki jih pripravljavec aktivnosti določi sam. Prav iz tega razloga je orodje primerno za učitelje, ki lahko kreirajo aktivnosti za učence, in za učence, da sami pripravijo aktivnost na podlagi svojih dognanj. Uporabimo ga lahko za aktivnosti pri različnih predmetih, kar bo tudi pokazano na delavnici.

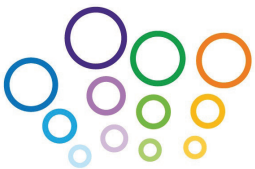
Z uporabo Lesson Activity Builderja se bomo z udeleženci delavnice učili, kako pripraviti učna gradiva, s katerimi/s pomočjo katerih se učenci na zabaven in zanimiv način učijo. Hkrati bodo s prikazom lastnih primerov drug od drugega izmenjevali izkušnje in primere uporabe LAB.

Abstract: With the new version of SMART Notebook 2015 came also a new accessory Lesson Activity Builder (LAB). The accessory itself is one of the simplest builders of the interactive activities because it enables fast and easy creation of the interactive exercises. At the workshop, the participants will create their own activities but before that the workshop leader will present various examples of activities for various subjects and show, how they can share their knowledge on the basis of the prepared activities or how the pupils can prepare an activity themselves and state their findings and results.

With the use of LAB the teacher creates an activity, where a pupil can link and arrange the contents and with the use of this tool creates content for the consolidation or assessment of knowledge. The goal of LAB is to prepare the activities in such a way that they enable arranging according to groups,

properties that are determined by the activity preparer. This is exactly the reason, why the tool is appropriate for teachers, so they can create activities for pupils, and for pupils, so they can prepare an activity themselves on the basis of their own findings. It can be used for activities in various subjects, what will also be shown at the workshop.

With the use of the Lesson Activity Builder the workshop participants will learn, how to prepare learning materials that help pupils to learn in a fun and interesting way. At the same time, they will exchange experience and examples from using LAB with the presentation of their own examples.



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Naša interaktivna tehnologija: interaktivne table, zasloni in mizice, dokumentne kamere jim bodo v pomoč pri oblikovanju ključnih znanj in spretnosti, ki jih bodo potrebovali pri oblikovanju svoje prihodnosti.

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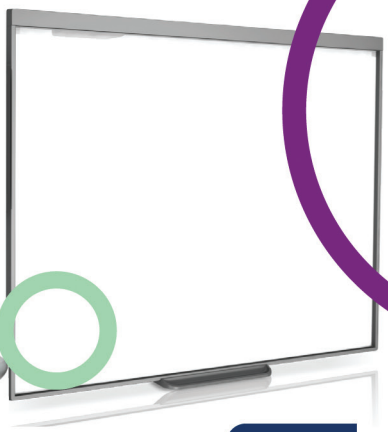

TECHNOLOGY WITH PURPOSE steljes

OpenProf.com: odkrivanje učinkovitega učenja in izmenjave učnih programov med učitelji

OpenProf.com: discovering efficient learning and enabling exchange of learning programmes between teachers

Matej Posinković

Povzetek: V delavnici bomo spoznali, kako lahko učitelji uporabijo bazo učnih gradiv portala OpenProf.com, ki že zdaj šteje več kot 6500 gradiv – dnevno pa se objavljajo nova – in z njimi ustvarjajo povsem prilagojene učne liste, priprave na teste, vadnice ali pa dodajajo lastna gradiva. S svojimi orodji in vsebinami OpenProf.com sproža večplastne procese:

- učenci lahko učijo učitelje, saj jim lahko pošljejo povratno infromacijo o objavljenih gradivih in jih s tem opozarjajo na morebitne manj jasne ali zapletene načine razlage;
- učitelji lahko učijo učitelje, saj lahko z ogledom objavljenih učnih listov svojih kolegov dobijo nove ideje ali pa zglede, ki jih lahko vnesejo v svoj pouk;
- z dodajanjem gradiv v skupno bazo učitelji ne samo nadgrajujejo lastne učne liste, temveč svoja gradiva hkrati dajejo na razpolago vsem svojim kolegom, ki jih lahko nato poljubno uporabijo v lastnih vadnicah.

Abstract: The aim of the workshop is to learn how to take advantage of a database of more than, according current numbers, 6500 learning materials. The database is updated daily and along with the OpenProf.com tools enables teachers to create completely customed textbooks, worksheets, test preparations or to add new didactiacal content. By enabling that, OpenProf.com triggers multiple processes:

- teachers can learn from students as studens can provide feedback to existing didactical content and thus draw attention to the less clear parts;
- teachers can learn from other teachers by checking publically available textbooks, worksheets or test preparations and thus getting new ideas and examples for their own teaching process;
- by adding their own content into a common database of didactical materials teachers are not just using the content for themselves but are making their content available to any other teacher that would want to use it.

Sponzorske predstavitve

Opis

Sponzorji konference, želite svoje izdelke predstaviti drugim in jih ob tem povabiti, da jih na konferenci tudi preizkusijo?

Imate izkušnjo z uporabniki, ki jo je vredno deliti z drugimi?

Predstavitev sponzorjev bo priložnost, da se sprostimo, se učimo drug od drugega in navdušujemo v zelo odmerjenem času.

Način predstavitve

Sponzorji konference bodo nastopali na TeachMeet-u oz. NeTičNeMiš-u, ki ga s preteklih SIRIkto-ov poznamo kot neformalno obliko srečanja učiteljev, ki drug drugemu predstavljajo primere dobre prakse, novosti in odlične ideje rabe IKT pri pouku.

Nastopajoči sponzorji, katerih vrstni red bomo izžrebali, bodo imeli na voljo natanko 5 minut, da nam v sproščenem ozračju z veliko smeha in zabave predstavijo svoje izdelke.

S svojo podjetniško žilico nas bodo poskusili prepričati, da je to, kar prodajajo in ponujajo, prav tisto, kar potrebujemo, da bomo pri svojem delu še euspešnejši.

V petek, 29. maja 2015, bodo od 15. do 16. ure v dvorani hotela Kompas predstavljeni prispevki sponzorjev konference.

Nastopali bodo na TeachMeetu oz. NeTičNeMišu, ki ga s preteklih SIRIkt-ov poznamo kot neformalno obliko srečanja učiteljev, ki drug drugemu predstavljajo primere dobre prakse, novosti in odlične ideje rabe IKT pri pouku.

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- Podjetje Lukvel in nova tehnologija za izobraževanje, Simona Repnik, LUKVEL, d.o.o.
- Sodelovanje učitelj/učenec s souporabo različne sodobne IKT-opreme v izobraževalnem procesu, Aleš Celcar, STELJES EVROPA, d.o.o.
- Brezžična kolaboracija, Gregor Mežan, TEKSEL, d.o.o.
- Rabljeni poslovni računalniki BBT – velik prihranek in dolga življenjska doba, Anja Slapšak, BROWN BEAR TEAM, d.o.o.
- Znižajmo stroške!, Iztok Valič, BILBAN KRANJ, d.o.o.
- Smart Education for the future, Milos Platanic, SAMSUNG ELECTRONICS AUSTRIA GmbH
- Predstavitev izobraževalne platforme OpenProf.com, Matej Posinković, OPENPROF.COM

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Conference sponsors will present their contributions at TeachMeet, an already well-known presentation form from previous SIRikt conferences where teachers exchange experiences, innovative ideas and effective applications of ICT in class.

The sponsors (the sequence of their presentations will be defined by lot) will have exactly 5 minutes to present their products in a relaxed atmosphere, with lots of laugh and fun.

With their entrepreneurial spirit they will try to persuade us that their products are the missing element we need to be even more successful in our professional life.

Sponsors' presentations on Friday, May 29, between 15.00 and 16.00, at Kompas Hotel

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- Learner/Teacher Cooperation by Means of Various Contemporary ICT Tools in Educational Process, Aleš Celcar, STELJES EVROPA, d.o.o.
- Wireless Collaboration, Gregor Mežan, TEKSEL, d.o.o.
- BBT Second-hand Business Computers – a Big Saving and a Long Lifespan, Anja Slapšak, BROWN BEAR TEAM, d.o.o.
- Let's Reduce the Costs!, Iztok Valič, BILBAN KRANJ, d.o.o.
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- Presentation of educational plafrom OpenProf.com, Matej Posinković, OPENPROF.COM

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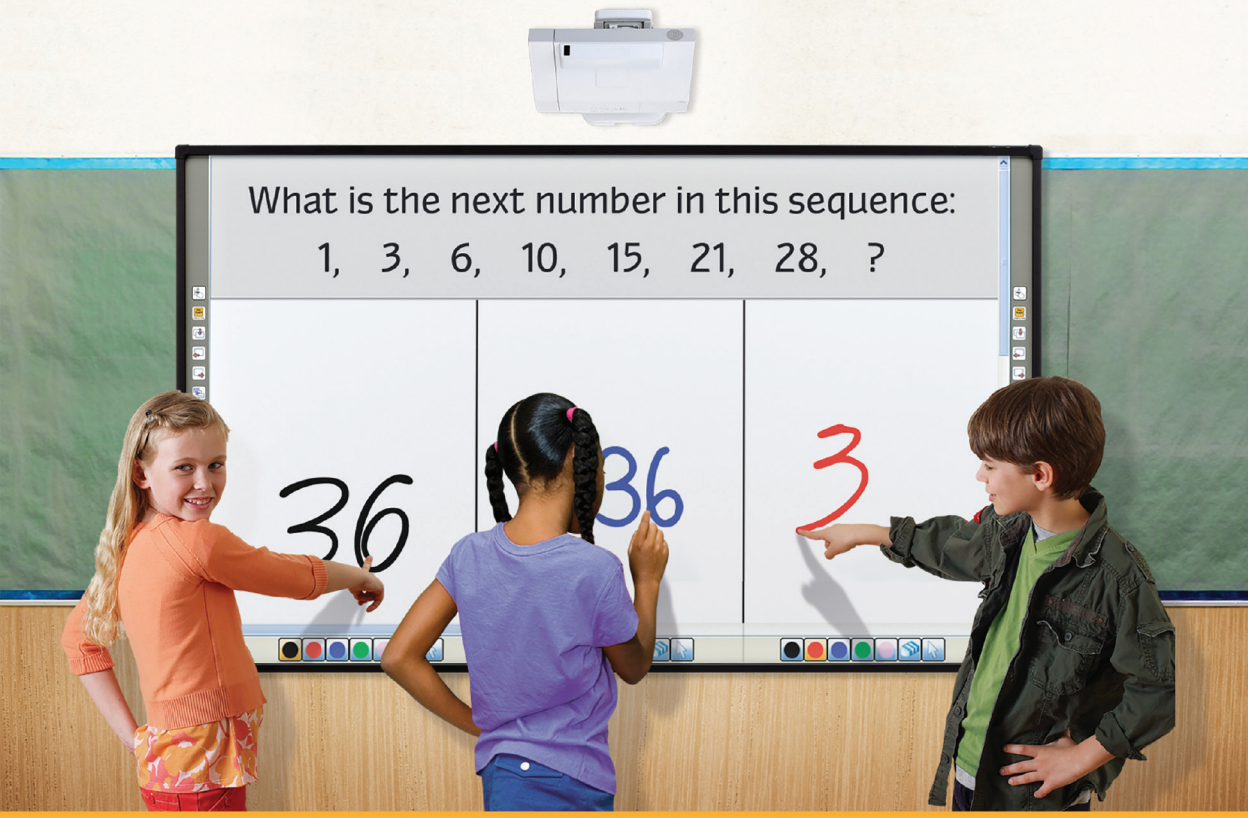

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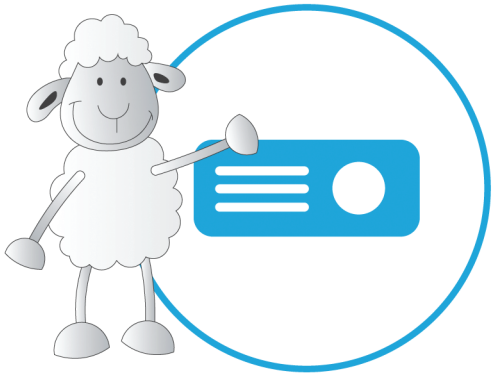

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