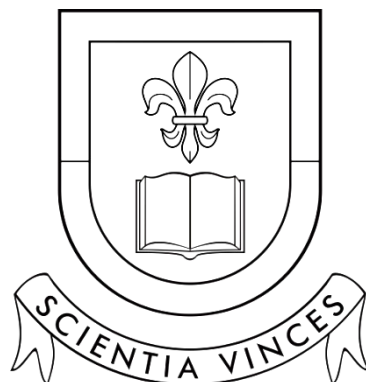


**DAUGAVPILS UNIVERSITĀTE
DAUGAVPILS UNIVERSITY**



***DAUGAVPILS UNIVERSITĀTES
58. STARPTAUTISKĀS
ZINĀTNISKĀS KONFERENCES
TĒZES***

***ABSTRACTS OF
THE 58th INTERNATIONAL
SCIENTIFIC CONFERENCE OF
DAUGAVPILS UNIVERSITY***

DAUGAVPILS UNIVERSITĀTES
AKADĒMISKAIS APGĀDS „SAULE”
2016

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Daugavpils Universitātē docētāju un studējošo zinātniskās konferences notiek kopš 1958. gada. Konferencēm ir starpdisciplinārs raksturs un tajās piedalās gan studējošie, gan arī ievērojami zinātnieki no dažādām pasaules valstīm. Daugavpils Universitātes 58. starptautiskās zinātniskās konferences pētījumu tematika ir ļoti plaša – eksaktās, humanitārās, izglītības, mākslas un sociālo zinātņu jomās.

Krājumā *Daugavpils Universitātes 58. starptautiskās zinātniskās konferences tēzes = Abstracts of the 58th International Scientific Conference of Daugavpils University* apkopoti materiāli, kas tiks prezentēti konferencē organizētajās darba grupās 2016. gada 14.–15. aprīlī un kas atbilst konferences formālajām prasībām.

Krājuma veidotāji saglabāja tēžu lingvistisko un gramatisko struktūru.

Par norādītajiem faktiem, izteiktajiem viedokļiem un lietoto terminoloģiju atbild tēžu autori.

The annual scientific conferences at Daugavpils University have been organized since 1958. The themes of research presented at the conferences cover all spheres of life. Due to the facts that the conference was of interdisciplinary character and that its participants were students and outstanding scientists from different countries, the subjects of scientific investigations were very varied – in the domains of exact sciences, the humanities, education, art and social sciences.

The Collection of Abstracts of the 58th Scientific Conference of Daugavpils University contains the abstracts on researches, which will be presented in the corresponding work groups organized within the framework of the conference in April, 14–15, 2016. In the abstracts published in *Daugavpils Universitātes 58. starptautiskās zinātniskās konferences tēzes = Abstracts of the 58th International Scientific Conference of Daugavpils University* we have preserved the authors' style (linguistic and grammatical structures), and the authors themselves are responsible for the facts and opinions reflected and the terminology used in their abstracts.

VĒSTURE UN KULTŪRAS VĒSTURE

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HISTORY AND HISTORY OF CULTURE

Vitālijs Adamovičs

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DOCUMENTS OF CIVIL PARISH COUNCILS IN REGIONAL HISTORY RESEARCH: INFORMATIVE POTENTIAL OF THE RECORDS OF KALKŪNE CIVIL PARISH (1946–1948)

In the paper, the author will examine a number of problems related to regional history research on the basis of archival records. In the focus of attention, there is the postwar period in the history of Kalkūne civil parish (1946–1948). This period of time is marked by Stalin totalitarianism and reveals the attempts of local authorities to strengthen communist regime in Latvia during the initial period of the second Soviet occupation of Latvia.

The empirical basis of the paper is formed by archival documents that are kept in Daugavpils Regional State Archives – a structural unit of the Latvian National Archives. The most important record group encompasses the documents of Kalkūne Parish Council (record group No. 6, Daugavpils Regional state Archives), since this municipality conducted Sovietization in Kalkūne district. Moreover, Kalkūne Parish Council supervised the work of other state and municipal organizations in the district. A special attention is paid to the minutes (proceedings) of Kalkūne Parish Council in order to reveal the archival and historic value of these documents. According to the value of the documents, the paper represents the tenor of major historical sources, reveals the spheres of activities of local state bodies, and provides information about the everyday life of the inhabitants of Kalkūne.

The paper is divided into three sections. In the first section, the author reveals the informative potential of archival records that emerged in 1946. In the second section, the author studies the changes in archival records complex in 1947. The third section is devoted to archival records dated back to 1948. In order to provide an overall overview of historical sources, the method of content analysis is employed.

The results of the research made by the author can be used in regional history studies as well as in archival work.

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DINABURGAS JEZUĪTU REZIDENCE 17.–18. GS: PASTĀVĒŠANAS PROBLĒMAS

Referāts ir veltīts Latvijas historiogrāfijā maz pētītai tēmai – Dinaburgas jezuītu rezidences patāvēšanas un attīstības problēmām 17.–18. gs. Referāta mērķis ir noteikt un aplūkot faktorus, kas negatīvi ietekmēja rezidences eksistenci un turpmāko attīstību. Hronoloģiskie rāmji aptver laika posmu no 17. gs 30 gadiem, kad Dinaburgā tika nodibināta pastāvīga misija, līdz 1761. gadam, kad Dinaburgas rezidencei tika piešķirts kolēģijas statuss. Referātā tiks aplūkoti sekojoši jautājumi: Dinaburgas misijas un rezidences dibināšanas apstākļi, Dinaburgas misijas un rezidences tiesiskais stāvoklis, misijas un rezidences ekonomiskais stāvoklis, vietejo iedzīvotāju attieksme pret misiju un rezidenci, Infantijas garīdznieku attieksme pret jezuītu darbību. Referāta izstrādē tika izmantoti Dinaburgas jezuītu rezidences mājas arhīva dokumenti, kas tika publicēti 1940–41. gadā krājumā

„Latvijas vēstures avoti jezuītu ordeņa arhīvos”, kā arī Latvijas Valsts Vēstures Arhīva, Baltkrievijas Nacionālā Vēstures arhīva un Krievijas seno aktu arhīva fondu dokumenti.

Ināra Juškāne

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LATGALES SAKRĀLĀS ARHITEKTŪRAS PIEMINEKĻU PRAKTISKĀS SAGLABĀŠANAS ATSPUGUĻOJUMS PIEMINEKĻU DOKUMENTĀCIJAS CENTRA MATERIĀLOS 20. GS. B. / 21. GS. MIJĀ

Referāts aplūkos Valsts kultūras pieminekļu aizsardzības inspekcijas Pieminekļu dokumentācijas centra arhīva materiālus kā īpatnēju vēstures avotu Latgales sakrālās arhitektūras pieminekļu (t.sk.zudušo, izslēgto objektu) teorētiskā pētniecībā un praktiskā saglabāšanā 20. gs. b. / 21. gs. mijā. Izlases kārtībā tiks aplūkotas dažādas Latgales reliģiskās konfesijas (katoļu, luterāņu, pareizticīgo, vecticībnieku un Mozus ticīgo) sakrālo arhitektūras pieminekļu būtiskākās saglabāšanas problēmas un to risinājumi.

Sakrālās celtnes ir nozīmīga kultūrvēsturiskās vides veidojoša vērtība. Aplūkotais laikposms ienāk ar pārmaiņām kultūras mantojuma aizsardzības likumdošanā un institūciju darbībā. Dievnami nav tikai Dieva vārda sludināšanas un Sakramentu saņemšanas vieta. Tām ir arī laicīgs vēstījums. Šis laikposms sakrālās arhitektūras saglabāšanas jomā iezīmējas ar pārbaudījumiem gan Valsts un Baznīcas attiecībās, gan izaicinājumiem autentiskuma saglabāšanas dažādajās izpratnēs.

Vitalijs Karpovičs

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ORDERS RELATED TO THE STAFF OF THE LATVIAN SSR DAUGAVPILS DRUGSTORE ADMINISTRATIVE DEPARTMENT, 1960-1970

The aim of the paper is to explore archival files of the record group “Orders Related to the Staff of the Latvian SSR Daugavpils Drugstore Administrative Department” (1960-1970), which are preserved in the Regional State Archives of Daugavpils, in order to give an overall insight into historical value of the information provided by these archival files. Author has chosen such topic mainly because there aren't many research papers on this particular topic also it is possible at a later date to continue authors research by increasing the overall amount of the archival files used in it. These archival files contain information about the ordinary life of its workers and as such can be used as a source of information about the life and working conditions in the given time period. Author will try to give the reader of this paper the summary of that information and its historical value.

The tasks of paper study are as follows: to explore the archival sources - the orders related to the staff of Daugavpils Drugstore Administrative Department in 1960-1970; to generalize the information extracted from the sources; and to examine the available research papers and monographs on the history of the pharmacy in the Latvian SSR and Daugavpils in the 20th century. The methods employed in the study are as follows: internal and external source criticism, interpretation of information, comparison, and statistical analysis of archival data.

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TEACHERS OF ILŪKSTE DISTRICT IN 1948–1949 ACADEMIC YEAR

The aim of the research is to create the social portrait of teachers of Ilūkste district in 1948–1949 academic year, in the context of process of sovietization.

The objectives: 1) select and explore historical sources about investigated time period and place, summarize the information which could help to create the social portrait of teachers of Ilūkste district, using basically documentary sources; 2) study the content of the scientific literature about methodology of historical research and methodology of statistical research, learn the historiography of the themes which could allow to go deep into the specifics of the researched problem; 3) Based on statistical information which was obtained from archival documents to find out the Ilūkste district pedagogical staff's - 3.1) demographic characteristics (gender, age); 3.2) affiliation to a cultural space; 3.3) Political orientation 3.4) The level of education and qualification; 4) summarize the obtained information about pedagogical staff of schools, interpret investigated problems from the context to find out the information that previously was not known about selected theme. The methods of the research: the sociological method, the comparative method, interpretation, the statistical method.

Antons Ļivītins

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SOURCES OF ARCHIVE AS CULTURAL LIFE EXPLORATION SOURCES (LNA DZVA OF THE CULTURAL DEPARTMENT OF THE EXECUTIVE COMMITTEE OF DAUGAVPILS DISTRICT SOVIET OF PEOPLE'S DEPUTIES IN THE MATERIALS OF REGIONAL STATE ARCHIVES OF DAUGAVPILS) (1956–1964)

The quality research of history of Latvia and reconstruction of the past events can be made by the researcher only if he has primary sources, which unapprovoly give quality as well as quantitative information. The library-research paper comprises a review of Soviet Unions XX century 50–60-ies political [Hruschovs' thaw] influence on cultural happenings Daugavpils District Deputies in the Materials of Regional State Archives of Daugavpils (1956–1964).

Ksenija Meijere

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KARLIS OSIS INVOLVEMENT IN SPIRITISM

Karlis Osis is Latvia born USA spiritist. Bored in „Zvirgzdi” home, near Riga in 1917, in childhood Karlis expired individual mystical background, then his aunt died boy field the „a tremendous wave of joy”. It impressed all Osis's life, for years he tried to prof himself, that after death life exist. Then the Second World War become, in 1944 he leaved Latvia and went to German as refugee. In 1950 in Munich University K.Osis get doctor degree in psychology with unusual theme for 50s. His career in parapsychology started in USA, then he worked in J.B.Rhine's Parapsychology Laboratory at Duke University from 1951 to 1957. Later K.Osis served as Director of Research at the Parapsychology

Foundation in New York City. From 1962 to 1975, Osis was the ASPR's Research Director. He then became the Society's senior researcher until his retirement in 1983, at which time he was made Chester F. Carlson Research Fellow Emeritus, a position he held until his death in 1997. As spiritist Karlis Osis "researched" classical for spiritist themes: OBE subject and psychic, investigated numerous apparitions, hauntings, and poltergeists, cross-cultural study of death experiences, ESP. Osis main work is a book he co-authored with Erlendur Haraldsson *At the Hour of Death*. As a person Karlis Osis is characterized by his colleagues as kind, polite and wise man. His was married on Klara and had three children.

Anastasija Miņenkova

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REFLECTION OF THE RELATIONSHIPS BETWEEN RELIGIOUS ORGANIZATIONS AND THE GOVERNMENT IN THE MATERIALS OF THE STATE ARCHIVES OF LATVIA: AN EXAMPLE OF DAUGAVPILS

Wide knowledge about the relationships between religious organizations and the Government in the given period of time is offered by documents of two funds of the State Archives of Latvia: 'Trustee of USSR Council's of Ministers cult Affairs Council in Latvian SSR' (Nr. 1448.) and 'Trustee of USSR Council's of Ministers Russian Orthodox Church Affairs Council in Latvian SSR' (Nr. 1452). Materials of the mentioned funds help to get impression about the policy changes towards religion, the role of the local authorities in realization of this policy, condition of some denominations in Daugavpils and degree of their dependence on local and higher level authority.

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REFLECTION OF THE HISTORY OF TOURISM IN CĒSIS DISTRICT IN THE LATVIAN PRESS (1934–1940)

After the coup d'état carried out by K. Ulmanis on 15 May 1934, the domestic policy was changed radically in Latvia. One of most important questions of K. Ulmanis' authoritative policy was ideological upbringing of the Latvian nation. A special emphasis was put on such aspects as national history, traditions, and culture that were intensively explored and popularized. One of the means to promote interest about history, traditions, and culture was tourism; therefore, many articles about tourism were published in Latvian national and regional newspapers after K. Ulmanis' coup d'état. The articles covered a wide scope of aspects, namely, overall essays on tourism, tourists' reflections and impressions, tourist attractions – cities/districts and other tourism objects, etc.

The aim of paper is to find out how tourism in Cēsis District was reflected in the Latvian press in 1934–1940. The paper is based on the nation-wide and local/regional newspapers and magazines, which were issued in Latvia in 1934–1940 and provide information about tourism in Cēsis District: „Brīvā Zeme”, „Ekskursants”, „Latvijas Kareivis”, „Cēsu Vēstis”, „Siguldas Balss”, etc.

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SIGNS OF SOVIETIZATION IN CULTURAL LIFE OF DAUGAVPILS (1944–1953)

During the devastating changes resulting from the Second World War, Latvia was incorporated into the Soviet Union, and the new political system set specific goals in all areas of socialism. One of the most effective tools in the complex process of Sovietization was education, through which local residents were integrated into Soviet society. Several cultural institutions in Daugavpils, such as museums, houses of culture, theaters, cinemas and the city council executive committee addressed not only the entertainment of the public, but also education. The Communist Party and Soviet authorities monitored the functioning of the institutions in order to evaluate the propaganda of communism in society.

The aim of the paper is to find out how Sovietization was held in the cultural life of Daugavpils, 1944–1953. At the Regional State Archives of Daugavpils which is a territorial unit of the National Archives of Latvia (hereafter – LNA DZVA) are located documents of Daugavpils Russian drama theater (fund 122), Daugavpils Local History and Art Museum (fund 144), Daugavpils House of Culture (fund 860), Daugavpils Cinema department (fund 1121), Daugavpils City Council Executive Committee (fund 202) and the Cultural department of Daugavpils City Council Executive Committee (fund 154), providing various types of information on the functioning of these institutions.

Henrihs Soms

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KARADARBĪBA DAUGAVPILS APKĀRTNĒ 1915.–1917. GADĀ ILUSTRĀCIJĀS

Pirmā pasaules kara norises Daugavpils apkārtņē ir fiksētas vairākās ilustrācijās. To autori ir pazīstamais krievu padomju batālists Ivans Vladimirovs (1870–1947), vācu mākslinieks Ēriks Sturtevants (1869–1947), Kurds Albrehts (1884–1964), kā arī krievu virsnieks N. Medvedevs. Vairākiem zīmējumiem nav norādīts autors. Lielākā daļa ilustrāciju tika publicētas populārā britu ilustrētajā nedēļas izdevumā „The Graphic”.

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HISTORICAL SOURCES ABOUT THE OPENING OF THE MONUMENT OF FALLEN SOLDIERS IN LATVIAN WAR OF INDEPENDENCE IN DAUGAVPILS FORTRESS IN 1924

Daugavpils fortress nowadays is a cultural and historical monument of national importance, it can be proud for its many architectural and cultural values and monuments. One of these values is also the Monument of fallen soldiers in the Latvian War of Independence, dedicated to the soldiers of 10th Aizpute Infantry Regiment and former 1st Latvian Riflemen Battalion fallen in Freedom fights in 1918–1920. The monument was opened in Daugavpils fortress on 14th November in 1924. Nowadays it is the only left monument, dedicated to the Latvian army in the Daugavpils fortress.

The range of historical sources about the opening of the monument is not wide; therefore all kinds of sources are very important. Mostly these are press materials (local Daugavpils press and wider

Latvian press) and photos that allow getting a better idea about the ceremony of opening of the monument and its importance in Daugavpils and in Latvia.

The aim of the research – to discover the informative potential of press materials and photos about the very important event, connected to the 10th Aizpute Infantry regiment's history.

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DEPICTION OF WOMEN'S PROBLEMS IN THE MAGAZINE ZELTENE (1926–1940)

Content of the 21st century magazines and other media, which is aimed at women consists mostly of topics which are traditionally considered feminine – beauty, fashion, relationships, etc. Contemporary mass media is constantly focusing on different women's problems as well as on giving advice on how to be successful, to raise a child, to achieve perfect look and happiness thus making an influence on women and their understanding of female nature.

The aim of this article is to reveal the most common problems which were affecting women in Latvia at the beginning of the 20th century by analyzing specific content sections of the magazine *Zeltene*. Thus aesthetic ideals and virtues maintained in the society of the certain historical period can be constructed and explored.

FILOLOGIJA: PĒTĪJUMI, AKTUALITĀTES UN DISKURSS

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PHILOLOGY: RESEARCHES, TOPICALITIES AND DISCOURSE

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ROMAN NOIR COMME LE PRÉCURSEUR DU ROMAN GOTHIQUE

Le roman noir was first coined by the French in the 18th century, and originally referred to the Gothic novel emerging in England at the time. The Gothic novel was initiated in England by Horace Walpole's *The Castle of Otranto*, published in 1764. The Gothic genre is characterized by the elements of fear, horror, gloom, supernatural, and an atmosphere of mystery and suspense.

However, despite the fact that the Gothic novel is generally considered to be born in 1764 with H. Walpole's *The Castle of Otranto*, it can be admitted that primarily it takes its origin in France. The novels of Abbé Prévost (1697–1763) portrayed the gloomy and melancholy, aspects which were both to become vital parts of the vogue for the Gothic literature. He was by no means the first to include such elements in the novel.

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L'ÉCRITURE FÉMININE EXPRIMÉE DANS LES NOUVELLES D'ALICE MUNRO

The research focuses on the phenomenon of écriture féminine or 'women's writing' expressed in Alice Munro's fiction. Munro writes mostly about women and for women. She adopts a subversive style reinforcing the idea of a destabilized feminine identity. Her narrative structure and the symmetry of text in her writing can be described in terms of l'écriture féminine. Her short stories often embody the idea of the écriture féminine first espoused by Hélène Cixous; whose writings were influenced by Jacques Derrida, Sigmund Freud, Jacques Lacan and Arthur Rimbaud.

Cixous enacts l'écriture féminine in her performative manifesto *The Laugh of the Medusa* (1976), which is organized in stream of consciousness style. L'écriture féminine rejects realist narrative techniques and coherently organized arguments and embraces a fragmented, poetic, exploded style open to the play of the unconscious and the libido. Cixous believes that female desire is threatening to a masculinist society and has been repressed as women have been taught to hate themselves and resent other women. She draws a parallel between the repression of women's bodies and desires and the repression of women's language.

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L'IDENTIFICATION ET LA COMMUNICATION EN FRANCAIS CONTEMPORAIN

Dans notre article, nous parlerons de l'identification sociale d'un individu sur la base de sa façon de s'exprimer. Le répertoire linguistique des hommes, des femmes, des enfants et des adolescents d'une même société peut nous donner de l'information sur leur niveau d'éducation, type d'emploi, région d'origine ou d'habitation. Il sert à marquer l'identité sociale d'un individu. L'identité sociale s'exprime par diverses activités sociales. Le travail exercé par cet individu, les loisirs pratiqués, la manière de s'habiller et son comportement dans la société nous parlent de l'individu qui les fait. Sa façon de parler et de faire les gestes participent également à cette construction de l'identité. Les éléments fondateurs de l'identité d'une personne sont **sexe** (homme / femme), **âge** (enfant, adolescent, adulte, retraité), **profession** (avocat, agriculteur, plombier, commerçant, vendeur), **le lieu de résidence** (Riga, Liepāja, Paris, urbain, rural), **religion** (protestant, catholique, musulman, athée, mormon). Ces caractéristiques ne sont pas constants. Ils sont relatifs et ils peuvent changer. Dans sa vie, la mère de M. Meursault n'était pas religieuse, mais après avoir vécu, elle a exprimé à ses compagnons le désir d'être enterrée religieusement. Elle n'était pas **athée**, mais elle n'avait jamais pensé de son vivant à la religion. Ca va de soi que le tableau de l'identité sociale ne peut jamais devenir exhaustif. Nous définissons l'identité sociale comme la somme de tous les sous-groupes sociaux dont l'individu est membre reconnu et tout à fait compétent. Pendant leur interaction sociale, les participants négocient leurs rôles respectifs et réaffirment leurs statuts et ceux de leurs interlocuteurs, ainsi que leurs positions sociales et leurs identités dans la société française contemporaine. Il faut souligner que nous ne parlons pas de la même manière à tout le monde. Nous formulons nos énoncés en fonction de nos perceptions et de nos catégorisations sociales de nos interlocuteurs: journaliste, imprimeur, marin, militaire, acteur, écolier, malfaiteur, mendiant, voleur, ami de longue date, guichetier, collègue, président d'une association, plombier, sommelier, compagnon de voyage, prêtre, employeur, pompier, infirmier, etc. Notre liste peut s'étendre à l'infini... Mais aucun interlocuteur n'a pas une **identité unidimensionnelle**. M. Meursault était le fils de sa mère, l'employeur modeste, le copain de Raymond, le voisin du vieux Salamano, l'ami d'Emmanuel, l'amant de Marie et le tueur d'un homme.

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IDENTITĀTES KONSTRUĒŠANAS PROBLEMĀTIKA M. GŪTMANES DARBĀ “VĒSTULES MĀTEI”

Referāts kā ievadpētījums daudz plašākam pētījumam par trimdas latviešu literatūru kopumā un simpatizējošs autorei pastiprinātajai interesei par identitātes konstruēšanas koncepciju visplašākajā aspektā.

Referāts pievēršas autorei autobiogrāfiskajai plaknei un tam, kā autore, literārā darba rakstīšanas procesā cenšas verbalizēt savu pasaules uzskatu, atrast savu identitāti un pozicionēt sevi realitātē. Pētījums par M. Gūtmanes centieniem skaidrā, viņai pašai un lasītājam saprotamā veidā radīt jaunu koncepciju (literāro darbu), kas ietvertu sevī gan viņas subjektīvos, iekšējos pārdzīvojumus, gan procesus, kas norisinās apkārtējā sabiedrībā (konkrētāk – trimdas sabiedrībā).

Atsevišķi referātā izstrādāti jautājumi:

1. Eksistenciālā pasaules uzskata mijiedarbība ar M. Gūtmanes pasaules uzskatu un šīs mijiedarbības radītās sekas. Atsvešinātības izjūta realitātē. Galveno konceptu izklāsts un to savienošana kopējā koncepcijā.
2. Identitātes konstruēšanas problemātiskums. Izplūdusi, nenonkretizējama laiktelpas koncepcija. Kultūras, nacionālā, sabiedrības, uc. telpas, kurām autore nejūtas piederīga. Autorei vēlme fizikālā un intelektuālā veidā izjust laiktelpas koncepciju un šīs vēlmes problemātiskums un autorei pašas un referāta autorei secinājumi.

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REMEMBERING FORCED MIGRATION IN LANGUAGE: SOME SEMANTIC ASPECTS OF THE MIGRATION MASTER DISCOURSE IN THE PUBLIC DISCUSSION SPACE OF LATVIA

One of the top issues in the public discussion space of Latvia in the middle of the second decade of the 21st century has been the forced migration crisis in Europe. The issue has become burning after the increase of the flow of migrants in the summer of 2015, as well as the terrorist attacks in Paris in January and November and the sexual assaults case in the main station of Cologne on the New Year's Eve of the same year. Not only authorities and public media play an important role in the thematization of the forced migration and its consequences, but also social networking sites and other public space media (such as graffiti, public protests etc.) broadcast and share their position and try influencing the master discourse on forced migration. The rhetorics applied is far from unified, still there can be observed certain tendencies reinforced by specific semantic means referring to the involved agents (such as refugees vs. migrants a.o.), characterizing the migration master discourse. The research paper highlights some of the basic semantic units of the migration master discourse in the public discussion space in Latvia, providing a glimpse into cross-sectional analysis, comparing how the same or similar semantic units have been applied during the former historical migration climax points affecting the population of Latvia.

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LINGUISTIC COMPLEXITY OF BRITISH AND LATVIAN NEWSPAPER HEADLINES

The present research is devoted to the most common linguistic features of British and Latvian newspaper headlines in the context of their comprehension complexity. The research explores to what extent the language in newspaper headlines bothers the entire comprehension of the headline content. The use of figurative language and culture-specific lexical units cause problematic understanding of the headlines. The violation of regular syntactic structures leads to syntactic ambiguity. The tendency of attracting readers to the article with the help of stylistically varied vocabulary results in a good deal of misinterpretation of the author's message.

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COMPARISONS WITH ORNITHONYMS CHARACTERISING HUMAN APPEARANCE IN WORKS BY ANNA BRIGADERE

Ornithonyms as an integral part of a mythological, folkloric and literary discourse activate a wide range of associations and open up limitless opportunities of nomination; these nominations are used within various linguacultures in specific and at the same time universal ways. The nomination of birds is often built on the basis of a comparison.

The lexeme 'bird' is the most widely represented basis of comparison in the collection of comparative constructions elicited from A. Brigadere's works (63 instances of the use of a hyperonym in its base forms); in the same vein the author actively uses definite nominations of birds characteristic of her native country (a swallow, a dove, a hawk, etc.) and other elements related to the avian world (a feather, a wing, a nest, etc.). The comparisons of this kind may be divided into three broader semantic models: a) an attribute of the material world = a bird, b) an attribute of the natural world = a bird, c) a human being = a bird, the latter being the prevailing one. Anthropocentric (human-oriented) comparisons characterize the literary characters by their a) appearance, b) skills and abilities, c) feelings and emotions, d) type of activity and behaviour.

When describing the characters' appearance, A. Brigadere primarily highlights the individual parts of their bodies: hair (*as a little nest where one can print one's head*); eyes (*running and darting around as a partridge's nestlings*); nose (*spotted as a lapwing's egg*); neck (*as long as a crane's neck*); hands (*embraces as in a bird's nails*); elbows (*as rain-soaked wings*). Secondly, the characters body dimensions are mentioned by providing the descriptions of people of small stature (*Annele becomes so small as a pupil on the flower stalk*) and small weight (*the queen so light as if in a bird's feathers*). Thirdly, the typicality of appearance is fixed (*you take after her like an egg after egg*), or, on the contrary, one's overly tended appearance is marked (*as the "shop fellows" hatched from an egg*). Some ornithonyms are included in the descriptions of costumes (*hats fly away like feathers*), and the fixation of the contours a human's shadow (*flew like a bird with twisted wings*).

Considering the group of excerpts analyzed one can hardly speak about the prevalence of certain ornithonyms; every ornithonym reveals a certain segment of a character's appearance created by A. Brigadere (*white as a swan; as light as a swallow*, etc.). For this purpose, the writer prefers traditional, stable comparisons that are fixed in dictionaries, although in some cases, the motivation for the selection of the basis of the comparison is rather clear (a similar shape, color, size, weight, etc.).

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INTERACTION OF MULTIMODAL METAPHOR AND METONYMY IN PRINTED ADVERTISING: A CASE STUDY

The report focuses on the analysis of the use of multimodal metaphor and metonymy, and the interplay of both in printed advertising (both in English and Latvian), public service advertisements in particular. The analysis shows how aspects of metaphors and metonymies surface in various modes and how the interplay of metaphor and metonymy fulfils different cognitive and persuasive roles in printed advertisements. As pointed out by Barcelona (2000) metonymy is a more fundamental cognitive phenomenon than metaphor, and metaphor is very often motivated by metonymy. Moreover, the interaction between metaphor and metonymy is of great relevance in advertising, contributing to the primary goal of advertising by promoting the product in different ways.

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THE PECULIARITIES OF THE DEPICTION OF WOMEN'S IMAGES IN K. CHOPIN'S NOVEL „THE AWAKENING”

The paper regards the peculiarities of the depiction of women's images in Kate Chopin's novel „The Awakening” (1899). The historical background of the nineteenth-century feminism is briefly sketched out and the peculiar features of women's writing in the late nineteenth century Anglo-American literature are pointed out. The paper proceeds with investigating women's images in the novel. The women's images are grouped and characterized both as representatives of a particular group and as individuals with their own specific traits. Women's are grouped according to race and social status. The protagonists (Edna Pontellier) is considered in relation to the author's own life and personality. The married women's characters reveal different aspects of marriage thus revealing the aspects that nineteenth century feminists regarded as problematic.

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VALODAS ĪPATNĪBAS E-ŽURNĀLĀ SKOLAS VĀRDS

Pētījumā tiek analizētas valodas īpatnības e-žurnālā „Skolas Vārds” (2015.g.). Šis elektroniskais izdevums veltīts izglītības jautājumiem, kuri ir aktuāli gan skolu vadītājiem, gan skolotājiem, gan vecākiem. Žurnālā var lasīt analītiskus un praktiskus rakstus par novitātēm izglītības jomā, lēmumu skaidrojumiem, profesionāļu pieredzi, intervijas ar izciliem skolotājiem u.c.

Īpaša uzmanība tiek pievērsta skolotāja tēla modelēšanai pedagogiskā diskursā, kas atklājas iepriekš minētajā izdevumā. Veicot analīzi, tika konstatēti raksturīgākie skolotāja tēla veidojošie valodas līdzekļi.

Pētījumā aplūkotas arī internetvalodas īpatnības. internetvalodu var uztvert par runas un rakstu formas hibrīdu vai pat trešo valodas izpausmes formu, jo tajā saplūst abu valodas pamatformu iezīmes. E-vide veicina jaunus lasīšanas un rakstīšanas paradumus, līdz ar to rodas jauna valodas lietošanas forma. Mūsdienās cilvēki aizvien biežāk izmanto elektroniskos saziņas līdzekļus, tāpēc interneta tekstveides attīstības tendence pētniekiem kļūst par izaicinājumu jaunai pētīšanas jomai.

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ATKĀRTOTS NOLIEGUMS I. ZIEDOŅA EPIFĀNIJĀS

Pētījumā ir aplūkots dubulta un daudzkāŗša nolieguma lietojums I. Ziedoņa 1. grāmatas epifānijās. Zinātniskā pētījuma problēmas izvēle ir saistīta ar nolieguma kategorijas izpētes aktualitāti latviešu valodniecībā.

Analizējot dubulto noliegumu, kad izteikumos ar atkārtoto noliegumu ir noliegts gan darbības vārds predikātā, gan vietniekvārds un/ vai apstākļa vārds, jāsecina, ka noliegta subjekta un objekta funkcijā tiek izmantoti noliegtie vietniekvārdi *nekas, neviens*. Noliegtais adverbiālais laika, vietas vai mēra komponents visai nepārprotami norāda uz izteikuma emocionalitāti, izceļ personāža psihisko stāvokli, pastiprina vēstījuma konotācijas. Lietojot verbusus ar *noliegšanas, aizliegšanas* nozīmi kopā ar noliegumu, tiek radīta apgalvojuma semantika. Partikula *ne*, kas atkārtojas vienlīdzīgo teikuma locekļu priekšā un saistās ar nolieguma darbības vārdu izteicēja lomā, absolūti noliedz izteikumu, piešķirot izteikumam īpašu emocionālu nokrāsu.

Pēc noliegto komponentu skaita noliegums parasti ir divkāŗšs, taču I. Ziedoņa epifānijās ir sastopams arī daudzkāŗšais noliegums, kad noliegts ir predikāts, atribūts, adverbiālais komponents, subjekts vai objekts.

Dubultais un daudzkāŗšais noliegums kontekstā rada ļoti spilgtu mākslinieciski estētisko iespaidu un piešķir izteikumam emocionāli ekspresīvās konotācijas, piemēram, paspilgtina tēlainību, pastiprina izteiktā kategoriskumu, aktualizē dažādas asociatīvas sēmas u. c.

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LATVIEŠU RAKSTNIEČU DAIĻRADES TULKOJUMI ZVIEDRIJĀ UN DĀNIJĀ: KOPĪGAIS UN ATSKIRĪGAIS (1980–2010)

Latviešu literatūra Skandināvijā, tostarp Zviedrijā un Dānijā neienāk tik strauji, tomēr ik gadu ir manāma latviešu daiļliteratūras tulkojumu skaita palielināšanās.

Pirmais latviešu literatūras tulkojums kā zviedru, tā arī dāņu valodā ir Rūdolfā Blaumaņa novele "Nāves ēnā", kas Zviedrijā iznāk 1925. gadā, savukārt Dānijā – 1928. gadā.

Līdz 80. gadu sākumam latviešu literatūra gan Zviedrijā, gan Dānijā ir bijusi tikpat kā nepazīstama. Zviedrijā vienīgais izņēmums ir Zenta Mauriņa, kurai 50.–60. gados tika izdotas 7 grāmatas, savukārt Dānijā līdz 1980. gadam ir izdoti Rūdolfā Blaumaņa „Indriksoni”, (1938), Andreja Eglīša „Dievs, tava zeme deg” (1948), Zentas Mauriņas „Septiņi viesi” (1962) u.c. darbi.

Laika periodā no 1980. gada līdz 2010. gadam Zviedrijā un Dānijā galvenokārt ir tulkota latviešu dzeja, tomēr pēdējos 20 gadus zviedru un dāņu lasītājam ir iespējams iepazīties arī ar latviešu rakstnieču prozas darbiem. Kā spilgtākos piemērus var minēt latviešu rakstnieces Noras Ikstenas romānu „Dzīves svinēšana”, kas zviedru valodā izdots 1998. gadā, savukārt dāņu valodā – 2001. gadā, Ingas Ābeles romānu „Uguns nemodina” (2001. gadā – zviedru valodā un 2007. gadā – dāņu valodā.). Zviedru valodā ir tulkotas Vizmas Belševicas *Billes triloģija*, Sandras Kalnietes romāns „Ar balles korpēm Sibīrijas sniegos”, I. Ābeles romāns „Paisums” u.c., savukārt Dānijā ir izdots Daces Rukšānes „Romāniņš”.

Zviedru un dāņu periodiskos izdevumos literatūras kritiķi un literatūrzinātnieki vērtē latviešu rakstnieču romānus pozitīvi, akcentējot tajos aktualizētās tēmas: skaudra dzīves uztvere, vēlēšanās mainīt dzīvi, sevis meklējumi.

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LAS ESTRATEGIAS DE LA CORTESÍA VERBAL EN EL ESPAÑOL

La cortesía como fenómeno es universal y nos permite mantener un mínimo de armonía entre los interlocutores durante el proceso de comunicación (Hernández Alegría: 2011). A pesar de su dimensión universal en cada sociedad existen normas de conducta que se manifiestan tanto por el medio de la comunicación no verbal como por el medio de expresiones verbales propias de cada cultura.

El objetivo de la presente comunicación es demostrar cómo las estrategias de la cortesía verbal se realizan en las situaciones contextuales concretas del ámbito español. Se analizan no solo las estrategias de la cortesía positiva sino también las de la cortesía negativa (Erving Goffman: 1967)

El estudio está llevado a cabo desde una perspectiva del estudio cualitativo, la observación y el análisis del discurso han sido utilizados como las herramientas de la investigación.

La parte teórica se basa tanto en las teorías de pragmática (la Teoría de los actos de habla de John Searle, John L. Austin) como en las de sociología (trabajos de Penélope Brown y Stephen Levinson).

La parte empírica del trabajo se centra en el estudio de la aplicación de las estrategias de cortesía en los escritos comerciales y de carácter social (invitaciones, felicitaciones, agradecimientos etc).

Los resultados del análisis han dado lugar a la siguiente conclusión: las estrategias de cortesía aplicadas en el contexto de cada situación comunicativa intensifican la fuerza ilocutiva de invitar, ofrecer, agradecer, solicitar y negar.

Palabras clave: cortesía verbal, estrategias de cortesía, actos de habla, fuerza ilocutiva.

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RUNAS VERBU IZPĒTE DIAHRONISKĀ ASPEKTĀ

Svarīgs runas verbu informācijas avots ir valodas diahroniskās izpētes fakti. Lingvistikā runas verbu attīstības vēstures analīzei veltīti vairāki pētījumi, kuros noskaidrota gan runāšanas lauka nozīmīgāko vienību cilme, gan runas verbu grupas semantiskie sakari leksikas sistēmā. Dihroniskie pētījumi rāda, ka valodas attīstības gaitā runas verbi mainījušies un variējušies gan formāli, gan semantiski, gan funkcionāli. Izpētes rezultāti ļauj atklāt apstākļus, kādos notikusi runas verbos apzīmētā jēdziena izveidošanās un attīstība, kā radušās atsevišķas runas verbu nozīmes, kādas ir šo vārdu dažādo nozīmju savstarpējās attiecības. Runas verbu semantikas attīstība liecina, ka darbība vispirms tiek kvalificēta pēc akustiskajām pazīmēm, jo lielai daļai vārdu pamatā ir onomatopētika, kas mūsdienās vairs nav saskatāma.

Arī „Latviešu etimoloģijas vārdnīcas” (1992) materiāls ļauj secināt, ka daudzi runas verbi ir cēlušies no skaņu atdarinājumiem, tuvinot vārdu skanējumu apzīmējamam trokšņu diferencētajam raksturam. Tā, uz tieša skaņu atdarinājuma izveidojušies runas verbi *aicināt*, *blaut*, *brēkt*, *čukstēt*, *kliegt*, *kurnēt*, *murmināt*, *plāpāt* u. c. Verbu izpēte diahroniskā skatījumā atklāj, ka nereti runas verbi radušies kā pavaddarbība kādai fiziskai vai intelektuālai darbībai.

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LITTÉRATURE DE L'ABSURDE EN LETTONIE

La Lettonie a une propre histoire littéraire, artistique et aussi théâtrale. Il est évident que la culture lettone a été fortement influencée par la civilisation allemande à son enfance et russe pendant le XXème siècle. Cependant nous pouvons découvrir une forte influence française dans le domaine théâtral surtout dans la deuxième moitié du XXème siècle. Comme partout dans le monde son rôle ici joue la dramaturgie de l'absurde d'abord à travers les traductions des œuvres françaises plus tard avec la parution des textes lettons de ce genre. Dans le présent article l'auteur analyse les étapes de développement du mouvement absurde en Lettonie.

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PRIEKŠVĀRDU DOŠANAS MOTIVĀCIJA RĒZEKNES NOVADA KAUNATAS PAGASTĀ

Katra cilvēka individualitātes svarīgākā sastāvdaļa ir viņa vārds. Tas tiek piešķirts personai pirmajā dzīves mēnesī un pavada viņu līdz pat nāvei, tāpēc ir svarīgi nekļūdīties, izvēloties īsto vārdu. Priekšvārdu izvēles motivācija var būt daudzveidīga. Vārda piešķirējs var orientēties uz vairākiem faktoriem, izvēloties atbilstošu vārdu. Tā var būt gan vārda labskanība, vārda nozīme, ģimenes tradīcija, aizgūts literāra vai mākslas tēla vārds.

Referāta mērķis ir analizēt Kaunatas pagasta dažāda vecuma un dzimuma personu priekšvārdus, atklājot vārda došanas tendences, motivāciju, novitāti un nosakot populārākos vārdus.

Kaunatas pagasts atrodas Rēzeknes novada dienvidaustrumu daļā. Pagasta kopējā platība ir 170 km². Šobrīd tā teritorijā dzīvo 1252 iedzīvotāju. Rēzeknes novadā iedzīvotāju nacionālo sastāvu veido 59,2% latviešu, 36,5% krievu un 4,3% citu tautību. Tieši etniskā identitāte, piederība savai nācijai, bieži vien ir viens no iemesliem, kas nosaka vārda izvēli.

Materiāla izziņai un apkopošanai tiek izmantoti respondentu aizpildītās anketas, aptaujas, kas iegūti uz mutiska pamata, iedzīvotāju reģistrs, kā arī statistikas dati.

Referāts ataino vārdu izvēles motīvus, palīdz noskaidrot, pēc kādiem kritērijiem vecāki piešķir ērnam vārdu, apkopo svarīgākās vārda došanas tendences un atspoguļo situāciju viena pagasta – Kaunatas – robežās, skatot to arī Latvijas kontekstā.

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TERMINRADES PROCESS

Termins ir vienība, kas izsaka, nosauc, definē noteiktu speciālās nozares jēdzienu. Latviešu terminoloģijas attīstībai ir sena vēsture. Vecākā ir reliģijas terminoloģija, kuras aizsākumi meklējami, sākot ar pirmajiem plašākajiem tekstiem latviešu valodā 16. gadsimtā. Līdz ar pirmajām laicīga satura publikācijām 18. gs. radās arī dažādu nozaru latviskie termini. Vairāku zinātnes nozaru jēdzieni skaidroti 1776. gadā izdotajā Vecā Stendera „Augstas gudrības grāmatā”, kā arī tolaik populārajās padomu grāmatās par lauksaimniecību, par ārstēšanos, par veterināriem u.c. jautājumiem. 18. gs. beigās un 19. gs. sākumā presē parādās raksti par astronomijas, meteoroloģijas, zooloģijas u. c. tēmām. Kā zināms, pirmo darbu autori latviešu valodā bija vācu tautības. Latviešu inteliģence terminu darināšanai pievērsās kopš 19. gs. vidus.

Referātā tiks sniegts vispārējs ieskats latviešu terminoloģijas attīstības vēsturē no pirmssākumiem līdz mūsdienām, īpašu uzmanību pievēršot nozaru „Energētika”, „Elektronika” un „Dzelzceļa transports” terminu attīstībai.

J.Endzelīna elektrotehniskās biedrības terminoloģiskās komisijas sakopojumā 1939. gadā izdotā „Vāciski-latviska elektrotehniskā vārdnīca” ir pirmā tieši elektrotehnikai veltītā terminu vārdnīca, kurā līdztekus vācu terminiem doti arī latviešu termini, kopskaitā aptuveni 5000. Pirms tam neliela daļa – 234 šīs nozares termini – kopā ar citiem terminiem publicēti 1922. gada „Zinātnes terminoloģijas vārdnīcā”. 1939. gada vārdnīcā ievietoto terminu analīze liecina, ka enerģētikas terminoloģijā lielākā daļa terminu modeļu produktīvi vēl mūsdienās.

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ACADEMIC TEAM WORKING WITHIN FRENCH SPEAKING WORLD: OUTLOOK FOR ADVANCEMENT, IMPLEMENTATION AND INTEGRATION

Thinking about, the future of young generations, scientific knowledge, heritage and innovation in the French speaking world, means organizing sustainable strategies. These common policies and prospects have to focus on the advancement of academic training, exchange programs for mobility, academic research, intellectual property and patent. These strategies have to be enough valuable to create sustainable innovation and some concrete opportunities to allow a reliable development of each states members of la Francophonie (French speaking world) and to provide an international added value. For example and as real implementation, how does Francophonie academic program works? Is there any other program or organization with the same aim? May the Daugavpils University be a member of this academic program? What should be the deal or partnership?

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SALĪDZINĀJUMI „KALUPES IZLOKSNES VĀRDNĪCĀ”

Referātā pētīti salīdzinājumi Antoņinas Reķēnas „*Kalupes izloksnes vārdnīcā*”. Salīdzinājums ir apgalvojums par divu reāliju līdzību, piemēram, *skrien kā vējš*. Latviešu dialektoloģijā nav daudz darbu, kuros būtu apkopoti salīdzinājumi. Vispirms minama Maigas Putniņas un Agra Timuškas „*Sinoles izloksnes salīdzinājumu vārdnīca*” (2001). Vārdnīcas zinātniskais redaktors A.Timuška ir izstrādājis skaidru, pārskatāmu šķirkļu izkārtojumu. Lasītājs var viegli uztvert salīdzinājuma konstrukcijas un iepazīt Sinoles iedzīvotāju bagāto valodu. Īpaša nodaļa salīdzinājumiem veltīta A. Kalnieša un V. Rūķes-Draviņas „*Galgauskas izloksnes aprakstā*” (1996) un S. Balodes „*Kalnemju pagasta Kalnmuižas daļas izloksnes aprakstā*” (2000).

„*Kalupes izloksnes vārdnīcā*” (1998) ir ne mazums kalupiešu valodā saklausītu salīdzinājumu. Tie ir saistīti ar lietu, parādību un cilvēku trāpīgu raksturošanas prasmi un apliecina kalupiešu valodas ekspresivitāti, humora izjūtu, tēlainību. Daudzos gadījumos salīdzinājums izsaka arī emocionālu un ekspresīvu vērtējumu.

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RAKSTNIEKS-ILUSTRATORS: VĀRDS UN ZĪMĒJUMS JĀŅA JAUNSUDRABIŅA DAIĻRADĒ

Pētījumā tika analizēts vārds un zīmējums Jāņa Jaunsudrabiņa kā rakstnieka un ilustratora daiļradē.

Pētījuma uzdevumi:

- 1) padziļināti studēt Jāņa Jaunsudrabiņa darbu un ilustrāciju sižetisko un idejisko saturu;
- 2) salīdzināt J. Jaunsudrabiņa izmantoto pieeju un metodi ar citu autoru līdzīgas stilistikas darbiem;
- 3) pētīt šo autoru biogrāfiju saistībā ar teksta papildināšanai izmantoto vizuālo metodi;
- 4) analizēt paralēles J. Jaunsudrabiņa un citu autoru izmantotajā risinājumā izteikt ar vizuālā elementa papildinājumu to, kas tekstā paliek neizteikts.

Tika izmantotas sekojošās metodes:

- 1) literatūras apskats;
- 2) teksta analīze;
- 3) analītiskā metode;
- 4) salīdzināmā metode;
- 5) biogrāfiskā metode.

Pētījuma rezultātus var izmantot salīdzināmās literatūrzinātnes pētījumos par literatūras darbiem, kuros teksts un to papildinošās ilustrācijas spēlē vienlīdz lielu lomu.

J. Jaunsudrabiņa kā rakstnieka-ilustratora darbība tika izanalizēta Eiropas un pasaules rakstnieku-ilustratoru kontekstā.

DOKTORANTU SEKCIJA „LITERATŪRZINĀTNE”

≈

DOCTORAL STUDENTS SECTION „LITERARY STUDIES”

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ESSENTIALISM VS. CONSTRUCTIONISM DEBATE IN FEMINIST THEORIES

The research focuses on the phenomenon of essentialism as opposed to the phenomenon of constructionism applied to feminist theories. Essentialists believe in true essence, which is unchanging and constitutive of a given person or thing. Essentialism emerges within the very discourse of feminism. In feminist theory essentialism articulates itself in a variety of ways and subtends a number of related assumptions. Modern essentialism consists of a belief that certain phenomena are natural, inevitable and biologically determined. Constructionism, on the contrary, insists that essence is itself a historical construction. Constructionists are concerned with the production and organization of differences, and they therefore reject the idea that any essential or natural givens precede the processes of social determination. Essentialists and constructionists are most opposed regarding the issue of the relation between the social and the natural. In general the essentialists presume that the natural is repressed by the social, the constructionists maintain that the natural is produced by the social.

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HIBRĪDFORMAS Ā. ERSA TEKSTOS

Ādolfs Erss latviešu literatūras vēsturē pozicionēts kā tradicionālists, kas novatoras izteiksmes meklējumos izmanto nevis radikālas tekstveides stratēģijas, bet atsevišķas hibrīdformas ar mērķi akcentēt tēla, sižeta vai tematisko ekspresiju. Šāds paņēmiens īpaši aktuāls Ā. Ersa 20. gadsimta 30. gadu tekstos, kas pievēršas dažādu telpas fenomenu un modeļu tēlojumam.

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MODERNITĀTES IEZĪMES ANDREJA UPĪŠA 20. GADSIMTA SĀKUMA PROZAS TEKSTOS

Modernitāte 19.–20. gadsimta mijā latviešu literatūrā izpaužas ar estētisko un sociālo naratīvu starpniecību, fokusējoties uz indivīda iekšējās pasaules norisēm un notikumiem sociāli politiskajā dzīvē, kultūrā un citās jomās, ko nosaka modernitātes kompleksie procesi.

Andreja Upīša novelēs un stāstos modernitātes koncepts reprezentēts ar motīvu par aiziešanu no laukiem uz pilsētu, atteikšanos no piederības dzimtai un mājām. Rakstnieks tēlo zemnieku integrēšanos urbānajā vidē, pievēršas ierēdņa tipāžam un laikmeta personvārdu lietojuma tradīcijai, ataino laikmetīgu priekšmetu un lietu pasauli.

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THE MYTH AND REALITY IN E. KATISHONOK'S NOVELS

Elena Katishonok is a modern writer who creates in Russian. Elena was born in Riga, graduated from philological faculty of the Latvian university. In 1991 she moved to the USA, now she lives in Boston.

Elena Katishonok's works have become known to a wide range of readers in the last few years.

The novels „Once there Lived an Old Man with his Old Woman” (2006), „Counterclockwise” (2009), „When the person leaves” (2011), „Light in the window” (2014) not only have found the readers, but also were noted by the critics, as well as were included into short-lists of prestigious literary awards of Russia.

What does Elena Katishonok write about? About people living in the Ostzeysky region (read: in Latvia) though the writer claims that the City where her heroes live is any city of Baltic States. In Riga there live Latvians, Russians, Jews, Roma, Poles, Germans, Belarusians – and they all consider this city as a homeland.

Starting with the first novel of the writer critics began to speak that, perhaps, it is the first book in the Russian and Latvian literature where the complicated history of social shocks in Latvia is shown through the eyes of the neutral person.

How the author can reach such neutrality? Is it possible to be in a situation „over the events” and at the same time to create the real space of Riga, Latvia of the 20th century?

Eva Kasparenoka

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ATMIŅAS KATEGORIJA M. ZĀLĪTES ROMĀNĀ „PIECI PIRKSTI”

Atmiņas kategorija Latvijas postpadomju literatūrā ir zīmīgs koncepts, kas postkoloniālajā situācijā latviešu autoru vidū ir aktuāls literārās daiļrades paņēmieni. Atmiņa kā koncepts atspoguļo vēsturisko, kultūrantropoloģisko un sociālo kontekstu, ko M. Zālīte plaši izmanto autobiogrāfiskajā romānā „Pieci pirksti”. Caur atmiņas prizmu M. Zālīte ataino aizgājušā laika emocionālo fonu, kas likumsakarīgi apliecina mūsdienu latviešu literatūras tendences – kolektīvās atmiņas, traumas un autobiogrāfiskuma klātesamību, lai paustu attieksmi pret pastāvošo režīmu un pagātnes notikumiem.

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ELEMENTS OF DIFFERENT GENRES IN IAN MCEWAN’S WORKS

Generic hybridization is the process by which two or more genres combine to form a new genre or subgenre; or by which elements of two or more genres are combined in a single work. The term hybrid genre (or cross-genre) refers to a combination of two or more stylistic, themed categories. While elements of one genre might be stronger in the work, the professional follows rules of both genres. Nowadays many writers mix genres to experiment and create something new. The author will focus on several works of British writer Ian McEwan and try to prove that his works can be referred to cross-genre (hybrid genre) literature.

How is it real, as in fact, the author lives in America long enough? The space of Latvia that E. Katishonok writes about is mythological and consciously mythologized.

The author doesn't hide this technique: she consciously uses myths of both the Russian and European culture in her works. She uses them in her own way. That is why the question of correlation between the history and the myth in E. Katishonok's works caused my research interest.

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SIEVIETES PIEREDZES ATSPOGUĻOJUMS STARPKARU PERIODĀ LATVIEŠU VALODĀ TULKOTAJOS BRĪTU, VĀCU UN KRIEVU RAKSTNIEČU ROMĀNOS

Referāta mērķis ir pētīt sievietes pieredzes atspoguļojumu 20. gs. 20.–40. gados latviešu valodā tulkotajos britu, vācu un krievu rakstnieču romānos, kuru centrā ir sieviete, mīlestības jūtu veidošanās un viņas attiecības ar vīrieti. Tiks apskatīti E. Glina, E. Dēllas, O. Vedslījas, O. Bebutovas, V. Križanovskas, A. Bergas un H. Kurts-Mālere romānos aprakstītā sieviešu pieredze, salīdzinot to ar sievietes pieredzes atspoguļojumu latviešu rakstnieču, piemēram, A. Niedras šī laika perioda romānos. Analizējot romānus, kuru autore ir sieviete, var secināt, ka darbos aprakstītajos notikumos un tēlu attiecībās vienlaikus atspoguļojas sievietes loma sabiedrībā romāna tapšanas laikā un vienlaikus autores pauž uzskatus par nepieciešamajām izmaiņām sabiedrības uzskatos attiecībā uz sievietes lomu sabiedrībā. Lai gan 20. gs. sākumā literatūrā dominē modernisma virziens, starpkaru periodā publicētajos rakstnieču darbos, kuru centrā ir attiecību veidošana starp vīrieti un sievieti, var saskatīt arī romantisma un sentimentālisma, kā arī gotisko romānu iezīmes. Referātā tiks salīdzināts sievietes pieredzes atspoguļojums dažādu valstu rakstnieču darbos un izdarīti secinājumi par kopīgajām un atšķirīgajām iezīmēm britu, vācu, krievu un latviešu rakstnieču starpkaru perioda romānos.

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МИЛОСЕРДИЕ – ГЛАВНАЯ ПАРАДИГМА В ПОВЕСТИ ВЛАДИМИРА МАКАНИНА «ЗА ЧЕРТОЙ МИЛОСЕРДИЯ»

В докладе будет рассмотрена одна из главных парадигм повести В. Маканина «За чертой милосердия» (1999) – милосердие. Это одно из малоизученных произведений Маканина, за 17 лет с момента написания повесть в целом не была осмыслена и серьёзно проанализирована. Между тем, проблема милосердия, как никогда, актуальна в современном мире. Владимир Маканин, вступая в диалог с Аркадием и Георгием Вайнерами (роман «Эра милосердия» 1975), строит страшную антиутопию. Писатель создаёт двусферичную картину мира, в основе которой противопоставление видимости и сущности происходящего. Протагонист повести проделывает долгий путь от прекраснотушных иллюзорных представлений к осознанию безотрадной реальности. Категория милосердия рассматривается как составляющая и мира иллюзий, и мира реальности. В финале повести возникает третья сфера – виртуальная реальность, населённая симулякрами. Как результат всех этих сложных процессов о себе заявляет проблема разорванного сознания. В докладе предполагается рассмотреть возможные пути соединения расколотого внешнего и внутреннего миров человека.

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ОСОБЕННОСТИ ХУДОЖЕСТВЕННОГО ВРЕМЕНИ В ДРАМАТУРГИИ Ф. ГОРЕНШТЕЙНА

Время, как чрезвычайно важная литературоведческая категория, имеет большое значение в анализе и рассмотрении драматургии Ф. Горенштейна. В настоящем докладе предпринимается попытка рассмотреть особенности художественного времени на основе драматических текстов – „Волемир“ (1964) „Споры о Достоевском“ (1973), „Бердичев“ (1975), „Детоубийца“ (1985).

Художественное время и пространство в драме „Волемир“ разделены автором на две единицы, равно как и два действия драмы. Главные герои проживают свои жизни под срезом настоящего и прошлого времени. В драме „Споры о Достоевском“ также особо отмечен пространственно-временной континуум текста, в рамках которого прослеживается концепт скандала. Лента времени в драме „Бердичев“ протянута на 30 лет. Действие драмы начинается в 1945, а заканчивается в середине 70-х. В свою очередь, более поздний по написанию текст – драма „Волемир“ посвящена особенностям петровских времен, столкновению между отцом и сыном, национальным и имперским.

MĀKSLA LATVIJĀ: TRADICIONĀLAIS UN LAIKMETĪGAIS ≈ ART IN LATVIA: TRADITIONAL AND MODERN

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LITHOGRAPHY. COLORED AND BLACK & WHITE TRANSFER PRINTS BY GRAPHIC ARTISTS

Key words: Lithography, Artist-Graphs black and white and colored prints / print marking / manufacturing
Lithographic reports on the development and research of Latvian. On the basis of the Latvian Art Foundation and Decorative Arts combine Eksperimentālās Estampa workshop activities and their practical lithography technique. Researching and analyzing made and budding prints / prints, reprints / creative works of art.

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RING BROOCHES WITH INSCRIPTION „AVE MARIA” IN LIVONIA FROM 14TH-15TH CENTURY

This article is based on ring brooches with inscriptions in Livonia (present-day Latvia and Estonia) from 14th and 15th century. These ring brooches on the basis of their inscription can be classified into five main groups:

1. Ring brooches with inscription “AVE MARIA”;
2. Ring brooches with inscription “HELP MARIA”;
3. Ring brooches with inscription letter “S”;
4. Ring brooches with inscription letter “m”;
5. Ring brooches with various inscriptions (combination of several letters, that can be a formula of an abridgment of a prayer or a just a row of random letters).

This paper will be dedicate to the largest and the most diverse group – ring brooches with common inscription “AVE MARIA”. The prayer represented Angel Gabriel’s greeting to Virgin Mary. These kind of ring brooches are a typical example of 14th–15th century design and medieval symbolic value. It was a common practise in Medieval period to inscribe prayers or phrases out of prayers in the accessories of the outfit – rings, belts, buckles, brooches. This is in accordance with the typical medieval syncretism – a coexistence of Christian theology, Christian magic and superstition. Livonian ring brooches with inscriptions might indicate that Livonia had traditions and notions similar to those of Western Europe at the same time. This article will characterize “AVE MARIA” ring brooches, their purpose, beliefs, superstitions, and symbolic meaning of the inscription.

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ABSTRACTIONISM IN LATVIAN

Abstractionism is an art direction that appeared in the early 20th century, as a challenge to the existing art. Abstract art without objective perspective of real, forms of subject replaced with abstract elements. It is a creative activity in art, where the main meaning of expression is pitches colour, lines and volumes. Abstract art is the artist's inner world view. While the rest of Europe abstractionism gained popularity Latvian artists originally bound to the mentality of the foreign abstractionism. It was influenced not only by political developments, but also the artists during the war followed the art market commercialisation. Only in the end of 50's Latvian artists began to realize decoratively meaning of expression and the role of the works appeared abstraction zoomed expression that resulted from the real motive pictorial generalization. In the 80's increased formal expression of self-respect and abstractionism won praise in Latvia. The study describes the history of Latvian abstractionism and the most outstanding representatives of abstractionism.

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THE REPRESENTATION OF ANNUAL LATVIAN TRADITIONS IN FOLKLORE AND ART

The aim of the study is to find out (using the history of art and folklore research methods) the most important folk motives (mainly in folk songs and beliefs) that artists in Latvia used to display traditional Latvian cultural heritage – annual traditions associated with cycles of sun and nature and farmer festivities. Easel-painting, monumental painting and applied art works, originating from the 20th and 21st century, have been selected for the research according to the chosen theme. The artists in the context of different ideological and stylistic guidelines have put in a relevant content and form in their works. The study includes works of J. Kuga, A. Cīrulis, H. Vīka, N. Kūlainis, Dž. Skulme, L. Kokle, E. Iltneris, E. Rozenbergs, A. Baumann and others.

It can be concluded that the most popular motive in art is the summer solstice – Midsummer Day (*Jāņi*) – and their corresponding rituals that symbolizes belonging to a particular nation and the awareness of historical roots.

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TABLEWARE DESIGN AS A METHOD FOR SOLVING OBESITY PROBLEMS

Introduction: Along with the rapid increase in obesity worldwide, there have evolved different methods in quest to solve this problem. One possible solution today offers design as a set of techniques based on scientific research. Design-making process involves the search for information on the collection and evaluation of a targeted tableware design influences on eating habits and the possibilities for reducing excess weight. **Aim:** Research other designer tableware design examples, make a collection and perform analysis of possible design techniques, which could help in solving obesity problem. **Methods:** Theoretical literature and previous research analysis; elaboration of criteria for case analysis; cases (tableware design example) selection of databases; qualitative analysis of cases, based on the developed criteria. **Conclusions:** By studying and analyzing tableware design examples the theoretical and scientific basis for new tableware design development is established.

Ilmārs Dirveiks

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THE HISTORICAL EVOLUTION OF DOMESTIC LIGHTNING IN LATVIA

The history of domestic lighting has been governed by economics, but also by traditional lifestyle. At the beginning the only light in a dwelling was the flames of fire. From medieval times when natural light was not enough, oil lamps and tallow or wax candles were burnt. In candlelight, which to us seems like twilight, many brilliant works of art were created. For centuries, candle and splinter's flame was the poor man's light-source. Only the rich could afford a profusion of beeswax candles.

Early lighting fuels consisted of olive oil and similar substances. In 1859, drilling for petroleum oil began and the kerosene lamp grew popular, first introduced in 1853. Before electricity came along the gas lighting became sufficiently widespread and economical to allow for general public to be used, gas was the most popular method of outdoor and indoor lighting in cities and suburbs.

One of the biggest changes in domestic life ever must have been the moment when electric lights came on in the late nineteenth century. Candles were made from animal fat, ideally sheep or cow. Apart from the unpleasant smell, the great drawback to tallow candles was the need to snuff. Their wicks had to be trimmed every few minutes or they smoked. Beside the artificial sources of light, architectural game happens also with sunlight.

Light in a room is both a technological need and a creator of sense. Interiors lit by candle-light were designed to magnify the limited light available. The wall candlesticks (bra) hung with mirrors. The Hall of Mirrors at Versailles was the first room in history to be illuminated to something approaching the light-levels we'd find safe and pleasant today. The mirror glass reflected candle-light from grand candelabrams particularly effectively.

The light, bright colours of classicism interiors would be replaced by rich, dark hues in the 19th Century historicism age. Deeper tones helped hide the soot produced by oil lamps, which began to replace candles in the later eighteenth century. For example the aspidistra, a hugely popular plant in the 19th century, what we are seeing in many historical photos of the interiors of manor houses in Latvia, became so because it survived well in oxygen-starved conditions. The arrival of electricity in the 1880s caused a stir. It was immensely expensive and therefore at the beginning available only for few. Nowadays it is hard to think about life without electricity, but the widespread adoption of electricity was delayed for many years until the First World War.

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INFORMATION BROWSING AND DESIGN OF WEB PAGE NAVIGATION

What should be considered, when one is creating a design of web page navigation? How the user perceives the web page? Does "F-Shaped Pattern For Reading Web Content" [1] are used most often for web page navigation or "every page is viewed differently and every user looks at pages differently" [2]?

Since creation of the first web pages in 1994, observations of how the navigation should look like have been continuously changing, even returning to the initial observations. The assumption that the user should reach the information he is interested in as less click as possible, is an example of the statement mentioned above. The result of the assumption can be noticed in those web pages that consists of navigation, which is fully bodied of hyper-sites. Despite the fact that the functionality dominates over the visual aesthetics, there are several advantages of the tendency. The visitor of the landing page could roughly understand the topic of the web page. The tendency of design of web pages created within the last years is full-page navigation too. That is highly important for web page browsing on mobile devices, which become more and more dominating, so that the navigation is larger and more attractive to the user.

Some web pages with some information and hence with their navigation design are specially originates. The content as well as the navigation of those web pages are structured by using numbers, colours and forms. Despite the designers' wish to highlight exactly how the information is presented, the approach "content's first" is becoming more actual. Opposite to visually active and attractive navigation examples, there are examples that supports one of *Dieter Rams: ten principles for good design – Good design is as little design as possible*.

[1] <https://www.nngroup.com/articles/f-shaped-pattern-reading-web-content/> (visited on 2016.01.29)

[2] <http://miratech.com/blog/eye-tracking-comment-les-pages-web-sont-regardees.html> (visited on 2016.01.29)

[3] <https://www.vitsoe.com/gb/about/good-design> (visited on 2016.01.29)

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EVIDENCE-BASED DESIGN IN HEALTHCARE PREMISES: FROM THEORY TO PRACTICE

Introduction: Nowadays, to find solutions for design-related problems in healthcare facilities, strong cooperation between different sub-fields of science and art, e.g. design, medicine, sociology, anthropology, psychology is necessary. Many experts have been involved in interdisciplinary exchange of ideas to encourage development of innovative design ideas and to improve existing design solutions according to current research results and theoretical ideas. Research studies on how design of healthcare premises impacts safety, wellbeing, healthcare quality of patients and healthcare staff is one of the examples of successful interdisciplinary cooperation. Researchers working in the evidence-based framework aim at developing criteria for evidence-based design (EBD) that architects and interior designers would be obliged to observe when designing health-care premises.

Aim: The aim of the publication is to demonstrate how the EBD theory can be applied in designing and refurbishing healthcare facilities in Latvia by implementing the EBD criterion of conducting a survey and drawing evidence from patients and the staff on how they the role of the environment impacts their safety, wellbeing and the quality of healthcare as well as how the respondents characterise the environment of the given healthcare institution as such.

Method: The methods of the present study involve a critical and systematic review of relevant research literature from the Google Scholar and Science Direct data bases as well as assessment of the environment in the healthcare centre X through direct observation and surveying the staff and patients and drawing evidence on their perceptions of the environment in the given premises.

Results: Based on the analysis of research articles, the criteria to support the validity of the EBD approach were distinguished, in particular those variables that impact the healing process. A questionnaire employing the selected EBD criteria was developed to draw evidence from the staff and patients. The results of the survey and direct observation were used to assess how the environment of the given health care institution impacts security, wellbeing and healthcare quality.

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ASPECTS OF PUBLIC TRANSPORT MAP DESIGN

The main aim of a public transport map is to help passengers – especially those unfamiliar with the transportation network – to take the needed routes to move between two points; this may include having to change transport or direction on the necessary place. The map includes symbols to show the ways, directions, stations and transfer points, as well as a system of geographic identification. In addition to their functional role transport map has linked attention as graphic design artifacts. Both domains – public transport map and graphic design – are used practically in the same techniques

and their main goal is to communicate effectively in the useful way. The main purpose of research is to get acquainted with transport map history and development periods, and recognize the main components of the map.

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HISTORY OF 'PAPIER-MÂCHÉ' TECHNOLOGY AND ITS APPLICATION IN MODERN TEXTILES

Key words: *'Papier-mâché', paper, textile art, art dolls*

The art of making decorative objects from paper pulp is called Papier-mâché, 'papier mâché' (Fr.) means „hardened, 'chewed' paper". Paper was invented in China in the 2nd century BC, and at about the same time it began to be used not only for writing. The material was very expensive, and Papier-mâché was a way to give the paper a 'second life', to reuse the expensive material. Thus, in spite of the French title, the birthplace of papier-mâché is considered to be China.

History and distribution of this technique is very rich. From China, the interest in Papier-mâché spread to Japan and Persia, where it was used in mask making and festival activities. Eventually it spread across the world. Large imports of Papier-mâché objects, such as boxes, unique caskets, vases, jewellery, theatre props, art dolls and collectible toys has swamped European markets. Even interior elements: architectural mouldings for walls and ceilings, decorative panels for walls, doors, mirror frames, candleholders, various furniture and original fixtures are produced from the material. Nowadays products in papier-mâché ceased to be a result of the manufacturing operation, and turned into a unique authoring handmade technique. The attractiveness of papier-mâché for a modern audience is based in the use of the natural materials, as well as in the preservation and use of classical art traditions and techniques of past centuries. Aim of the research is exploring Papier-mâché history and technology, emphasising the use of techniques of contemporary textile art works.

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LATVIA'S NEXT-GEN GRAPHIC ARTISTS

Key words: *graphic, graphic's techniques, Latvia's modern art, graphic artists*

Conception of graphic art, is widely increased in nowadays, because of persistent acquire of new ideas and art practices, which is key feature of modern art. As a result, variety of graphic art grew heavily – constantly acquiring new aspects and experimenting with new materials, but also not forgetting about classic techniques of graphic art. That is why Latvia's contemporary art is rich with outstanding graphics artists, which is masters of their profession. But time goes and everything sees it's end, and on Latvia's art horizon start to appear new faces and new talents of Latvia's graphics art. Which already had their opportunity to demonstrate highest level of their mastery and creativity, not only in Latvia, but also on international level.

Living in a rhythm of modern fast-paced technology and innovation era, Latvia's graphic artists, still say "Yes!", to classic techniques of graphic art – linocutting, lithography and drypointing. However, they are open-minded persons and like to experiment with new techniques (for example – digiprint), or if it is suitable for their idea – combine them, to reach their goal.

Aim of this paper is to get acquainted with Latvia's next-gen graphic artists, their ideas and views, as well with results of their creative, acquiring brief review of Latvia's graphic trends in general. As a result reader will become familiar not only with Latvia's domestic artists and their creativity, but also will get general review of the current trends in the world of graphic art, which is not only classic, but also very innovative, in the terms of new materials and techniques.

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ART IN LATVIAN RURAL CULTURAL LANDSCAPE: THE COMMUNICATION ASPECTS

Key words: *Latvian rural cultural landscape, art, communication, creative workshops, environmental design, art master classes*

Art in any of its forms of expression can be a strong cultural, educational and economic development element. As Latvian rural cultural environment is characterized by its high historic, cultural and landscape potential, works of art synthesized in this environment not only shape its contemporary aesthetic and individual but also emphasizes the message of the traditional cultural values, representing it to the public and promotes sustainable local cultural development in globalized era.

Artistic types of communication in the context of Latvian rural cultural landscape promotion are very diverse: easel art, environmental and land art/ design works, conceptual, creative and educational projects (plein-air, workshops, art master classes, promotions, etc.).

The aim of the research is to identify the types of art and their communication aspects to promote the development of Latvian rural cultural landscape in Selonia.

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FOTO KOLĀŽA KĀ LAIKMETĪGAS MĀKSLAS VEIDS

Fotomontāža jeb foto kolāža ir mākslas žanrs, kurš apvieno mākslinieka un fotogrāfa radošumu vienā mākslas darbā. Mūsdienās foto kolāža ir ļoti aktuāla ar savu daudzveidīgo uzbūvi, kas ietver sevī dažādu objektu un stilu kopumu. Tā vienā attēlā veidojas mākslinieka personāla pasaules uztvere. Attīstoties tehnoloģijām, foto kolāžas žanrs kļūst tehniski bagātāks un uztverei interesantāks. Lielu lomu tas iegūst sirreālo darbu veidotājiem. Pētījuma mērķis – aplūkot foto kolāžas žanra attīstību laikmetīgajā mākslā, ka arī izcelt spilgtākos žanra pārstāvjus.

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ACCENTS OF ART NOUVEAU STYLE IN 20TH AND 21ST CENTURY ART

The goal of the study is to explore Art Nouveau style influence on modern artists of design, painting and architecture in 21st century.

Art Nouveau appeared in Europe at the end of 19th century. Artists were craving to find a new style, which would allow to bond the world of art and society together, will be widely open for the public and not linked to the past. They created a style with elements of ornament and stylisation. This style was broadly used in the art of decoration. Architects wishing to create well balanced ensemble were also interested in the interior design taking into consideration every little detail in the process. This way architects were particularly responsible for developing the new style in painting. For example, Henry van de Velde used this style to design his mansion in Brussels. At that time the majority of architects were also acting as designers for their own houses. Brussels was Art Nouveau's place of origin and the following artists played a large role in developing the style: Paul Hankar (1859–1910), Frantz Jourdain (1847–1937) and Hector Guimard (1868–1943) were developing the style in France. Remarkable contribution in developing the style was made by such artists as Alfons Mucha (1869–

1939), Rene Lalique (1860–1945), Gustav Klimt (1890–1910), Viktor Vasnetsov (1848–1926), Mikhail Vrubel (1878–1927), Boris Kustodiev (1878–1927) and others.

At the moment Art Nouveau is starting to lose its positions as the new styles are gradually replacing it. Despite this fact we are observing the elements of Art Nouveau in modern artists and designer works. For example, many people call modern artist Evgeniy Titov as 'Russian Klimt'. Many famous designers all over the world use elements of Art Nouveau in their collections, e.g. Pierre Cardin, Christian Lacroix, Alexander McQueen, Anna Sui and others.

The trend in building and interior design using Art Nouveau has gained its recent popularity worldwide. Riga is still counted as the capital of Art Nouveau. The following building and facade designers used to work in Riga: A. Ashenkampf, K. Pekshen, M. Eisenstein.

Art Nouveau is widely presented in painting by the works of the following artists: J. Rozentāls, V. Purvītis, J. Valters, and others. Notable fact is that particularly during this time first creations of the following Latvian sculptors appear: R. Rimshi, T. Zalkalns, B. Dzenis. Exactly during these years first Latvian artists appear and the Latvian art begins to emerge.

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HIGH-RISE BUILDING: FUNCTION, CONSTRUCTION, VISUAL IMAGE

Nowadays building achievements are characterized by engineering-technically complex buildings. Construction of tower buildings was already familiar during the antiquity and also in the territory of Latvia, where towers on the Baltic tribes' hillforts guarded fortified wooden construction complexes. German knights started to build freestanding stone tower-castles in the conquered lands which were gradually included in the fortress building. The medieval city was surrounded by a defensive wall with guard towers and gate towers, but the freestanding bell towers were landmarks in the fortified city building and gradually became significant components of public and sacral construction volume. The medieval city obtained a silhouette rich in towers, thus confirming its majesty.

Development of industry and transport in the 19th century promoted appearance of new products – building materials, lifts and lifting equipment for heavy cargos. Due to the development of reinforced concrete, steel constructions and pumping technologies, the construction of skyscrapers was started in the global and European richest urban business centres. In the 20th century high-rise buildings also appeared in the Soviet Union and Latvia. In the modern world due to the urbanization and population increase, high-rise buildings provide different functions, replacing low-rise buildings on an extensive area. High-rise buildings have become functionally, constructively and visually diverse.

Previous researches: construction of high-rise buildings in Latvia has not been studied sufficiently; mostly a few high-rise buildings of Soviet times in Riga have been analysed.

Topicality of the theme: benefits and deficiencies of high-rise building in Latvia.

Goal of the research: to analyse the impact of high-rise buildings on urban planning in Latvia, high-rise building and cities' visual image, as well as the functional diversity and capacity of high-rise buildings.

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THE DEVELOPMENT OF FINE MOTOR SKILLS IN ART CLASSES

Key words: *preschool students, fine motor skills, art classes, methodological tasks for fine motor skills development.*

Nowadays, the development of technology has enabled people no longer to do various things manually. On the one hand, it significantly makes everyday life easier, but on the other hand, many children fall behind in their development because of this.

Approximately 40 years ago, hands were universal tool for work. From early childhood young people could knit, crochet, wash clothes and do other works with their hands. Today the machinery is used instead. Therefore, it causes problems in the coordination of movements and fine motor skills development; unfortunately, some children have difficulties holding a pencil. The level of fine motor skills development is an indicator of children's psychological development and many scientists have noted it in their research.

The purpose of preschool art class is to prepare children for school. Children consider this subject to be one of their favourite subjects. If the art classes are regular, they promote fine motor skills development of preschoolers, which in turn not only contributes to the aesthetic upbringing, but also improves the brain activity responsible for both speaking and writing.

The aim of the research: to examine fine motor skills development of preschoolers and to work out methodological tasks for children fine motor skills development in art classes.

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MIXED MEDIA KĀ LAIKMETĪGĀS MĀKSLAS KVINTESENCE

Kā viena no galvenajām iezīmēm, kas raksturo laikmetīgo mākslu, ir dinamiska materiālu, metožu un koncepta kombinācija, kas pārkāpj mākslas tradicionālās robežas un ignorē tās vienkāršu definējumu. Par vienu no izplatītākajām tehnikām šajā mākslas virzienā kļūst mixed media (jauktās tehnikas), kuru izpildījums atspoguļo laikmetīgās mākslas īpašības. Lai gan tehnikas izpildījuma īpatnības ir tikpat senas, cik pati māksla, jēdziens mixed media ir samērā jauns. Mixed media ir tehnika, ko izmanto mākslas darbu radīšanai, pielietojot vairāk nekā vienu materiālu, mēdiju. Mūsdienās tā tiek izmantota visdažādāko mākslas darbu izpildei. Kā pašus populārākos mākslas virzienus var minēt glezniecību, grafiku, tēlniecību, fotogrāfiju un kinematogrāfiju. Pētījuma mērķis ir noskaidrot mixed media tehnikas attīstības gaitu, īpatnības un iespējamo izpausmes daudzveidību.

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SHADOW ROLE IN PHOTOGRAPHY

Keywords: *photography, light, shadows*

The aim of research: explore the scientific literature and internet resources about shadow role in photography.

Usually, looking at different kind of photography, firstly, pay attention to the object or group of objects placement, lighting type (artificial or natural) and to other things. However, the main means of expression feature, photography's composition formation, is light and shadow.

Where is light, there shadows will also be. That's why photographer main task – understanding how properly connect the light and shadows in photos, according with the artistic idea.

Light in photography fulfil technical, expression and composition functions. That give photography form, volume and structure. However, this would not have been possible without shadows. Shadows as the light is powerful way to create incredibly beautiful and emotionally powerful photographs. They can disturb the composition, but also can become the main object in shot.

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THE SYMBIOSIS OF VISUAL ARTS AND POETRY IN THE CREATIVE WORK OF VOLDEMĀRS AVENS

The report is based on V. Avens' collection of poems „Avena dzejoļi” (Mansards, 2011) which is considered to be a comprehensive collection of poems republished in Latvia including the original illustrations created by the author himself.

Literary critics have repeatedly pointed out V. Avens' unique creative character as a visual artist and poet; namely, visual images pervade his poetry. The aim of the paper is to demonstrate the presence and mutual connection of V. Avens' skills as an artist, poet and architect in his poetry.

In order to achieve the aim of the research topic, the following tasks are put forward: to study the poetry of V. Avens from the point of its composition (illustrations and text in collections “Avis” and „Piezvanišu parī”); to explore the poetic form – the so-called terraced lines and figurative poetry; to explore V. Avens' poetic motifs related to artist's world; to investigate the techniques of poetic visualization; to compare V. Avens' world of colours in paintings and poetry.

The study is carried out with the help of biographical method, comparative method, philological method and semiotic approach. By working with these methods, the aim of the paper was achieved – the synthesis of poetry and visual art in V. Avens' poetry was proved.

MŪZIKAS ZINĀTNE: PĒTĪJUMI UN PIEREDZE

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SCIENCE OF MUSIC: RESEARCHES AND EXPERIENCE

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KOMPONISTA MARVINA KAMAČO KLAVIERMŪZIKAS ĪPATNĪBAS

Marvins Kamačo Villegas /*Marvin Camacho Villegas*/ ir mūsdienu kostarikāņu komponists (dzimis 1966. gadā Barvā, Kostarikā). Savas mūzikas studijas sāka 1976. gadā Kastellas konservatorijā pie komponistiem Rodžera Vesbi /*Roger Wesby*/ un Mario Alfavela /*Mario Alfaguel*/. Mācības turpinājis Kostarikas Mūzikas Universitātē 1985. gadā pie komponistiem Luisa Diego Herrasa /*Luis Diego Herra*/, Bernala Floresa /*Bernal Flores*/ un Bendžamina Gutierrezā /*Benjamin Gutierrez*/ ka arī apguvis klavierspēli pie Pilaras Agilaras /*Pilar Aguilar*/. Pašlaik Marvins Kamačo ir Kostarikas Universitātes profesors un Ibēru-Amerikāņu Muzikālas Sadarbības Asociācijas prezidents /*Ibero-American Association of Music Cooperation (ACIMUS)*/

Marvins Kamačo savā daiļradē pievēršas dažādiem žanriem (simfoniskā mūzika, kamermūzika dažādiem sastāviem), starp kuriem klaviermūzika ieņem nozīmīgo vietu. Klavierēm uzrakstījis tādas

skanĉdarbus ka: *Night and Coven* (2012), *Sonata of Purgatory* (2011), *Seven Haiku for piano* (2010), *Sonata Dal Inferno*, *Quixotic* (2009), *Soliloquy N°1* (2008) un citus.

Par vairākiem skanĉdarbiem komponists ieguva apbalvojumus, piemēram ACAM /CostaRican Association of Authors and Composers/ balvu 2010. gadā par *Sonata Dal Inferno*.

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ROMANTICISM STYLE SPECIFICS IN J. ROSSINI'S OEUVRE

The development of Europe's music in 19th century got the true scale of the flow-up in the history, never experienced before. Significant changes had been taking place in musical life, as the performing art increasingly segregated from composers' oeuvre. The important factors of cultural life became opera theatres activities.

Romanticism was widely represented in German and Austrian music – originally in the oeuvre of such composers as Franz Schubert and Carl Maria Weber, later in the oeuvre of Felix Mendelszonn-Bartoldi and Robert Schuman. In Italy, the tendencies of romanticism had been reflected by Joachino Rossini, Vincenzo Bellini, Giuseppe Verdi, in their early operas and by Niccolò Paganini music.

Joachino Antonio Rossini (1792–1868) – one of the most exceptional Italian composers in the genre of light opera. J. Rossini had written 39 operas, sacred music, chamber music, songs. His most significant works are: *The Barber of Seville*, romantic epic-opera *William Tell*, *The Italian Girl in Algiers*, *Tancredi*, monumental epic-operas *Moses and Maometto II*. Though even Rossini is considered to be a superior opera composer, he has also other bright works in the field of vocal chamber music, as the collection of romances *The sins of my seniority*, and choir sacred music as *Stabat Mater*, *Little Solemn Mass* and other.

J. Rossini's main new music features are the growth of the importance of the accompaniment, text adaptation to the music and vocal virtuosity, dedication to the musical intension.

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VERISTIC OPERA IN PIETRO MASCAGNI'S CREATION

Key words: *style, verism, veristic Pietro Mascagni opera*

Italian culture after the establishment of an independent state in 1870 from close to realism art direction – verism (from it. vero – real, true), seeks to discover the lives of ordinary people without romance embellish, – delves into the details of home, naturalistically accurately reveals the biggest tragedies of ordinary people. The first veristic opera success associated Pietro Mascagni and Ruggiero Leoncavallo's work, but bright sequel gets Giacomo Puccini's works.

Pietro Mascagni (1863–1945) is the Italian composer, his one act opera *Rustic Chevalry (Cavalleria rusticana)* is considered to be the first Italian verismo opera. From its successful premiere in Rome, 1890 it is kept in the repertoire of the most popular world theaters up till now. Although, Mascagni had written 15 operas, particularly the *Rustic Chevalry* opera has brought the author to the worldwide fame. Mascagni's musical language is special with its melodics, outstanding lirism and folk character.

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THE CHARACTERIZATION OF FEATURES OF GEORGE BIZET'S CREATIVE WORK AND STYLE

Key words: *George Bizet, creative work, style, genre*

George Bizet is the most outstanding French composer of the second half of the 19th century and has written prominent works of different genre. He has created a realistic musical drama. The composer focused also on French musical theatre by producing the operatic masterpiece "Carmen" and wonderful music to Alphonse Daudet's play "L' Arlesienne". The creation of the best composer's works coincide with great events in the life of France. Among the diversity of genres used by Bizet, opera occupies the central place, and it found the way to the manifestation of realism in French culture.

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CHARACTERISTIC FEATURES OF EDVARD GRIEG'S PIANO MUSIC STYLE

Edvard Grieg (*Edvard Grieg*) (15 June 1843 – 4 September 1907) was a Norwegian composer and pianist, one of the representatives of national romanticism. Grieg is the first composer of Norwegian classical music, who brought the culture of Norwegian music forward, alongside the leading European national schools. Grieg paid special attention to the piano music and songs. Those pieces of music included the motives and rhythms of halling (*halling*) and springdance (*springtanz*) which are the characteristic features of Norwegian national music, special tune and some models and characteristics from other music cultures. Also the composer showed his interest to the sounds of nature and national rhythms. Each composer has his own style which is characterized by methods of sounds, special kind of pedalization, form of pieces of music, harmonic speech, dynamic gradations, articulation and another music expression. Each composer has his musical handwriting and expression. In this way the characteristic features of Edvard Grieg's piano music style are a valuable object of research.

DATORZINĀTNES TEHNOLOĢIJAS UN PROGRAMMĒŠANA

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COMPUTER SCIENCE TECHNOLOGIES AND PROGRAMMING

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KLASISKAS ANIMĀCIJAS PRINCIPI MŪSDIENU IZKLAIDES INDUSTRIJĀ

Object motion drawing it is just a reproduction of reality, but movement and action displayment in the animation is has enough differences from the real life. If the artist puts the object in a particular situation, it should draw the appropriate action. Each scene must inform the audience some information about an object. It is required to provide information about object motivations, feelings, skills (or their absence) and his personality. It is required to display this everything, because an explaining dialogue may be missing. Determination of animation, its types and technologies, will be given in presentation. Basic principles of classic animation and observance of basic physics laws objects will be reviewed. Despite the fact that, originally, these principles were intended for traditional animation (paper and pencil), they are actual for the modern computer animation. These principles and laws will be explained using computer capabilities of realization, on the geometric shapes drawing example and using the Corel Draw editor. The concept of timing and spacing will be described. If the movement takes too much time, the audience may lose interest in it, and conversely if it is too small, the viewer cannot see it or do not understand. Therefore, the importance of calculating the rate of the action will be demonstrated. There will also be reviewed particularly animation effects such as fire, smoke, water, rain, snow, and others.

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WEBSITE DEVELOPMENT USING CakePHP FRAMEWORK

The main idea of this research work is to compare different development frameworks. The author is trying to understand, which, of most popular frameworks, are most useful and time saving to work with. Author bring in the main idea of frameworks, being easy to use and time saving for developer. All developers know that frameworks are useful nowadays and they can't image their life us developers without them. In this research work authors bring in compare of frameworks like Yii, Cakephp, Zend, Angular and others. Author by compare is trying to choose which one is more useful to develop on, to develop it's own website using framework. So basically work contains compare of different frameworks and small introduction to authors website.

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STUDENT COUNCIL WEBSITE INTERFACE USABILITY AND PRODUCTIVITY INCREASING

Users don't read Web pages, they scan it. What appears at the top of the page will always influence the user experience – regardless of screen size. Screen sizes are constantly shifting and designs can respond to these sizes, rather than fit to a constant size. So when clients, designers or developers talk about content “above the fold” – a term borrowed from print-newspaper terminology and used as a way to reference what is visible on the webpage without scrolling. From a technical standpoint, the fold for the most common device sizes can be determined by looking at web traffic and at device and browser statistics. A responsive design may have 2, 3, 4, or more different folds, specific to the devices and screen sizes that the design was optimized for. Each target device has its own fold to consider. My goal is to analyze them and make user-friendly web-page for lighter and faster work.

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AMATNIEKU PRODUKCIJAS INTERNET VIETNES IZVEIDE

This research examines the steps of creating a web site by the use of free php framework “*Symfony*”. As a result of comparative analysis of technologies, the pros and cons of using technology “*Symfony*” are demonstrated. Some “*Symfony*” plugins, such as Twig and Doctrine, are illustrated and described. This research introduces template Twig, which is developed by *Symfony* developers. Twig is considered to be quite reliable and flexible template to use. Twig characteristics compared to other templates are analyzed. The ORM library – Doctrine, which is used for work with database is introduced. The final product will provide an opportunity to businessmen / artisans to express themselves on the web. Artisans will be able to transfer all documents about production and sales on the web site and monitor the sales of each product. Also the final product allows users to find news about venture, to overlook and order production.

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E-LEARNING IN PEDAGOGICAL PRACTICES

This article presents the new opportunities which are applied in e-learning and pedagogical practices. Considering the attitude of students and regular part-time training on the use of e-learning in higher school. In this pivotal research there are covered a group of students using original methodological platform for creating plan synopses of lessons in mathematics, informatics and information technologies used during the student s practices. There are d escribed some of the possibilities of the electronic system caused by the need of teachers, students and academics. There are highlighted some recommendations for the structure and content of training in pedagogical preparation of students – trainees according to the covered group. There is p roposed an example of a lesson.

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FUZZY MULTIPLE CRITERIA DECISION MAKING APPROACH IN RISK ASSESSMENT

Risk assessment is an important task in many areas of human activity: economic, technical, ecological, etc. In case of a sufficient amount of source information the risk is evaluated using statistical methods. But in many cases, risk assessment must be carried out under the conditions of lack of initial information or uncertainty of information. For that reason special risks' assessing approaches (methods) are necessary. One of them is fuzzy multiple criteria decision making approach. Ecological risk assessment towards human health in case of gaseous substances escape at a chemical factory using hierarchical method and fuzzy multiple criteria decision making approach has been analyzed in the article.

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AUTONOMOUS FLIGHT CONTROLLERS

Within the research there was a requirement to develop autonomous system which can do automated flight over predefined earth locations (GPS coordinates) and do action when reaching the location. Autonomous control systems are designed to perform control functions without external influences. When automated systems developers need to create substandard autonomous flying system there is at least two possibilities. Developer can invent his own system architecture, write programs and construct all project electronics, but this solution is optimal only when there is no systems on existing frameworks and is expensive due to qualified engineers work. In case when patented and complex solution for project is not required, there is at least 5 onboard DIY solutions for autonomous flight controller. DJI, OPENPILOT, Pixhawk, NAVIO2 by emlid developers und APM. Some of these controllers have limitations. DJI Products have closed source code, OPENPILOT related GPS code is not available to the public, Pixhawk and NAVIO2 is based on specific Linux versions, that means developer must know system specifications and fault tolerance before implement into project. APM is Open Source based on Arduino, that means no OS inside, only clear and editable program code. APM is runned on software called Mission Planner, which is complex solution for creating autonomous flight plans. Researchers are developing autonomous system driven by APM 2.8 controller with Mission Planner on paraplane.

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AUTOMATIC DATA COLLECTION SYSTEMS

Nowadays, there are huge amount of information, that must be collected and processed. Since the amount of information is growing very fast, we need to found ways to increase speed of data collecting, parsing and aggregation. In this work will be reviewed some methods to perform these tasks. Also will be reviewed the practical implementation of one of the methods.

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RELATIONAL AND DOCUMENT DATABASE SYSTEMS: ANALYSIS AND COMPARISON

Although relational databases still occupy the major part of database market, as an alternative to relational databases NoSQL database management systems are becoming more and more popular. In order to ascertain the advantages and disadvantages of relational and document databases processing rapidly growing data flows the research was conducted.

The objective of the research: to conduct the comparative analysis of relational and document databases, to assess by means of experiment the possibilities of data selection, update and delete within relational and document databases.

The tasks of the research:

1. To review the most popular database management systems.
2. To conduct the comparative analysis of relational and document databases.
3. To introduce the results of the conducted experimental research during which *Oracle XE* and *MongoDB* database management systems were tested.

The method of the research. In the course of the examination of the most popular database management systems the results of the researches conducted by international companies were analysed. Besides, the comparative analysis of relational and document databases was conducted studying of the technical documentation of relational and document database management system and analysing research results published in scientific articles. For the assessment of the possibilities of data selection, renewal and removal within relational and document databases, *Oracle XE* and *MongoDB* database management systems were tested by experiment.

The results of the conducted research can be summarized with a help of below provided conclusions:

The analysis of the results of the researches conducted by international companies shows that relational database management systems head the top ten of the most popular database management systems. Among NoSQL databases the most popular are document databases.

The comparative analysis of relational and document databases showed these systems differ in data model used, flexibility of schemes, supported database standards, used queries language, features of transactions, data distribution opportunities.

The experimental testing of the document database *MongoDB* and relational database *Oracle XE* showed that document databases are more superior in the course of selection queries, however, calculated queries are faster in relational databases. Data update and delete queries are similar in both databases. In future it is planned to expand the testing of relational and document databases, exploring execution of different queries in document databases with embedded documents, as well as to test the execution of queries in distributed relational and document databases.

MATEMĀTIKA

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MATHEMATICS

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TWO COUPLED OSCILATORS SYSTEM

Examples of oscillatory behaviors of solutions to the fourth order systems are considered.

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NONLINEAR BOUNDARY VALUE PROBLEM WITH STEPWISE FUNCTION

Consider the differential equations of the form

$$x'' = -a x + \beta(t) x^3 \quad (1)$$

with the boundary condition

$$x(0)=0, x(1)=0 \quad (2),$$

where $\beta(t)$ is a stepwise function with two jumps:

$$\beta(t)=b, \text{ if } t \text{ in interval } [0, \delta) \text{ or } (1-\delta, 1];$$

$$\beta(t)=0, \text{ if } t \text{ in interval } [\delta, 1-\delta], \text{ where } 0 < \delta < 0.5.$$

We evaluate the number of solutions to the Dirichlet problem (1), (2) in terms of parameters a and δ .

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ON SOME DIRICHLET VALUE PROBLEMS

We consider some classical results about Dirichlet boundary value problems, conditions for existence of solution, and illustrate them with examples.

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PERIODIC SOLUTIONS OF THE SYSTEMS OF LINEAR DIFFERENTIAL EQUATIONS WITH PERIODIC COEFFICIENTS

Periodic solutions of the systems of linear differential equations with periodic coefficients are considered. Not every system of linear differential equations with periodic coefficients has a periodic solution. In order to find out whether the system of linear differential equations with periodic coefficients has periodic solutions multipliers of this system are considered.

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ON CONVERSION OF RESONANT PROBLEM TO NON-RESONANT ONE

Nonlinear resonant boundary value problems are considered. The resonant problem cannot be treated by R.Conti theorem. Therefore a given resonant problem is replaced with nonresonant one and some estimates are proved, such that both resonant and nonresonant problems are equivalent in bounded domain D. Different ways, how the resonant boundary value problem can be reduced to quasilinear one, are proved. It is reasonable to try different quasi-linearizations of a given problem since multiple solutions can be obtained.

ĶĪMIJA UN BIOANALĪTIKA ≈ CHEMISTRY AND BIOANALYTICS

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POLYBROMINATED DIPHENYL ETHERS - DISTRIBUTION AND SOURCE TRACKING

Concentrations of polybrominated diphenyl ethers (PBDEs) were investigated in different environmental matrixes, such as surface waters and sediments of rivers and lakes of Latvia, biota and sewage sludge from waste water treatment plants (WWTPs). The sampling procedure took place from June 2010 to February 2011 in 8 WWTPs; in July 2012 in the Gauja River management district, in total 15 surface water and 18 sediment samples; and from August to September 2012 were collected fish (*Perca fluviatilis*) samples, including 12 sampling sites. The range of PBDEs concentration in fish tissues was 0.1 – 360 pg/g DW, where the concentration of PBDE 209 on average constituted 62% of the total PBDE content. Concentrations of PBDEs in river and lake sediments were in range from 10.3 to 16.5 ng/kg DW, and from 26.5 – 124 ng/kg DW, respectively. The concentrations of PBDEs in WWTP sludge varied from 0.1 ng/g DW to 700 ng/g DW, with a dominating (89–98%) amount of PBDE 209. Obtained data statistical analysis exhibited a significant positive correlation of PBDE 47 and PBDE 99 (Pearson's $r=0.82$, $p=0.01$) with a dry content of WWTP sludge. Furthermore the sum of concentrations as well as individual PBDEs in lake and river sediments were strongly negatively correlated (Pearson's $r=-0.81$, $p<0.01$) with sediment content of dry material and strongly positively correlated with (Pearson's $r=0.68$, $p=0.01$) content of organic carbon. No significant correlation between PBDEs concentrations in fish tissues and lipid content was found. The variation of PBDE concentrations along different matrices was also discussed in the study.

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THE DEVELOPMENT OF PROCEDURE FOR DETERMINING AMMONIA IN MODIFYING ADMIXTURES FOR CEMENTS AND CONCRETE

The development of Civil Engineering and the growing number of problems connected with the sick building syndrome it becomes evident that the procedures and methods of analysis of building materials are also must improved. The use of Portland cement, concrete and reinforced concrete in the construction industry still remain predominance in Belarus. Multitude of methods and procedures applied in the sphere of chemical analysis of building materials and concrete in particular are presented in corresponding Specifications and State Standards which currently in force. It is unfortunate that technical normative acts mentioned above do not contain methods of determination ammonia in cement concrete and admixtures for cements and concrete.

The investigation of admixtures for concrete from the viewpoint of presence of ammonium ions and the development of effective procedure of such determination was the aim of the research. The urgency of the research of ammonia content in the building structures is considered from the perspective of the immediate health effects of ammonia due to its migration in the air of building spaces from reinforced concrete products during exploitation.

The presence of ammonia compounds in admixtures for concrete and cements used in Belarus was investigated. The different methods of determining the ammonium ions in aqueous solutions were reviewed by the author. The preference was given to express, simple and inexpensive procedures and methods which can be reproduced in the laboratory on site. In addition it was complicated to investigate the different types of admixtures due to the coloration in water solution and their different appearance.

It was shown that potentiometric method can be used for determination of ammonium ions in water solutions of admixtures according to the review and laboratory tests provided by the author. The process of preparation of the solutions for potentiometric method was analysed. Due to the high sensitivity of ion-selective electrode on ammonia diluted solutions of the admixtures were prepared. Optimal dilutions and conditions of determination have been studied.

The method of determination of ammonium ions in water solution of admixtures was developed by the author. Elaborated method was approved as an amendment to the State Standard of the Republic of Belarus.

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METHODS FOR SYNTHESIS OF LUMINESCENT COPOLYMERS

The synthesis of copolymers which has luminescent characteristics in a wide spectral range – is extremely important, given the potential applications of these polymers, as well as the absence of rational approaches for their production.

The copolymers used in the manufacture of displays, electrophotography, in the production of illumination sources, photodetectors, sensors, field effect transistors, diode lasers and in other areas when needed to ensure the luminescence of the transformation of electrical energy into light energy. One of displays designing directions is organic materials usage for light emitting diodes, which are considerably more cheaper than inorganic base.

The most common method of polymer synthesis is a chain polymerization. In accordance with the nature of the active centers distinction is made between radical and ionic polymerization.

Radical and ionic polymerization can be performed in different ways: in the environment of monomer (in a unit), in an aqueous emulsion environment, in suspension, in the gas and solid phases and in solute. Intensive development obtained by radical copolymerization of

two, three or more monomers. Copolymers obtained in this way consist of alternating units of the starting monomers, have many useful properties and are widely used in industry. For instance, polyvinylcarbazole (PVK) is the subject of numerous studies. If earlier, mainly studied its dielectric, strength, thermal properties, but with the discovery of the photosensitive properties, research focuses on the study of LOAC and its derivatives as a photoconductor.

The ionic polymerization usually performed in a monomer, a solvent or a suspension in an organic environment. The polymer which produced as result by polymerization of styrene by a free radical mechanism, – amorphous, has an atactic structures; polymer produced by ion polymerization – crystalline, has stereoregular structure.

Phenolformaldehyde, epoxy resins and polymers, polyesters, aromatic polyesters, polycarbonates, polyamides, polysiloxanes obtained by the method of polycondensation. Polyaddition (leveled or migration, polymerization) – reaction of epoxides with dicarboxylic acids, polyamines, bisphenols, polyalcohols and reaction of diisocyanates with diols.

For the synthesis of polymers with improved properties using chemical modification of polymers – the initial polymer undergoes chemical resistance, whereby it is converted into a new polymer different chemical structure.

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REDUCTION OF AROMATIC NITRO COMPOUNDS AND PROPERTIES OF OBTAINED COMPOUNDS

Reduction of aromatic nitro compounds has important role in organic chemistry as well as in industrial chemistry, because those compounds widely use for dye, polymer, pesticide and explosive material production.

Nitro groups can be easily reduced by using metals like zinc, titanium or iron in acid solution. In the first phase nitro group is reduced to nitroso group, after that is formed hydroxide amines. In last step from molecule is separated water and amines are formed. Nitro groups effectively can be reduced to primary amines by using hydrogen in the presence of a catalyst. Process starts with nitro compound dissolving in one of the solvents: water, alcohol, dioxins or alkanes. By next step finely divided nickel or platinum are added. This process mainly happens at high temperature or high pressure. Also nitro groups can easily be reduced with sulphides.

During experimental part have been compared possible reduction methods for 3-brom-9-nitrobenzanthrone and 3,9-nitrobenzanthrone and studied it's physical and chemical properties, including substitution reactions at amino group. The obtained compounds have been characterized by spectroscopic and chromatographic methods.

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THE OPTIMIZATION OF FISH ORGANS IMPRINTS VISUALISATION TECHNIQUE

Dyes – organic compounds with high dyeing properties (the ability to give strong and durable hue for materials). Most of the living organisms, which are visible under microscope are colourless, as well as organelles are visibly poor in cell's cytoplasm. Using microscope, two main approaches came up: first, technical approach to develop new lighting options, and second to stain biological objects using different dyes.

For every biological sample, depending on purpose of the study, dyes and staining techniques are chosen. The aim of the work is to verify how fixation time, and different dyes impact the imprint visualization.

Altogether 120 imprints were taken, 30 from each of four organs of same fish: liver, gills, spleen and intestinal. Samples were prepared according to Сахаров и Макеев (2008) method. In present research fixation time of imprints was varied in methanol. Imprints were labelled with 5 dyes: acridine orange base, and rhodamine B (fluorescent dyes); Alum carmine stain, and carmine acetic acid (non-fluorescent dyes); and Gomori's trichrome (fluorescent and non-fluorescent).

Confocal microscopy technique (High speed multiphoton confocal laser scanning microscope A1 R MP Nikon Eclipse Ti - E microscope system) was used for fluorescent imprints visualization, and transmission light technique (Nikon Eclipse 90i) was used for non-fluorescent imprints visualization. In case of Gomori's trichrome, both transmission light and confocal microscopy technique were used. Results of investigation show, that the most effective fluorescent dyes for imprints visualization was Gomori's trichrome with fixation time of 5 seconds at a room temperature.

Presently, scheduled work has been partially performed. Furthermore, staining samples with fluorescent dyes, and comparison of how non-fluorescent dyes influence visualization of imprints are planned for staining protocol.

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APPLICATIONS OF ARYLAMINES AS DYES

Arylamines is the most widely used group of dyes. This group includes derivatives of aniline, diphenylamine, aminoanthrone and aminoanthraquinone as well as oxazindyes, thiazindyes and phenazindyes.

Benzanthrone and its derivatives belong to anthrone dye group. Benzanthrone dyes have good color properties and photostability, its derivatives use as fluorescent dyes and probes. Benzanthrone dyes are known as organic luminophores, whos emitting spectral range is from green to red color, so that why those dyes use as disperse fabric dyes, fluorescent pigments and laser dyes.

In the work properties of aromatic amino compounds are summarized, synthetic procedures for benzanthrone amino derivative are reviewed, as well as new substituted and unsubstituted benzanthrone aminoderivatives are obtained and characterized.

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OPTIMIZATION OF FLUORESCENT STAINING PROTOCOL FOR INVESTIGATION OF MONOGENEANS USING CONFOCAL LASER SCANNING MICROSCOPY METHOD

Key words: *confocal laser scanning microscope, fluorescent dye, monogenea*

Nowadays, many microscopy techniques are developed, such as light, electron, X-ray, scanning probe, and confocal laser scanning microscopy (CLSM) in various fields of science. CLSM has become an invaluable tool for a wide range of investigations in biological and medical sciences for imaging thin optical sections of fixed specimens. The confocal microscope also is used for examining living, fluorescence-stained cells or small, intact organisms. Recently, fluorescent and confocal microscopy might track fluorescent molecules or nanoparticles. Traces can indicate the movement of a particle through time and space.

The aim of this study was to optimize the fluorescent staining protocol (Galli et al, 2006) for detailed monogenea study.

Samples were collected during fish full parasitological examination by Bykhovskaya-Pavlovskaya (1969) method. Totally, 300 specimens of *Tetraonchus monenteron* monogeneans were sampling from pike gills.

To optimize protocol, fixative agents and fluorescent dyes were modified. The collected samples of *T. monenteron* were fixed in three chemical reagents: alcohol-formalin-acetic acid (AFA) solution, 10% formalin neutral buffered solution, and 96% ethanol. To label the monogenean inner and outer structures, three fluorescent dyes were used: Gomori's trichrome LG (light green) solution, Rhodamine B, and Acridine orange base. Double staining was also used with mentioned dyes.

Samples were examined using CLSM Nikon Eclipse Ti - E with motorized inverted microscope system connected to computer software NIS-elements Advanced Research 3.2. 64 - bit.

The obtained results show, that the AFA solution is better fixative for further visualization of monogenea using confocal microscopy technique. It has both coagulative and crosslinking fixative properties, that might save most morphological features at primary condition. Most of morphological features were labelled with double staining, Gomori's trichrome LG and Rhodamine B dyes. The combination of AFA fixative and double staining dyes visualized: attachment apparatus, copulation organ, excretory duct of glands, ovary, and oral sucker.

Further studies will intend to compare staining CLSM and light microscopy technique for monogenea investigation.

FIZIKA

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PHYSICS

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SOME CALCULATIONS IN MOLECULAR VIBRATIONAL SPECTROSCOPY

It is possible to calculate the molecular vibrational frequencies, assuming a set of force constants. The suitable set of force constants represents the potential energy of the system and therefore provides valuable information about the nature of molecular interatomic forces.

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USING OF COMPUTER-GENERATED HOLOGRAMS IN SECURITY HOLOGRAMS APPLICATIONS

Keywords: *digital holography, diffractive optical elements, protective holograms*

The article discusses the use of computer-generated holograms (CGHs) for the application as one of the security features for the relief-phase protective holograms. The improved method for calculating CGHs based on ray-tracing approach in the case of interference of the parallel rays is presented. Software for multilevel phase CGHs calculation and their integration in application of security holograms is developed. Topology of calculated computer-generated phase holograms was recorded on photoresist by the optical grayscale lithography. Parameters of the recorded microstructures were investigated with help of atomic-force microscopy (AFM) and scanning electron microscopy (SEM)

methods. The results of the work have shown high protective properties of the security elements based on CGHs microstructures. On our sight is promising wide using the CGHs in the structure of complex security holograms for increasing protective level against counterfeit.
PACS: 42.40.Eq; 42.40.Ht; 42.40.My.

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MORPHOLOGY MODIFICATION OF ZNO NANOSTRUCTURES USING THE HYDROTHERMAL GROWTH METHOD AND APPLICATION AS SORBENT FOR REMOVAL PB AND CD IONS FROM AQUEOUS SOLUTION

ZnO is presented in several morphologies in nanoscale such as nanorods, nanoneedles, nanotubes, nanoflowers, nanourchins etc.

Each morphology represents a unique set of physical properties, such as wettability, adsorption capacity, optical and electrical properties etc.

During hydrothermal growth process ZnO is very sensitive to changes of growing parameters, that is why considering the objectives of the application it is possible to obtain controllable morphology modification by changing several parameters and maintaining another parameters.

Optimal growing parameters have been found using the hydrothermal method to obtain with good repeatability well-aligned vertical ZnO nanorod, nanoneedles and nanotube arrays as well as 3D nanoflowers and nanotubes.

Influence of parameters such as growth temperature, time, solution concentration, seed layer composition and thickness, presence of different chemical additives were investigated.

Comparison of sorption properties for ZnO nanotubes and nanorods is presented.

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OBTAINING OF TANTALUM OXIDE COATINGS AND THEIR PROPERTIES

The aim of the research: Get tantalum oxide thin layer and tantalum oxide thin layer between the copper films (sandvich structure) using magnetron sputtering method, study them, and their suitability for integrated capacitor application.

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MEASUREMENTS METHODS AND HARDWARE SOLUTIONS OF TRANSPORT FLOW

Key words: transport flow, physical fields, information systems, magnetic field sensor

The topicality of this article is influenced by objective need to solve the problem of influence of nonoptional conditions of vehicles exploitation to transport field. The is analysis of physical fields that provide information about moving vehicles and existing hardware solutions used to get such information that is based on various physical working principle. The scientific literature analysis is set

in order to unfold and ground the necessity of objective and operative information about parameters of transport flow and the important info-receptivity of magnetic field sensors in receiving data about moving vehicles.

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ZNO NANOSTRUCTURE-BASED GLUCOSE SENSOR

The purpose of this research is to improve capacitive-type sensors with ZnO nanostructures. On a microscope slide (75x26x1mm) a 10 nm thick Cr bottom layer for better adhesion and 70nm Au top layer was deposited through specially designed mask using magnetron sputtering technique. Next step included electrolytic deposition of thin metallic Zn layer in 4mmol Zn(NO₃)₂*6H₂O aqueous solution with following annealing at 300°C in atmosphere to form ZnO layer as a precursor for further crystal growth. Array of ZnO nanorods was fabricated by cathodic electrodeposition of ZnO in 4 mmol Zn(NO₃)₂*6H₂O + 50 mmol KCl aqueous solution. SEM analysis indicated presence of dense layer of ZnO nanocrystals ranged from 100 nm to 300 nm in width and 1 μm to 1.5 μm in height. Sensitivity of obtained nanostructured and ordinary sensors were compared on aqueous glucose solution at various concentrations using impedance spectroscopy. Nanostructured sensors indicated much higher sensitivity to glucose concentration.

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ENERGY OF ACTIVATION OF HYDROTHERMALLY GROWN ZINC OXIDE NANOSTRUCTURES

The application prospect of zinc oxide (ZnO) nanostructures largely relies on the morphology of the nanostructures, which is directly connected with the methods and conditions of obtaining nanostructures. Well-aligned ZnO nanorod arrays with a high density and uniformity were successfully synthesized on the glass substrates by a hydrothermal method at low-temperature. As a seed layer was used an obtained by vacuum deposition method zinc oxide layer (32nm). An activation energy for hydrothermal method of obtaining of zinc oxide nanostructures was calculated by measurements of nanostructures growth's kinetics at different temperatures (70-90°C).

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NANODOT SIZE DEPENDENCE ON E-BEAM IRRADIATION TIME IN AG/A-AS₂S₃ THIN FILM BILAYER

Metal – amorphous chalcogenide systems have wide range of possible applications, which are based on metal ion migration within amorphous chalcogenide matrix. Possible applications include programmable metallization cells, X-ray mask fabrication and different micro-electro-mechanical systems.

It was recently shown, that nanodots can be directly recorded on metal-amorphous chalcogenide surface by focused electron beam irradiation. This method allows formation of micro and nano structures without usage of masks and/or etching steps.

In this work, nanodots were recorded on the surface of Ag/a-As₂S₃ bilayer. Different size nanodots were formed by changing electron beam irradiation time. Recorded nanodots were scanned with AFM, height and half-width of nanodots was measured.

VESELĪBAS ZINĀTNES

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ACTUAL RISK FACTORS FOR LECTURERS OCCUPATIONAL ENVIRONMENT

In today's world physical work occurs much less frequently, while the intellectual work is related to the reception and handling of information and requires memory, attention effort, thought process activation associated with increased emotional burden. The human wellbeing and ultimately health status to some extent depends on the proper organization of intellectual work and of the environmental parameters in which the intellectual activity. More complicated intellectual activity form - creative work. Academic staff is based on the intellectual nature of creative work. Creative work requires significant emotional stress, which leads to high blood pressure, electrocardiogram changes, oxygen consumption increases, increase in body temperature and other changes in the body's activity caused by increased psycho-emotional burden. Work process lecturers and researchers is influenced by many factors: the type of activity, its complexity and the seriousness of the circumstances in which it is implemented, psychophysiological human capabilities (first anthropometric characteristics, response speed on a variety of stimuli, perception peculiarities). Lecturers in the work environment also appears in the new work environment risk factors. Working harmful environmental risk factors may have an adverse impact on the person's work ability and psycho-emotional condition, causing enormous economic damage to the employers and the economy. Effective interaction and to prevent damage to health is necessary to ensure the compatibility of these characteristics, as well as their compliance with the external conditions. Comfortable conditions for allowing them to enhance the quality of work and productivity.

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PREVALENCE OF CARDIOVASCULAR DISEASE RISK FACTORS IN DAUGAVPILS UNIVERSITY EMPLOYEES

Diseases of circulatory system are the most common cause of mortality in Latvia in 2008–2013. According to the data of the Centre for Disease Prevention and Control (CDPC) from 2008 to 2013 the number of deaths became higher growing from 758.5 till 812.8 per 100 000 population (CDPC, 2014). In 2014 it was still 806.3 deaths per 100 000 population and 16 076 in total. Data shows that the incidence of deaths from the second most common cause of mortality – oncology is twice lower than from diseases of circulatory system (CDPC, 2015). Also in the world the main cause of death in 2012 was disease of circulatory system – coronary heart disease (WHO, 2015).

Taking into account the fact that there is an opportunity to detect and estimate the possible cardiovascular disease (CVD) risk factors and prevent morbidity with CVD, the necessity of health promotion activities and early evaluation and prevention of CVD risk factors in society is urgent and may positively influence the high mortality rates from CVD. The aim of the research is to estimate the prevalence of CVD risk factors in Daugavpils University (DU) employees as a part of health promotion activities and give recommendations on CVD risk factors prevention. DU employees will be offered the CVD risk factor screening questionnaire, and anthropometric values, glucose and cholesterol levels, body composition using bioelectrical impedance method, and resting blood pressure will be measured. This study will provide the information about incidence of CVD risk factors in DU and give an opportunity to DU employees to evaluate their CVD risk factors and encourage them to control their health status and reduce CVD risk factors using recommendations.

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BRISTOW-LATARJET AND BANKART: A COMPARATIVE STUDY OF SHOULDER STABILIZATION TREATMENT IN HOSPITAL OF TRAUMATOLOGY AND ORTHOPAEDICS IN RIGA; 6 YEARS RESULTS

Key words: Bankart; Bristow-Latarjet; recurrent instability; anterior instability

Anterior shoulder dislocation is commonly complicated by recurrent instability, which occurs in up to 60% of all patients. Arthroscopic Bankart (AB) and open Bristow-Latarjet (B-L) procedures are both viable surgical options for recurrent traumatic anterior instability of the shoulder joint. Both restores stability to the shoulder – the AB procedure repairs tear in the labrum with anchors and B-L, provide shoulder stability, with coracoid transfer to glenoid.

To evaluate and compare the clinical and functional results of patients who underwent AB and open B-L surgery for symptomatic instability in Hospital of Traumatology and Orthopedics, Riga, Latvia, in period 2009.–2015.

20 AB and 46 B-L patients treated for recurrent anterior glenohumeral instability were retrospectively identified from six surgeons' practices. 15 patients (75%) from AB group, whose average age was 28.55

years, and 35 patients (76%) from B-L, whose average age was 26.65 years, were evaluated. Primary outcome measures were the WOSI, Constant Scale, satisfied rate and redislocation or subluxation rate. Average WOSI score was 77.32 for AB and 80.2 for B-L shoulders. Average Constant score was 82.3 for AB and 90.1 for B-L patients. Redislocation or subluxation after the first operation occurred in 3 of 15 (20%) of AB group and 1 of 35 (2,85%) B-L shoulders. Of the 35 B-L patients, 34 were satisfied compared with 13 of 15 in the AB group.

Results were better after the B-L repair than after AB repairs done with anchors with respect to postoperative stability and subjective evaluation.

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A COMPERISON OF ARTERIAL BLOOD GAS AND SERUM GLUCOSE LEVEL IN FIRST-TIME AND RECURRENT DIABETIC KETOACIDOSIS: PEDIATRIC POPULATION

Key words: Type 1 diabetes. Diabetic ketoacidosis.

Introduction: Diabetic ketoacidosis (DKA) is the most common and serious acute complication of diabetes and is characterized by elevated serum glucose level >11 mmol/l, decreased blood pH level <7.3 and/or serum bicarbonate level <15 mmol/l with coexisting ketonemia and ketonuria. DKA occurs mainly in patients with type 1 diabetes (T1D). In about 30% of pediatric patients DKA may be the initial presentation of a new-onset T1D, but mostly DKA occurs as recurrent cases in the same subject.

Aim: The aim of the study is to identify pH, pCO₂, HCO₃⁻ and serum glucose level peculiarities between patients with first-time DKA and recurrent DKA sequences and analyze correlations between pH and pCO₂, HCO₃⁻ and serum glucose levels.

Material and methods: A retrospective study was conducted, involving patients admitted to Children's Clinical University Hospital Pediatric Intensive Care Unit with DKA, divided into two groups - new-onset T1D with DKA (n= 75) and recurrent DKA group (n=75), excluding patients with acute intercurrent illness or exacerbation of a chronic illness. Data was analysed using IBM SPSS Statistics 23 and Microsoft Excel.

Results: Mean pH value 7.09 (SD 0.11) and HCO₃⁻ mean value 5.17 mmol/l (SD 2.69) in the recurrent DKA group were lower than the first-time DKA group pH=7.15 (SD 0.12) and HCO₃⁻ =6.60 (SD 3.86); p<0.05. pCO₂ mean value had no statistically significant differences between the groups; p=0.133. Serum glucose levels in the recurrent DKA group, mean value 24.1 mmol/l; (SD 8.8) were higher than the new-onset T1D with DKA group, mean value 21.7 mmol/l (SD 9.3); p=0.028. There was a mild but statistically significant correlation between pH and serum glucose levels in both study groups; p<0.05. In both study groups correlations between pH and pCO₂ and pH and HCO₃⁻ were statistically significant; p<0.001.

Conclusion. Lower pH and HCO₃⁻ and higher serum glucose levels are seen in recurrent DKA group. There are no significant differences in pCO₂ levels between the two study groups. Serum glucose levels and pH levels were reversely related and pH and pCO₂ and pH and HCO₃⁻ were positively related in both study groups.

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PERVELANCE OF OBESITY IN MALE AND FEMALE POPULATION WITH ELEVATED CARDIOVASCULAR RISK IN LATVIA

Introduction: Obesity is associated with an increased risk of cardiovascular disease incidence and mortality. In many countries, a reduction in major risk factors such as high blood cholesterol, high blood pressure and smoking habits has been achieved, yet body weight have tended to increase.

Aim: Aim of the study was to evaluate obesity levels in patients with elevated cardiovascular risk and to compare them between gender groups, activity levels and dietary habit parameters.

Materials and methods: Based on presence of moderate to very high cardiovascular risk, 120 patients were invited to participate in this study. During interview data about patient weight, height, physical activity and dietary habits were collected. The data were processed using MS Excel and SPSS software. Body mass index (BMI) was calculated and all data were analyzed using descriptive statistics, crosstabs, Chi square test and independent samples T test.

Results: Mean age was 66 years ranging from 40 to 93 years. 49.2% of participants were males and 50.8% were females. Average BMI was 30.1. Male average BMI was 29, but female 31.2 ($p < 0.05$). Of all respondents 0.8% (1.7% of male, 0% of female) was underweight, but 18.3% (13.6% of male, 23.0% of female) had normal weight. Overweight was found in 32.5% (40.7% of male, 24% of female) of patients. Obesity was discovered in 48.3% (41.1% of male, 52% of female) of participants, of whom 34.2% had class one, 7.5% had class two, but 6.7% had class three obesity. Only 35% of patients participated in 30 minute aerobic physical activity at least three times a week. 67.7% of patients who did not take part in 30 minute physical activity at all had obesity, compared to 47.8% who did it less than three times a week and to 35.7% who did it at least three times a week. However significant statistical differences of BMI levels in all activity groups were not found. ($p > 0.05$) 50% of respondents ate vegetables at least two times a day, but 57% ate fruits at least two times a day. There were no significant differences of BMI when compared in different dietary parameter groups. ($p > 0.05$)

Conclusion: Obesity and overweight levels in patients with cardiovascular risk are high. Only 18.3% of patients have normal body weight. Females are more likely to have normal weight or obesity, while males more often are overweight. Male obesity level is also high. Physical activity amount and dietary habits were not statistically associated with different levels of BMI.

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BEHAVIOUR OF LATVIAN ADULTS TOWARDS SALT CONSUMPTION AND FACTORS AFFECTING IT

The major risk factors for cardiovascular disease are high blood pressure and obesity. Unbalanced nutrition including high sodium intake can lead to severe health problems. Data of the national food consumption survey of Latvia 2007–2009 showed that level of salt consumption varied from 4,8 g/day (young women) to 9,9 g/day (young men). Daily sodium consumption is calculated from natural sodium found in food, salt added to food during cooking or eating and semi-finished products and processed food such as bread, processed meat and snacks.

The aim of this study is find factors that affects behaviour of Latvian adults towards salt consumption. Random sample according to age, gender and region of healthy Latvian adults aged 19–64 ($n = 186$) was selected. Data about eating habits, socio-demographic status, dietary records were obtained from questionnaires and anthropometric measures were taken by trained interviewers.

Median BMI for women was 25,95 kg/m² and 26,60 kg/m² for men, which is excessive as well as waist circumference for both genders – 82 cm and 98 cm. Level of education for most of participants (43,5%)

was higher education. 31,2% of respondents live in Riga. Most of participants indicated that they cook at home every day and add salt during cooking often or always. 56,5% reported that they include semi-finished products in their daily diet. 6,5% add salt to prepared food even before tasting it and average BMI for this group was slightly higher than average overall BMI – 27,04 kg/m². Two thirds of this group also indicated that they use semi-finished products in their everyday diet. 34,7% of the population prefer Latvian cuisine, the second choice is Italian, third – eastern cuisine. Latvian population has tendency to be overweight, use salt and semi-finished products frequently. Correlation between eating habits and anthropometric measures, socio-demographic status, dietary records still needs to be analyzed.

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„TORONTO – ALEXITHYMIA SCALE 20” SCORES AMONG PSYCHIATRIC PATIENTS COMPARED TO OTHER INPATIENTS

Key words: Alexithymia, emotional unawareness, TAS-20

Introduction: Alexithymia is personality characteristic in which the individual has difficulties to identify and describe their emotions. The main features of alexithymia are emotional unawareness, lack of social attachment and poor interpersonal relating. Studies show that about 8–10% of general population is affected by alexithymia. It is linked with physical and psychiatric comorbidities (Taylor et al. 1990; Helmers and Mente 1999).

Aim: The aim of our study was to determine Toronto – Alexithymia Scale -20 (TAS-20) scores among psychiatric patients compared to other inpatients.

Materials and methods. 193 inpatients from different departments of eight hospitals participated in this cross sectional study. Internationally validated TAS 20-item questionnaire (Taylor et al (1994)) adapted in Latvian and Russian was used in this research. Alexithymia is diagnosed when the score equals to or is greater than 61 out of 100 points. Statistical data were analyzed using IBM SPSS v.22.

Results: The study included 193 inpatients – 44% males and 56% females. Among all inpatients 38 patients were from Department of Psychiatry and Narcology, including 32 males and 6 females with mean age 38 (SD=11) years. Average score on TAS-20 for psychiatric patients was 58.95 (SD=7.7). Among other 155 inpatients 54 were male and 102 female with mean age 63 (SD=16) years. Average score on TAS-20 among other inpatients was 53.5 (SD=13.3). A two-sample *t*-test showed that on average psychiatric patients showed a 5.5 points higher (95% CI:2.2-8.8) score on TAS-20 compared to inpatients of other departments. The relation was statistically significant ($t(98) = -3.33; p < 0.01$).

Conclusions: There is statistically significant difference on TAS-20 scores among psychiatric patients compared to inpatients of other departments. Psychiatric patients on average score 5.5 points more on TAS-20 than inpatients of other departments.

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CONSUMPTION OF GRILLED PORK MEAT AND POTENTIAL EXPOSURE TO POLYCYCLIC AROMATIC HYDROCARBONS

Grilling is popular cooking method for meat during summer time. Polycyclic aromatic hydrocarbons (PAHs), that are found to be carcinogenic are primarily formed as a result of thermal treatment of food, especially grilling or barbecuing. Usually meat is treated with different marinade before grilling that could be a reason to higher contamination of PAHs in grilled meat. Meat is grilled on open fire using wood or charcoal using a spit of wood or metal or just on surface of grill.

The aim of this research was to assess and compare level of sum of four PAHs (PAH₄, ng/g) and benzo(a)pyren (BaP, ng/g) by analyzing differently treated pork meat. Commonly used marinades and grilling methods were applied and two separate cooking times based on results of consumer survey were used.

Data on commonly used grilling methods were collected by consumer survey in 2014. 51% of respondents are eating grilled products regularly during season. 35% of respondents that barbecue meat at home, are smoking that is another risk factor of higher intake of PAHs.

In total 52 meat samples were grilled and analyzed. PAH₄ and BaP were detected.

Level of PAH₄ varied from 0.266 to 11.528 ng/g and median was 3.896 ng/g. Higher levels were found in samples marinated in mayonnaise and grilled on wood for 30 minutes.

Level of BaP varied from 0.033 to 2.017 ng/g and median was 0.385 ng/g. Levels of PAH₄ and BaP found in grilled meat are lower than allowed for smoked meat and smoked meat products (BaP ≤ 2 µg/kg; PAH₄ ≤ 12 µg/kg) in COMMISSION REGULATION (EU) No 835/2011 regarding maximum levels for polycyclic aromatic hydrocarbons in foodstuffs. Additionally dripping fat from marinade and longer grilling time could explain higher levels of PAH₄ in some samples.

Seasonal consumption of grilled meat is not significant toxicological concern for Latvian consumers but other factors such as smoking, age should be taken into account.

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TOTAL HIP REPLACEMENT PREOPERATIVE AND OPERATIVE RISK FACTORS INFLUENCING PROLONGED HOSPITAL STAY AND COMPLICATIONS

Key words: Orthopaedics, complications, total hip arthroplasty

Introduction: Total hip arthroplasty is a surgical treatment option that raises the functional level and reduces pain of affected joint. Assessing the risk factors for total hip replacement operation could help to improve the result for the patient, to detect and recognise complications earlier.

Aim: To evaluate postoperative complications after total hip replacement and to determine possible connection with risk factors for patients with prolonged hospital stay.

Materials and methods: The study included all individuals from the Hospital of Traumatology and Orthopaedics in Riga, Latvia who had a total hip arthroplasty performed in the year of 2014. Only patients with hospital time longer than 14 days were included. The data were obtained from medical

histories and analysed as a retrospective study. Calculations of data were performed by using *IBM SPSS Statistics 22.0 programme*.

Results: A total number of 82 medical histories were analysed and included. The average age of all patients was $71,12 \pm 10,80$. The gender – 21,0% (N= 17) of them were male and 79% (N= 64) were female. Mean amount of days spent in hospital $16,64 \pm 6,78$. Mean affected joint flexion (in degrees) was 78 ± 16 , extension – $1,7 \pm 5$ inner rotation – 12 ± 10 , outer rotation – 18 ± 10 . Affected extremity shortening (cm) – $1,51 \pm 1,47$. Mean complication rate – 67,1% (including minor complications). Mean body mass index was $29,43 \pm 6,14$. Days spent in intensive care unit were $3,6 \pm 1,73$. Average operation blood loss (ml) was $421,21 \pm 279,02$. Mean operation time (min) – $94,18 \pm 23,15$. Statistically significant connection was between days spent in hospital and male gender ($p < 0,05$) There was also a significant connection between heart and cardiovascular disease in anamnesis and days spent in hospital ($p < 0,05$).

Conclusion: The results showed an increased risk of longer hospital stay for male gender of this patients' group. As a significant factor, was observed heart and cardiovascular disease in anamnesis which affects the length of patient's stay in hospital. There were no important differences between goniometric measurements and the complication rate or the length of hospital stay. Mean complication rate could be explained due to the intentional selection of the patient group.

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ALEXITHYMIA AND PATIENTS' SELF-EVALUATION OF PAIN IN HOSPITALS OF RIGA

Key words: alexithymia, pain, TAS-20

Introduction: Alexithymia is a personality trait associated with poor emotional awareness and self-regulation – difficulty identifying and describing feelings, characterized by externally oriented thinking, and a limited capacity for imagination. Alexithymia is linked with weakness of cognitive emotional processing and stronger awareness of somatic sensations. Limited research indicates alexithymia as a risk factor for development of psychiatric and psychosomatic disorders as well as somatic diseases especially associated with chronic pain.

Aim: To detect possible connection between presence of alexithymia and patient's self-evaluation of pain in Riga's hospitals.

Materials and methods: 274 patients participated in the study, 7 surveys were incomplete, further analysis was done of 267 surveys. Respondents were 19 to 95 years old (mean $58,18 \pm 18,14$), 50,6% women and 49,4% men. The presence of alexithymia in patients was assessed by validated Latvian and Russian versions of internationally recognized TAS-20 score. Pain was evaluated by patients with 11-point numeric rating scale (NRS-11), with 0 representing 'the absence of pain' and 10 representing 'the worst pain'. Statistical data was processed in IBM SPSS v22 Statistics.

Results: Study has shown that 35.6% (95 patients) of sample don't have alexithymia, 27.0% (72 patients) possibly have alexithymia and 37.5% (100 patients) have alexithymia. Kruskal-Wallis test showed that the distribution of pain evaluation is not the same in groups of alexithymic and non-alexithymic patients. Spearman correlation coefficient ($r = -0,201$) shows that pain positively correlates with alexithymia ($p < 0,01$). Patients with alexithymia generally evaluated their pain as worse (mean $5,18 \pm 2,48$) than patients without alexithymia (mean $3,97 \pm 2,01$).

Conclusion: Alexithymia is linked to self-evaluating pain as worse. It might be explained by difficulty to identify and describe emotions and stronger awareness of somatic symptoms in alexithymic patients, which leads to the tendency to notice and report physical symptoms rather than emotional disturbances.

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CLINICAL AND LABORATORY CHARACTERISTICS OF HIGH AND LOW RISK GROUP PATIENTS WITH INFLUENZA HOSPITALISED IN RIGA EAST UNIVERSITY HOSPITAL STACIONARY "INFECTOLOGY CENTER OF LATVIA" DURING THE 2014/2015 INFLUENZA SEASON

Key words: Influenza virus, high-risk group patients, influenza type A

Introduction: Influenza is a viral infection that manifests with high fever, myalgia, cough, headache, sore throat and fatigue. It is classified as type A, B or C. Patients from high-risk groups (children, pregnant women, patients with chronic diseases or immunodeficiency) more frequently have complications and worsening of previous health problems, which, in severe cases, can lead to lethal outcome. Every year a new influenza vaccine is developed, since the virus evolves rapidly.

Aim: Based on the information in medical histories, find high-risk patients and compare with low-risk group patients their average illness duration, hospitalization length, vaccination status, complications and types of influenza virus.

Materials and methods: Retrospective analysis of medical history data of 250 inpatients with influenza in "Infectology Center of Latvia" during the 2014/2015 influenza season. Data were processed using MS Excel.

Results: 217 of all patients were laboratory confirmed with influenza virus RNA in nasopharyngeal smear using real-time PCR, 33 patients had their diagnosis based on clinical and epidemiological background. 136 (54.4%) patients were in high-risk group - 125 had chronic diseases, 11 were women during their pregnancy. In high-risk group complications occurred in 51.5% cases, while in low-risk only 44.7%. The average duration of illness in high-risk patients - 7.6 days (SD±4.7), low-risk - 6.88 (SD±3.4). Mean hospitalization length in high-risk group was 5.11 days (SD±4.0), low-risk - 3.97 (SD±2.5). In total, 2 patients, both in high-risk group, were vaccinated and did not show any complications. Type A virus was the most frequent - 82% in low-risk, 78% in high-risk cases.

Conclusion: This study proves patients from high-risk group have more frequent complications, longer duration of illness and hospitalization length. Influenza type A was explicitly dominant in both risk groups.

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PREVALENCE OF ALEXITHYMIA AND PATIENTS' SELF-EVALUATION OF WELL-BEING IN HOSPITALS OF RIGA

Introduction: Alexithymia is characterized by difficulty identifying feelings, difficulty describing feelings, externally oriented thinking and a limited imaginal capacity. People with alexithymia have problems in regulation of emotions and more often have somatic complaints. Alexithymia has a negative correlation with well-being and a positive correlation with depression, anxiety.

Aim: To determine prevalence of alexithymia in hospitals of Riga and to detect possible connection of alexithymia and patients' self-evaluation of well-being of the last month.

Materials and methods: In the study participated patients from the hospitals of Riga. Alexithymia was assessed by validated Latvian and Russian versions of internationally recognized TAS-20 scale. Maximal TAS-20 score is 100: ≤ 51 – non-alexithymic, 52–60 – possible alexithymia, ≥ 61 – alexithymic. Well-being was evaluated by patients themselves with visual analogue 11-point numeric rating scale (NRS-11), with 0 representing 'the worst' and 10 representing 'the best'. Statistical data was processed in IBM SPSS v22 Statistics.

Results: In the study participated 274 patients from 6 hospitals of Riga. 7 surveys were incomplete, further were analyzed 267 surveys. Age of participants was 19 to 95 (mean 58,18 \pm 18,14), 50,6% women and 49,4% men. 37,5% (n=100) have alexithymia (TAS-20 score 67,19 \pm 4,66), 26,3% (n=72) possibly have alexithymia, 34,7% (n=95) don't have alexithymia. Self-report of well-being of the last month for alexithymic patients was 4,02 \pm 2,40, non-alexithymic patients – 5,39 \pm 2,01. Kruskal-Wallis test showed that self-report of well-being differs in patients with and without alexithymia (p<0,01). Patients with alexithymia evaluated their well-being lower than patients without alexithymia. Alexithymia has a negative correlation with well-being (p<0,01, r=-0,257).

Conclusion: Study shows that 37,5% patients of hospitals of Riga have alexithymia and it's connected with lower self-reported well-being of the last month.

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THE MOST COMMON COMPLICATIONS IN RADIOTHERAPY PERFORMED IN MEN

Oncological diseases affect every third family in Europe and situation in Latvia is similar. It is very important to diagnose as possible early and start treating oncologic diseases at an early stage. There will be more chances to save lives. Radiotherapy destroys cancer cells in the treated area, but it can also have an effect on some of the surrounding normal tissues. The most popular are colorectal cancer, prostate cancer and lung cancer.

To clarify with a help of the survey the effect of ionizing radiation on men of Clinical Department of Radiation Therapy, to evaluate patients' side effects associated with ionizing radiation, also other influencing factors.

In total the study included 55 men. Patients ranged in age from 50 to 81 years, average age 66.24. All patients had to evaluate their feelings during radiotherapy. 65.45% of them smoke. Main part of side effects takes dry mouth, dyspeptic symptoms, skin burns and taste changes. 69.09% of patients complain about dry mouth. Dyspeptic symptoms were found in 80% (N=44). Skin burns are common for 34.55% of patients. And about 30.91% of patients had taste changes. A lot of patients can't say that they know well about radiotherapy. About 32.72% know something about it. Huge amount of side effects depends on place where ionizing radiation is aimed at. 60% of patients with head and neck location had taste changes and 0% of patients with pelvic location. But dyspeptic symptoms are most common for patients with pelvic location instead of head and neck locations (70%). And both for head and neck and pelvic locations were common dry mouth and weakness (75,8% and 61.5%).

Everyone knows that radiation influences our health. It can destruct our normal cells, but also can stop malignant cells from growing in patient's body. Patients should know well about complications and side effects from radiotherapy. Also they should be more responsible for their treatment.

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THE PROGNOSTIC VALUE OF GLASGOW COMA SCALE FOLLOWING TRAUMATIC BRAIN INJURY IN PAEDIARTIC PATIENTS

Introduction: Traumatic brain injury (TBI) is a significant cause of death and physical and cognitive disability in children. The Glasgow coma scale (GCS) is a diagnostic tool widely used for prompt assessment of the neurological status in patients with various conditions, including head trauma. It provides useful information to emergency department physician and in many cases influences the initial management of the patients, however the usefulness of GCS as a prognostic tool is seemingly obscure.

Aim: The aim of the study was to determine whether the GCS score at admission can serve as predictor of outcome after TBI in children.

Materials and methods: In retrospective study data from Children's Clinical University hospital inpatient medical documentation were investigated. Patients with head trauma of variable severity, hospitalised during time period from 2004 to 2014, were selected from the intensive care unit registry. The outcomes in patients with mild, moderate and severe TBI were analysed separately and compared. The data were analysed using IBM SPSS Statistics 23 and Microsoft Excel. Tests of normality were used to assess the distribution of data. Spearman's rank correlation coefficient for GCS score at admission and Glasgow outcome scale (GOS) score at discharge were determined. The significance threshold was set at 0.05.

Results: In total 199 patients with median age of 8 years (IQR 3–12) were subjected to analysis. 35.2% of patients (n=70) had suffered severe, 18.1% (n=36) moderate and 42.7% (n=85) minor head trauma. For 4% of patients (n=8) there were no documented initial GCS assessment. Statistically significant, moderate correlation was observed for GCS score at admission and GOS score at discharge (Spearman's rho = 0.556; p<0.001).

Conclusion: GCS is a useful examination tool for early evaluation of TBI, and has a moderate association with neurological outcome at discharge.

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COMPLETE BLOOD COUNT, SERUM BIOCHEMISTRY PANEL AND COAGULATION TESTS POSSIBLE CORRELATION WITH ENDOSCOPIC ESOPHAGEAL VEIN ASSESSMENT

Introduction: Esophageal vein bleeding can be a serious and even life threatening complication to patients with decompensated liver cirrhosis. Multiple etiology can indicate different liver damage levels in the meantime drawing attention to possible development of esophageal varicose veins-potentially esophageal varicose vein bleeding. To evaluate the necessity of endoscopy it is important to assess the functional parameters of the liver based on laboratorial tests.

Objective: To assess laboratory diagnostic parameters of liver cirrhosis patients and to identify possible correlation with varicose veins in the esophagus.

Methodology: retrospective analysis of liver cirrhosis patients' which have undergone upper endoscopy in period from 01.01.2010 till 30.11.2015. The analysis was carried out by data from patient history examining - Ery, Hb, PLT, Ley, ALAT, ASAT, ALP, GGT, serum albumin, PT and INR - at

Riga, Clinical centre „Gaiļezers” archive. Data has been compiled and statistically processed in SPSS ver 20.

Results: 166 liver cirrhosis patient histories with upper endoscopy reports were analyzed. 55 (31%) of them female and 111 (66.9%) male; average patient age –54.22 years 13.79. Patient distribution by underlying etiologies as following: unspecified -55 (33.1%), HCV -34 (20.5%), HCV + toxic gen. -23 (13.9%), VHB -5 (3%), toxic -48 (28.6%), VHC+VHB -1 (0.6%). Endoscopy results: esophageal varices (I, II, I-II, II-III, III-IV grades) in 137 (82.5%) patients. I grade EV extensions diagnosed to 26 (15.5%) patients, with I-II grade 30 (18.1%), with II grade 32 (19.3%), II-III grade 24 (14.5%), III-IV grade 3 (3.2%), IV grade 1 (0.5%). There was a statistically significant correlation between the Ery count and endoscopic EV varices ($p=0.009$), Hb and extended EV varices ($p=0.002$).

Conclusions: It was found that the lower the erythrocyte count and hemoglobin level, the greater the degree of expansion of EV. For patients with the following parameters upper endoscopic esophageal vein examination is mandatory.

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EPIDEMIOLOGICAL STUDY OF OCCUPATIONAL EAR, NOSE AND THROAT DISEASES IN LATVIA 2005 - 2014

Key words: *Noise-induced hearing loss, chronic laryngitis, chronic pharyngitis*

Ear, nose and throat (ENT) diseases include many conditions that are commonly diagnosed by general practitioner and have a significant effect on a person's daily life and work quality.

The data about 2302 employees with occupational ENT diseases were obtained from the Latvian State Register of Patients with Occupational Diseases between 2005 and 2014. 1423 or 61.8% of all the registered employees with occupational ENT diseases were males and 879 or 38.2% were females. Totally 2562 cases of occupational ENT diseases were registered: 1514 cases or 59.1% of all the registered cases of occupational ENT diseases were in males and 1048 cases or 40.9% were in females. 1333 male employees or 93.7% of all the registered male employees with occupational ENT diseases and 721 female employees or 82.0% from all the registered female employees with occupational ENT diseases had one, 89/6.3% and 147/16.7% - two, and 1/0.1% and 11/1.3% - three occupational ENT diseases, respectively. The most frequently registered occupational ENT diseases in male and female employees were: noise effects on inner ear (1307 cases in males or 86.3% of all the registered occupational ENT cases in male employees and 392 cases in females or 37.4% of all the registered occupational ENT cases in female employees), chronic laryngitis (103/6.8% and 277/26.4%) and chronic pharyngitis (73/4.8% and 248/23.7%).

Incidence of noise effects on inner ear, chronic laryngitis and chronic pharyngitis per 100000 of employees in each gender in Latvia in corresponding year the highest was in 2009 and 2010: noise effects on inner ear - 51.03 and 55.89 cases in male employees/17.53 and 18.08 cases in female employees; chronic laryngitis - 5.75 and 5.71/12.46 and 11.38; chronic pharyngitis - 2.53 and 3.23/12.25 and 10.94, respectively. Then incidence decreased reaching in 2014 21.89 cases per 100000 male employees and 6.72 cases per 100000 female employees for noise effects on inner ear, 1.14 and 3.36 for chronic laryngitis and 0.23 and 1.57 for chronic pharyngitis, respectively.

The most frequently registered occupational ENT disease in male employees was noise effect on inner ear, whereas in female employees - chronic laryngitis and chronic pharyngitis. The significant decrease of incidence in all three of these conditions shows that the modern methods used for occupational protection and prophylaxis are effective, however, special attention is still needed for the control of intensive noise level.

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ALLERGIC CONTACT DERMATITIS AND TOPICAL METRONIDAZOLE: A CASE REPORT

Key words: Allergic contact dermatitis, metronidazole, rosacea

Introduction: Rosacea is a common and chronic skin disorder with characteristic signs and symptoms, including flushing, facial erythema, inflammatory papules and pustules, telangiectasia, edema, and puffy eyelids or conjunctivitis (Tu T. Huynh, 2013).

The three topical agents for the topical treatment of rosacea are metronidazole, azelaic acid and sodium sulfacetamide-sulfur.

Contact dermatitis to topically applied metronidazole is a rare side effect.

Case report description: A 70 year old female with rosacea and no previous history of allergy were hospitalized because of developed facial dermatitis with erythema, edema, expressed itching and crusting, after a few days of treatment with 0.75% metronidazole gel. After received treatment in the hospital (dexamethasone intravenously, prednisolone and topical application medication) condition slightly improved – edema disappear, erythema decreased. But a few days later after topical medication skin condition recurrent – facial erythema and edema increased and complication developed as exfoliative streptodermia with skin desquamation. The patient was directed for the treatment and follow-up to a dermatologist.

The topical metronidazole treatment was discontinued and rosacea was treated successfully with pulse dose of intravenous dexamethasone systems, slight topical glycocorticoid cream and 5% urea cream.

Conclusion. In this case, metronidazole could be irritating factor for this causing hypersensitivity, allergic reactions and due to skin immunosuppression complication developed. Although it used as a topical agent is generally well tolerated, and contact dermatitis to topically applied metronidazole is rare and only two cases have been published previously (Jakob Torp Madsen et. al., 2007), and that after three unsuccessful attempts with metronidazole 0.75% gel, which is one of the suggested first line medication, it would be desirable to make diagnostic patch testing.

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NEISSERIA GONORRHOEAE ANTIMICROBIAL SUSCEPTIBILITY IN SKIN AND SEXUALLY TRANSMITTED INFECTION DISEASES CLINICAL CENTER PATIENTS IN 2013–2014

Keywords: *Neisseria gonorrhoeae*, antimicrobial susceptibility, sexually transmitted infection.

Introduction: According to ECDC data in Europe, gonorrhoea is the second most common bacterial sexually transmitted infection.

N. gonorrhoeae has shown a remarkable capacity to develop resistance to multiple classes of antibiotics including penicillins, tetracyclines, macrolides and fluoroquinolones. This emergent situation causes the fear that gonorrhoea may become untreatable [Bignell C, Unemo M., 2012].

Aim: To analyze *N. gonorrhoeae* antimicrobial susceptibility results to ceftriaxone, cefixime, tetracycline, ciprofloxacin, penicillin, spectinomycin and azithromycin in Riga 1. Hospital Skin and STD diseases clinical center patients during 2013–2014.

Results: There were tested the antimicrobial susceptibility of 20 strains *N.gonorrhoeae* (14 males, 6 females samples). There was determined antibiotic sensitivity of ceftriaxone in 20 strains, of which 16 (80%; 95% CI ± 17.53) are susceptible (S), 4 (20%; 95% CI ± 17.54) – resistant (R). Sensitivity of cefixime was determined in 20 strains, 15 of them (75%; 95% CI ± 18.98) – S, 4 (20%; 95% CI ± 17.53) – R, 1 (5%;

95% CI ± 9.55) – moderately sensitive (I). Sensitivity of tetracycline was determined in 15 strains, 3 of them (20%; 95% CI ± 20.24) – S, 8 (53.3%; 95% CI ± 25.25) – R and 4 (26.7%; 95% CI ± 22.39) are moderately sensitive. Sensitivity of ciprofloxacin was determined in 20 strains, 7 of them (35%; 95% CI ± 20,9) – S, 5 (25%; 95% CI ± 18,98) – R, 8 (40%; 95% CI ± 21,47) – I. Sensitivity of penicillin was determined in 12 strains, 7 of them (58,3%; 95% CI ± 27,9) – R and 5 (41,7%; 95% CI ± 27,9) – I. Sensitivity of spectinomycin was determined in 17 strains, 5 of them (29,4%; 95% CI ± 21,66) – S, 8 (47,1%; 95% CI ± 23,73) – R, 4 (23,5%; 95% CI ± 20,16) – I. Sensitivity of azitromycin was determined in 20 strains, 15 of them (75%; 95% CI ± 18,98) – S, 4 (20%; 95% CI ± 17,53) – R and 1 (5%; 95% CI ± 9,55) – moderately sensitive.

Conclusion. Gonorrhoea was found more frequently in men (70%). The highest resistance was observed to tetracycline (53.3% – 8 out of 15 strains), penicillin (58.3% – 7 out of 12 strains) and spectinomycin (47.1% – 8 out of 17). The highest sensitivity was observed to ceftriaxone (80% – 16 out of 20 strains), cefixime and azithromycin (each 75% – 15 out of 20).

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FACTORS AFFECTING NEONATAL MORTALITY IN CHILDREN WITH DUCTUS DEPENDENT CONGENITAL HEART DISEASES

Introduction: Patients with ductus arteriosus (DA) dependent congenital heart diseases (CHD) will develop life-threatening symptoms after spontaneous closure of the DA in the first days of life. Prenatal diagnosis allows timely initiation of prostaglandin E1 (PGE1), that prevents closure of the DA. However, most of the studies have shown no difference in mortality between prenatal and postnatal diagnosed patients.

Aim: To identify factors, that affects the neonatal mortality in patients with DA dependent CHD.

Materials and methods: In a retrospective study patients presenting to the Children's Clinical University Hospital with DA dependent CHD between 2010 and 2015 were included. Necessary data were collected from medical documentation and analysed using IBM SPSS Statistics 23 and Microsoft Excel. Tests of normality were used to assess the distribution of data, Mann-Whitney U test and ANOVA were used to determine differences of various factors in survivors and non-survivors. The significance threshold was set at 0.05.

Results: The outcome was documented in 87 of the 92 cases of DA dependent CHD. Dead occurred in 21.8% of the cases (n=19; 4 without operative treatment, 15 after operative treatment), 78.2% of the newborns survived to hospital discharge (n=68; 1 without operative treatment, 67 after operative treatment). Antenatal diagnosis was made in 43.5% (n=40), postnatal diagnosis – in 56.5% (n=52) of the cases. There was no significant difference in the outcome between prenatal and postnatal diagnosed patients (p=0.549). The mean birth weight was higher in survivors than non-survivors (3.4 kg vs. 2.9 kg; p=0.008). There was no statistically significant difference in median PGE1 initiation time (2 days vs. 1 day; p=0.258), median gestational age at delivery (40 weeks vs. 39 weeks; p=0.085) and median age by hospitalisation (2 days vs. 2 days; p=0.909).

Conclusion: Birth weight was a significant predictor of neonatal mortality in children with DA dependent CHD.

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OPERATIVE TREATMENT RESULTS OF SCAPULAR BODY FRACTURE IN HOSPITAL OF TRAUMATOLOGY AND ORTHOPEDICS, RIGA, LATVIA

Key words: *scapular body fractures, scapula fractures, scapula*

Introduction: Scapula fractures are rare; according to the literature they comprise only 1% of all types of fractures and 50% of those are scapular body and spine fractures. Due to their rare incidence, lack of clearly defined and generally accepted indications for operative treatment, their complex anatomy and surgical approaches, they're widely treated conservatively. However, highly displaced and complicated fractures are considered for surgical intervention. In the "Hospital of Traumatology and Orthopedics" 5 patients with highly dislocated and complex scapular body fractures have been treated surgically. Those are the only 5 cases reported in Latvia. The aim of the study was to evaluate shoulder and arm function after the surgery and patients' subjective contentment with the procedure.

Case series description: This study reports of 5 patients (3 men, 2 women), mean age of 51,2 years (range 32-73), with dislocated scapular body fractures, treated with open reduction and internal fixation (ORIF) between 2011 and 2014, with a minimum follow-up of 24 months after the surgery. Clinical and radiographic follow-up was performed for all patients using Constant Score, Disabilities of the Arm, Shoulder and Hand (DASH) questionnaire and Shoulder X-ray (AP, Y-view). The mean Constant Score was 67,2 (range 40-93) and the mean DASH score was 16,7 (range 2,5-32,5). From all the patients 3 had other associated traumas: 2 cases of multiple rib fractures and 1 case of elbow fracture. No complications during or after surgery were reported. All patients expressed satisfaction or content with the results of the surgery.

Conclusion: "Hospital of Traumatology and Orthopedics" stands alone in Latvia performing surgery on dislocated and complex scapular body fractures. According to the DASH and Constant Score with good and very good outcomes.

Summary: Scapular body fractures are very rare and, due to its' anatomy, non-dislocated fractures can be successfully treated conservatively, thus making surgical treatment of scapular body fractures extremely rare. This case report shows 5 cases of dislocated and complex scapular body fractures treated with ORIF, with a follow-up of minimum 24 months, with good average Constant Score and DASH score results and no significant changes on their X-rays.

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AORTIC ROOT ANEURISM ASSOCIATED WITH MARFAN SYNDROME: A CASE REPORT

Keywords: *Marfan syndrome, Aortic root aneurism, Aortic regurgitation, Bentall operation, FBN1*

Introduction: Marfan syndrome is a systemic disorder of connective tissue caused by mutations in the extracellular matrix protein fibrillin 1 (FBN1). [1,2] It is associated with increased risk of several complications associated with decreased tissue strength. The overall incidence is about 2-3 per 10000 individuals. [1] Cardinal manifestations include proximal aortic aneurysm, dislocation of the ocular lens, and long-bone overgrowth. [1,2] Detecting early symptoms of the disease has high importance in lowering the chance of life-threatening complications.

Aim: The goal of this case report is to show the importance and efficiency of early diagnostics that decrease the chance of developing life-threatening complications.

Case presentation: A 20-year-old caucasian male with Marfan syndrome was hospitalized with complains of shortness of breath during physical activities. Patient is 205 cm tall basketball player with a previous medical history of aortic root dilatation although it didn't affect his daily activities. Due to increased shortness of breath patient underwent physical examination revealing severe dilatation of the aortic root (5.2cm) with secondary aortic regurgitation (II-III). Depending on radiologic and clinical findings patient was diagnosed with Marfan syndrome. Due to patient's diagnosis and clinical state, surgical intervention was indicated.

Conclusion: Due to severe aortic root aneurism and secondary aortic regurgitation patient underwent Bentall operation showing no short- or long-term complications.

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3D PRINTING: CUSTOM-MADE IMPLANTS FOR CRANIOMAXILLOFACIAL RECONSTRUCTIVE SURGERY

Keywords: 3D printing; Rapid prototyping, Craniomaxillofacial defects, Reconstructive surgery

Craniomaxillofacial reconstructive surgery is the surgical intervention to repair cranial defects, mostly after traumatic injuries, but also congenital disorders, tumor removal or decompressive craniectomies. The aim of these surgeries is to restore the function and preserve the facial features. Three-dimensional (3D) printing has been widely adopted in medical fields by providing tactile feedback and a superior appreciation of visuospatial relationship between anatomical structures. Craniomaxillofacial reconstructive surgery was one of areas that pioneered the use of 3D printing technology. Modern imaging techniques are an essential component of preoperative planning in reconstructive surgery. Significant improvements in clinical imaging and 3D software contributed to computer-aided 3D modeling of not only anatomical structures, but also custommade implants/prostheses. 3D Printing has proven to improve and assist in preoperative planning, to develop intraoperative guidance tools, to enhance the teaching of medical students and surgical trainees. With this review our aim is to present the current status of 3D printing technology and its practical and innovatives applications, specifically in craniomaxillofacial reconstructive surgery, illustrated with clinical cases where the 3D printing technology was successfully used.

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THE PREVALENCE OF FLATFOOT AND OBESITY AMONG SCHOOL-AGED CHILDREN

Introduction: The foot is an important element of the musculoskeletal system and it's responsible for our mobility and independence. With the increase of body weight increases the weight-bearing pressure on the feet, as a result, causing changes in the footsteps. Podometry is one of the most effective way to determine the pressure distribution on the surface of the foot.

Aim: To assess the prevalence of flatfoot and obesity among school-aged children.

Materials and methods: A prospective study was conducted with children aged 5–15 years. A questionnaire and computerized podometric system was used to assess objectively the condition of the feet. The data obtained was processed with MS Excel 2013 program using descriptive statistical methods.

Results: 74 schoolchildren participated in this study, 66.2% (n=49) girls and 33.8% (n=25) boys. The average age was 9.7 ± 2.8 years. Results of the podometry show that 22.97% (n=17) of children have flatfoot. BMI prevails in 33.78% (n=25) of children who suffer from overweight and obesity. But no linear relationship between obesity and flatfoot was revealed. The prevalence of flatfoot was 28% (n=7) among boys and 20.41% (n=10) among girls. The prevalence of flatfoot decreases significantly with the age: in the group of 5-to-8-year-old children 35.71% (n=10) showed a flatfoot, whereas in the group of 8-to-15-year-old children only 15.21% (n=7) had flatfoot. No significant differences in prevalence of flatfoot between overweight, obese, and normal-weight children were observed.

Conclusion. Childhood obesity is a serious health threat to children, being overweight or obese contributes to other diseases that limit the quality of life. Achieving and maintaining a healthy weight is a very important part of overall health. Podometry is one of the quickest and most effective way to examine the foot.

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GENDER, PLACE OF RESIDENCE AND ANXIETY AS FACTORS AFFECTING XENOPHOBIA LEVEL AMONG POPULATION OF LATVIA

Key words: Xenophobia, anxiety, gender, residence

Introduction: Xenophobia is an irrational fear, hatred and mistrust of foreigners and strangers, mostly in terms of different culture, nationality and race. It is characterized by paranoid suspects of foreigner's evil intentions, which is a type of anxiety. Studies suggest that men are globally more tolerant of immigrants. Also residents of more cosmopolitan regions have lower anti-immigration attitude.

Aim: Determine how gender, place of residence and trait anxiety are affecting level of xenophobia among population of Latvia.

Materials and methods: A cross sectional study was conducted among 511 respondents from 18 to 82 years old with mean age 34.2. Respondents were divided into groups based on gender – 29.5% males; 70.5% females; and place of residence – 53% residents of Riga; 47% residents of 22 other cities and 15 districts of Latvia. Xenophobia was measured using 9-item xenophobia scale (score 9 to 54) (van der Veer, Ommundsen, 2011), anxiety was measured using The State-Trait Anxiety Inventory (STAI) (score 20 to 80) (Spielberger, 1983). Statistical data were analyzed using IBM SPSS v.22.

Results: Xenophobia mean ranks between residences: Riga 231.8, other regions 284.3 (Mann-Whitney U test, $p < 0.05$). Anxiety mean ranks between residences: $p > 0.05$ (Mann-Whitney U test). Xenophobia mean ranks between genders: female 274.0, male 230.6 (Mann-Whitney U test, $p < 0.05$). Anxiety mean ranks between genders: female 274.9, male 228.3 (Mann-Whitney U test, $p < 0.05$).

Conclusions: Residents of Riga compared to residents of other regions of Latvia have significantly lower xenophobia level. There is no statistically significant difference between level of anxiety in residents of Riga and residents of other regions. Female gender is significant factor linked to higher xenophobia level and higher anxiety level. It can be concluded that higher anxiety can be related to higher xenophobia in terms of gender.

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MEDIATION IN LATVIAN HEALTHCARE SYSTEM

The aim of the paper is to provide some insight into an opportunity to use mediation in healthcare disputes in Latvia. The number of applications in healthcare cases before the court is growing. It shows that there are some problems in healthcare legal system that should be improved. The paper highlights the practical side of the problem to use mediation in disputes between patients and healthcare professionals. The results of the paper shows that legislation allows apply mediation in healthcare disputes. Nevertheless in order to make mediation process more popular in health care disputes it is necessary to comply with several difficulties and peculiarities mentioned in the paper. The paper has described some new ideas of mediation in healthcare disputes in Latvia.

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KNEE ULTRASOUND COMPARED TO MAGNETIC RESONANCE IMAGING AS A DIAGNOSTIC TEST FOR MENISCAL INJURIES: A SYSTEMIC REVIEW OF EXISTING EVIDENCE

Key words: Radiology, Ultrasound, Magnetic resonance imaging, Knee, Meniscus

Meniscal injuries of the knee joint are associated with long-term dysfunction, degenerative knee joint changes, and great expenses for diagnostics and treatment. Ultrasound and magnetic resonance imaging are widely used diagnostic tests in diagnosing meniscal injuries. The aim of the study was to conduct a systematic review of the literature to compare ultrasound and magnetic resonance imaging in the diagnostics of meniscal injuries. A total of 49 publications met the eligibility criteria for this review. US is simple, dynamic, rapidly performed, relatively inexpensive diagnostic tool for meniscal injuries. New US systems and techniques like Real time Compound, 3-D or 4-D US in combination with conventional US may improve its diagnostic value. Sensitivity of detecting meniscal tears with US varies between 74–90%, specificity 81–90%, positive predictive value is 75–83% and negative predictive value is 85–89%. Disadvantages of US include lower specificity and sensitivity comparing to MRI, it is operator dependent and dependent on body habitus. MRI on the other hand has different planes and sequences that constantly improve allowing to improve image quality. It is possible to diagnose meniscal tears preclinically. Sensitivity of MRI in detection of meniscal tears varies between 87–97%, specificity 87–98%, negative and positive predictive value can be as high as 97% each. Disadvantages of MRI include possible contraindications like the presence of implanted devices and its expensiveness. In conclusion MRI remains a gold standard for imaging meniscal injuries of the knee joint, however US could be used as a highly accurate alternative diagnostic tool.

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ASA SCORE AND SHORT TERM RESULTS IN COLORECTAL CANCER SURGERY

Key words: ASA score, colorectal cancer, complications, hospital stay.

Introduction: American Society of Anesthesiologists (ASA) score is a simple tool for preoperative evaluation of surgical patients. It was introduced in 1963 and has been widely used and studied since then. Research suggest association between ASA score and several perioperative parameters. However, there is considerable inconsistency in patient evaluation between anesthesiologists, therefore practical value of ASA score is questionable.

Aim: The aim of this study is to compare short-term outcomes of patients with different ASA scores.

Materials and methods: A retrospective analysis of 119 patients with colorectal cancer (CRC) treated at a university hospital was performed. Patients were divided in two groups - ASA 1-2 (n=78) vs ASA 3 or higher (n=41). Demographic data (age, sex) and perioperative measures (operative time, postoperative complications and hospital stay) were compared between the two groups. Statistical analysis was performed using SPSS version 23; differences were considered significant if $p < 0.05$.

Results: Patient age ($p=0.75$) and gender ($p=0.57$) did not differ between the two groups. There were no statistically significant differences between ASA 1-2 and ASA 3 or higher groups with respect to operative time (median, 130 min [interquartile range (IQR) 110-165] vs 140 min [IQR 110-180]; $p=0.69$). Complication rate showed no significant differences and was 10.4% in ASA 1-2 group and 14.6% in ASA 3 or higher group ($p=0.56$). Hospital stay also did not vary significantly (median, 9 days [IQR 7-11] in both groups; $p=0.90$).

Conclusion: Higher ASA score was not associated with worse short-term results in CRC surgery patients in particular institution, contrary to findings in several studies on this topic. Misinterpretation of ASA score by anesthesiologists is the most likely cause, indicating a need for further evaluation of interrater reliability and practical value of this assessment tool.

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CHARACTERISTICS OF ACUTE KIDNEY INJURY IN NEWBORNS WITH PERINATAL ASPHYXIA AND THERAPEUTIC HYPOTHERMIA TREATMENT

Key words: Acute kidney injury, therapeutic hypothermia, perinatal asphyxia

Introduction: The incidence of moderate and severe perinatal asphyxia requiring therapeutic hypothermia in developed countries is about 1 in 1000 live births. Kidneys are one of the most often damaged organs and acute kidney injury (AKI) might be an independent risk factor in neonatal morbidity and mortality.

Aim: To ascertain if the characteristics of newborns with AKI would differ from newborns with no AKI.

Materials and methods: In a retrospective study data from Children's Clinical University Hospital and Riga Maternity Hospital was obtained using patient charts and electronic data bases. Patients treated with therapeutic hypothermia from June 2012 until August 2015 were included; patients were excluded if there was any substantial information missing from the patient chart. Patients were divided into groups of AKI and no AKI based on modified Acute Kidney Injury Network criteria. The

outcomes in the two groups were compared. Data was analysed using IBM SPSS Statistics 22 and Microsoft Excel.

Results: Female sex was associated with a greater incidence of AKI – 63.6% vs. 29.2%, $p=0.042$, in the AKI and no AKI groups, respectively. There were no statistically significant differences between the two groups in gestational age, birth weight, mode of delivery, presence of a perinatal event, one- and five-minute Apgar scores or the geographic location of birth. There were no statistically significant differences in the two groups in base deficit, use of vasopressors, blood product transfusions, gentamycin, vancomycin or mode of therapeutic hypothermia. The difference approached statistical difference in pH levels – 6.91 (IQR 6.77–7.00) vs. 7.00 (IQR 6.90–7.07), $p=0.057$, and mortality – 18.2% ($n=2$) vs. 2.1% ($n=1$), $p=0.086$.

Conclusions: The characteristics of neonates with AKI are similar to those with no AKI. Studies including more patients might be able to further differentiate the two groups.

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COMPLICATIONS IN PRIMARY BILIARY CIRRHOSIS: PATIENTS WITH VARICEAL BLEEDING PRESENT WITH HIGHER CTP AND LOWER MAYO RISK SCORE

Keywords: *primary biliary cirrhosis, complications, hepatic encephalopathy, ascites, gastroesophageal varices, variceal bleeding*

Introduction: The most frequent primary biliary cirrhosis (PBC) complications include portal hypertension (presenting with ascites and gastroesophageal varices (GEV), often complicating with variceal bleeding (VB) and hepatic encephalopathy (HE)). Organ failure (hepatorenal syndrome, hepatopulmonary syndrome and end-stage liver disease) is a less frequent but more serious complication, associated with a rapid decrease in survival. The Mayo Natural History Model for PBC (Mayo risk score) shows the survival probability of a patient with PBC without treatment. It is estimated based on age, bilirubin, albumin, prothrombin time, presence of peripheral oedema and usage of diuretics.

Aim: To analyse PBC complication data in Latvia for patients with confirmed PBC diagnosis.

Materials and methods: Retrospective medical documentation study of all PBC patients admitted to Riga East Clinical University Hospital – the biggest, 2270-bed medical centre in Latvia, from 2010 to 2015. An originally created study protocol, containing more than 35 parameters, including, PBC complication data, was completed for each patient and data was entered into database with consecutive statistical analysis using SPSS 20.0.

Results: 34 patients, 33 (97%) female and one (3%) male patient, were admitted 54 times. At the time of PBC confirmation 5 (11.7%) patients had decompensated cirrhosis. Older (>65 years) PBC patients were more decompensated at the time of PBC diagnosis ($p=0.044$). At the time of hospitalization 15 (44.4%) patients had decompensated cirrhosis. Patients who presented with decompensated cirrhosis were diagnosed 3.9 times earlier comparing to the patients who were compensated at the time of PBC diagnosis confirmation ($p=0.045$). Ascites ($p=0.01$), hepatic encephalopathy (HE) ($p=0.038$), variceal bleeding ($p=0.002$) and anaemia ($p=0.007$) was more frequently found in older (>65 years) patients. 10 (29.4%) patients had ascites, 3 (8.8%) had pleural effusion, 4 (11.8%) had HE: 3 (8.8%) – stage I, 1 (2.9%) – stage II. Patients with HE had 1.4 times higher Mayo risk score than patients without HE ($p=0.048$). GEV were found in 17 (50%) of all patients. 3 (17.7%) have had one VB episode, 1 (5.9%) – two and 1 (5.9%) – five VB episodes. Statistically significant difference was found in CTP score levels and Mayo risk score levels between patients with and without VB in anamnesis. Patients with VB had 1.8 times higher CTP score ($p=0.014$) and 1.8 times lower Mayo risk score (0.013). None of the patients had hepatorenal or hepatopulmonary syndrome.

Conclusions: 1. Older patients (>65 years) had more PBC complications (HE, VB) and were more decompensated at the time of PBC diagnosis. 2. Patients who presented with decompensated cirrhosis were diagnosed earlier. 3. Patients with hepatic encephalopathy had higher Mayo risk score. 4. Patients with variceal bleeding in anamnesis had higher CTP and lower Mayo risk score.

Conflict of interest: none

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WHO IS AT GREATER RISK FOR MYOCARDIAL INFARCTION IN RA?

Background: Patients with rheumatoid arthritis (RA) have increased mortality and morbidity due to premature cardiovascular disease (CVD). Some factors involved in the development of RA-associated CVD have not yet been fully delineated.

Objectives: The aim of the study was to verify whether female gender, the reproductive period, smoking history, atherosclerotic lesions in brachiocephalic vessels, carotid intima-media thickness (IMT), traditional CV risk factors, as well as RA disease activity and disease duration influence excess CVD and cerebrovascular disease in patients with RA.

Methods: A case-control study was performed within the prospective cohort of 94 RA patients (female: 84%; age: 20–82). Cases were 26 patients who developed their first myocardial infarction (MI) after the diagnosis of RA. Controls and cases had comparable disease duration. Traditional (BMI, smoking history, diabetes mellitus), pulmonary arterial hypertension (PAH) and disease-specific risk factors for MI were assessed. Atherogenic Index of Plasma (AIP; $\log \text{ TG/HDL-C}$) calculated. Carotid artery hemodynamic parameters, IMT and plaques were assessed using high resolution B-mode and Doppler-mode ultrasound in order to detect blood flow velocities, maximal IMT and size of atherosclerotic plaques, respectively. RA activity and severity were determined by DAS28, CDAI, SDAI scores, ultrasonography of synovitis and HAQ questionnaires. Statistical analysis was performed by using IBM SPSS 21.0.

Results: Patients with MI were mostly females (96%), with a median age of 61 (54–69) years. The mean disease duration was 3.5 (1–9) years. About 34% of cases were smokers. The risk of MI in RA women was 3.91 (OR). In female patients, who smoked it was 1.36. Patients with MI were not significantly older compared to control RA patients ($p=0.316$). Interestingly, 88% of RA cases with MI and 100% of non-MI controls ($p=0.005$). High RA disease activity (DAS28 above 4,17) was observed in 46% of patients with MI. Seropositivity was found in 92%, while erosions in small joints in 58% of cases. Joint replacement surgery was necessary in 13% of MI cases. Stroke developed in 13% of cases and 10% of controls. PAH was detected in 75%, of patients with MI. No statistically significant difference in IMT between MI cases and controls could be found ($p=0.217$). Furthermore, atherosclerotic lesions were not more pronounced in RA patients with versus without MI ($p=0.874$).

Altogether 91,7% patients with MI had atherosclerotic plaques in brachiocephalic vessels resulting in <50% luminal stenosis, while 8,3% of patients had plaques causing >50% lumen obstruction. IMT exerted significant correlation with age ($p<0,001$), plaques in brachiocephalic vessels ($p=0.045$), PAH ($p=0.001$), joint erosions ($p<0.05$) and symptom onset in RA ($p<0.05$). PAH also correlated with brachiocephalic vessel plaques ($p=0.01$). Bivariate logistic regression revealed that in females with late onset menarche (>16 years) and early menopause (<45 years) had lower, while patients with late onset menopause had greater risk for developing MI.

Conclusion: In our case-control study, brachiocephalic plaques, PAH, the onset of menarche and menopause may be associated with the development of MI in RA patients. These preliminary observations indicate the existence of less evident risk factors, which should be further characterized in future studies.

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SYMPTOMS OF DEPRESSION IN CONNECTION WITH FREQUENCY OF ALCOHOL USE AMONG PATIENTS IN THE UNIT OF ADDICTION DISORDERS IN RIGA CENTRE OF PSYCHIATRY AND ADDICTION DISORDERS

Key words: *Alcohol use disorder, alcoholics, alcohol, alcohol unit, depression*

Introduction: Alcohol use disorder is a chronic relapsing disease and affects many patients worldwide. Numerous studies have shown a high rate of comorbidity between alcohol use disorder and depression.

The aim was to assess drinking habits and symptoms of depression among patients in Riga Centre of Psychiatry and Addiction Disorders.

Methods: Overall 72 male and female inpatients treated in the unit of Addiction Disorders with diagnosis codes F10.0, F10.2, F10.8 (ICD-10) were included in the study. Three questionnaires were administered. Crosstabulation with multiple variables, Fisher's Exact Test, Mann-Whitney U Test were applied ($p < 0.05$).

Results: Of all the patients 62,5% (N=45) were male and 37,5% (N=27) were female with the exact diagnoses. The mean age of all patients was $47,0 \pm 12$. The most frequently was used vodka – in 65,3% (N=47) of cases. Mean daily alcohol unit was $15,3 \pm 9,8$. Each day five alcohol units drunk 70,8% (N=51) of all the patients, and ten alcohol units drunk 51,4% (N=37) of all the patients. Mean age when patient first drank five alcohol units in single drinking occasion was $22,5 \pm 9,3$. Depressive episodes in the past were found in 40,3% (N=29) and recurrent episodes were found in 18,1% (N=13) of patients.

Conclusion: Depression affects many people with alcohol use disorders. Further studies are necessary to determine the causal effects between alcohol use disorders and depression.

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ECTOPIC PREGNANCY

Introduction: Ectopic pregnancy is pregnancy that develops outside endometrium of the normal uterine cavity, pregnancy cannot develop fully in those places and it is considered to be life-threatening to women. The most common place, where it occurs is fallopian tube (98% of all ectopic pregnancies). In remaining 1–2%, it occurs – in ovaries, abdominal cavity, cervix, intraligamentous, interstitial, in vesicovaginal space or in places after uterus surgery. In year 2014 in Latvia on every 1000 newborns were 18,4 ectopic pregnancies.

Aim: To find out how many cases of ectopic pregnancy has occurred in SIA "RAKUS" stationary "Gailezers" from 2010 to 2014, how many of them rare forms were. To compare risk factors, diagnostic and management of ectopic pregnancies in SIA "RAKUS" and worldwide.

Methodology: This research work is retrospective and descriptive. The medical records of patients, who were hospitalized in SIA "RAKUS" stationary "Gailezers", covered the time period from 1.01.2010 to 31.12.2014. In this research the following diagnosis were included: fallopian tube, ovarian, interstitial, caesarean scar, cervical and intraligamentary pregnancies. Data were processed using MS Excel 2010 and SPSS 20.

Results: In time period there were 600 women hospitalized with diagnosis ectopic pregnancy, 571 of them with fallopian tube pregnancy and 29 with rare forms of ectopic pregnancy. Average patients age – 30,77 years (SD 5,576). The following risk factors were described:

- older than 35 years – 161 (26,8%) of patients;
- history of caesarean section – 87 (14,5%);

- history of abortions 302 (50,2%);
- history of sexually transmitted infections 120 (20%);
- history of ectopic pregnancies 85 (14,3%);
- prior abdominal or pelvic surgery 174 (29%)

Only rare forms of ectopic pregnancy and their diagnostics were described in detail. There were analysed 11 medical records of interstitial pregnancy; 8 medical records of caesarean scar pregnancy; 7 records of ovarian pregnancy and one case of intraligamentary pregnancy. The most common complaints at the time of hospitalization were: amenorrhea (22 out of 29); vaginal bleeding or spotting (18 out of 29) and lower abdominal pain (15 out of 29). Two patients did not have any complaints (one with interstitial, one with ovarian pregnancy).

Conclusions: Risk factors, complaints and objective signs of the patients with ectopic pregnancy of SIA "RAKUS" stationary "Gaiļezers" mostly matches with scientific literature. Part of the factors could not be evaluated, because they (for example, smoking), were not mentioned in all medical records.

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ETIOLOGY OF OTOGENIC MENINGITIS IN PAULS STRADINS CLINICAL UNIVERSITY HOSPITAL

Key words: acute otitis media, chronic otitis media, meningitis

Introduction: meningitis is one of the most frequent intracranial complications of otitis media. Although incidence of the complications of otitis media thanks to effective antibacterial treatment has decreased, it still remains a potentially lethal problem in developing countries.

Aim: to evaluate the characteristics of patients with acute bacterial meningitis due to acute or chronic otitis media in Pauls Stradins Clinical University Hospital. To find out the most frequent etiology – acute or chronic otitis media.

Materials and methods: a retrospective study using 47 patients' records with bacterial meningitis due to acute or chronic otitis media who were hospitalized in Pauls Stradins Clinical University Hospital's Department of Otorhinolaryngology in the period of January 1st 2006 to December 31st 2015. Patients younger than 18 years and with post-traumatic otogenic meningitis were excluded.

Statistical analysis was conducted using SPSS 23.0 software and $p < 0.05$ was considered statistically significant. Descriptive statistics, T-test and Spearman's correlations were used.

Results: 47 patients were viewed retrospectively – 61.7% male ($n=29$) and 38.3% female ($n=18$). Mean age of the patient was 56 years (± 17), mean hospital stay – 19 days (± 10). 74.5% of patients had acute otitis media ($n=35$). 61.7% of patients had otitis media of the right ear ($n=29$). There was no statistically significant difference between gender and etiology of meningitis – acute or chronic otitis media ($p=0.065$). Positive cerebrospinal fluid culture was found in 21.3% ($n=10$), most frequently found pathogen was *S.pneumoniae* (80.0%, $n=8$). In 27.7% there was a positive bacterial culture of the fluid or discharge found in the middle ear ($n=13$), most frequently found pathogen – *S.pyogenes* (27.7%, $n=3$). There were 8 lethal cases – 17.0%, with no difference between mortality and etiology ($p=0,667$).

Conclusions: in the majority of recent studies the main etiology of intracranial complications is chronic otitis media. Our study shows that acute otitis media was the main cause of otogenic meningitis.

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STROKE PATIENTS' RELATIVES SATISFACTION EVALUATION OF REHABILITATION SERVICES IN FURTHER REHABILITATION STAGE

Key words: early rehabilitation, stroke, opinion of patients' relatives

Introduction: Stroke is clinical syndrome consisting of rapidly developing clinical signs of focal disturbance of cerebral function lasting more than 24 hours or leading to death with no apparent cause other than a vascular origin (WHO). It is one of the leading causes of death and disability worldwide. In Latvia in 2014 from cerebrovascular diseases died 244.5/100 000 inhabitants. Quintessential task of rehabilitation is to provide person with inability with the best psychological and physical potential and also involve relatives in this process.

Aim: To evaluate a participation of stroke patients' relatives in further rehabilitation stage as well as to find out relatives satisfaction with provided services.

Materials and Methods: In this research was used data from PSCUH neurology clinic which held information about patients with diagnosis stroke who received rehabilitation services from 1 Aug till 31 Oct. Study was realized by questionnaire method calling each relative. All data was analyzed using MS Excel program.

Results: 100 respondents were questioned. 13 patients had died, 25 respondents didn't pick up, 5 refused to talk. After discharge from the hospital 31% received referral for home rehabilitation, 60% to the NRC "Vaivari", 2% to the RC "Jaunķemeri", 5% to the Sigulda Hospital rehabilitation center. 18% (11) of the patients waited in the queue to the NRC "Vaivari" up to one month, 28% (17) were waiting for 2-3 months, 4% (2) waited longer than 3 months, 13% (8) are still waiting, 37% (22) refused from this service. With NRC "Vaivari" provided services 77% (24) were satisfied, 23% (7) were not. 56% (15) refused from the home rehabilitation, 11% (3) are still waiting and 33% (9) waited up to a month. 100% of respondents admitted this service as useful. Currently 46% do not participate in rehabilitation, but 61% of them would be willing to do so.

Conclusions: The most common received referral was to the NRC „Vaivari”. Majority of patients who had received referral for home rehabilitation refused from it or claimed that there was no such referral, it could be explained by the lack of information about this service.

Currently kinsfolk involvement in the rehabilitation process is not sufficient however they would be willing to take part after training.

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EQUILIBRIUM REACTIONS DEVELOPMENT IMPACT OF 11-15-YEAR-OLD CHILD INTO IMPROVING

Daily life load the child's spine has grown rapidly, so the muscles in great tensions and the starting position is not physiologically normality. Muscle functional abilities related to children's health and physical development. Children's health is one of the most pressing problems put in to public.

Physical activities and sports activities play an important role in vestibular analyzer. Vestibular analyzer function resistance very significantly improve different direction in training when using special exercises, which are related to body position changes in the room, and, thanks to physical exercises constitute normal movement stereotypes, which weakens pathological stereotypes, and thus contribute to different into less intrusive and the body's normal functioning.

Since most of the study was devoted to the development of muscle corset and its impact on the state of the spine, it was decided to investigate the vestibular apparatus and pro reception developments on

musculoskeletal apparatus functional improvement of the situation, therefore, to enter into a correction.

In order to enter into a certain asymmetry or imbalance anthropometry it used to determine the child's height, leg length of the absolute, and body mass index, which helps to assess the child's physical development. With stabilometry method was estimated balance function Quality. Score changes with and without school backpacks. With the help of podometry it was determined distribution of the weight on each leg.

After two years of study, obtained the following results: leg length difference in an upright position increases the instability, the static podometry data showed that school backpacks weight distribution are not significantly affected. However, practically all pupils' weight distribution is skewed. Uneven weight distribution on the lower extremities indicates disturbances. After data stabilometry school bags weight adversely affects the quality of the balance functions.

The research results show that 11–15 children aged vestibular training is an important correction into.

KVARTĀRVIDES PĒTĪJUMI

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RESEARCHES OF QUATERNARY ENVIRONMENT

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INTERNAL STRUCTURE OF RIVER LOWER TERRACES IN THE UPPER DAUGAVA DEPRESSION

The investigation of the internal structure of river terraces I and II was performed at several sites in the Upper Daugava depression. For this purposes, conventional field techniques like hand-drilling, collecting of samples, measurements of clast macrofabrics, etc. were realized. To get insight into geochronology of terraces formation, the AMS ¹⁴C dating collected samples of organic matter was carried out at the Poznan Radiocarbon Laboratory. In two sections in the Elerne quarry, the data on macrofabrics were obtained by measuring the dip azimuth and inclination of clasts. To perform that, 50 elongated pebbles with a length from 1 to 5 cm and with an a/b axis ratio ≥ 1.5 were selected and their orientation was measured by Silva 15 TDCL compass. Thereafter macrofabrics data were processed by StereoNet 3.1 software and visualized as contour diagrams on a lower-hemisphere Schmidt net. In the same sections at Elerne quarry 100 pebbles of the fractions within ranges 8–16 mm, 16–32 mm and 32–64 mm were collected. The shape of collected pebbles was determined in the laboratory according to Sneed and Folk (1958) classification, and the identification of clast roundness classes was performed according to Powers (1953). First of all, obtained data on the internal structure of terrace II provides evidence of the possible presence of cryoturbation and permafrost processes related to periglacial conditions. The estimation of the shape of pebbles indicates that compact-bladed and bladed clasts are the dominant ones. The analysis of the macrofabrics indicates relatively weak to medium strong bimodal azimuth. It is typical for glaciofluvial sedimentation environment. Finally, the results of the ¹⁴C dating of samples from terrace I reveal that in Medieval Times, i.e. during the Little Ice age, high-magnitude geomorphic processes took place in the Upper Daugava depression, leading to intensive deposition of fluvial or aeolian sediments and burring of soils and organic material.

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GEOLOGICAL CHARACTERISTICS AND MORPHOLOGY OF KALUPE TUNNEL VALLEY AND ADJACENT TERRITORY

The Kalupe tunnel valley, which is located in the south-eastern part of the Eastern Latvian Lowland, represents the features of subglacial origin. Several such negative landforms have been mapped in this part of Latvia and mentioned in scientific literature since the 1970s. Nevertheless, there is still a lack of detailed geological and geomorphological data on these landscape elements. That also relates to Kalupe tunnel valley. The lack of data, in turn, limits the understanding of key issues related to the formation and paleogeographic development of Kalupe tunnel valley, as well as other such channel-like landforms in south-eastern Latvia. Hence, field and desk-based studies with the aim to obtain data on geological characteristics and morphology of Kalupe tunnel valley and adjacent territory were carried out. The research programme includes the development of DEMs, geomorphological field reconnaissance, geological hand drilling and survey of slope profiles. The performed studies reveal that Kalupe tunnel valley form system of several interconnected and submeridionally oriented elongated depressions with several lakes inside them. The total length of tunnel valley is ca. 18.6 km. It stretches from NNW to SSE, i.e. from the river Dubna valley to the edge of inland dune field in surroundings of Daugavpils city. The results of 58 drillings indicate that Quaternary sediments in Kalupe tunnel valley and adjacent territory are represented by glaciolacustrine deposits. To the northward from lake Lielais Kalupes, the uppermost part of the land surface consists of varved clays, loam and silt, while fine and medium sand occurs towards the southern edges of the tunnel valley. Such a geographic distribution of sediments indicates that paleocurrents of subglacial meltwater drainage in this area flowed from north to south. It coincides with the data on retreating of ice margin during Gulbene deglaciation phase, at the end of the Late Weischelian glaciation.

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GIS BASED ASSESSMENT OF GEODIVERSITY INDEX: A CASE STUDY IN THE NATURE PARK "DAUGAVAS LOKI", LATVIA

The protection of both biotic and abiotic nature values requires the understanding of the spatial patterns of elements of nature diversity which should be preserved. However, until now in Latvia management plans of protected areas mainly deal with elements of biotic nature, e.g. biodiversity, endangered species, etc. At the same time diversity of elements of abiotic nature is of secondary importance or even is 'forgotten part' of nature conservation work. It is caused by lack of data, deficiency of standardized criteria and absence of a unified methodology for assessment of landforms, geological and hydrological features, etc. as protected nature objects. For such purposes, the concept of geodiversity is successfully used across the world in the last decade. However, it has not yet been applied in Latvia for the evaluation of abiotic diversity, i.e. natural diversity of geological, geomorphological, soil and hydrological characteristics. Hence, the aim of this study was to use the methodology described in the scientific literature for the assessment of geodiversity index in the GIS environment. Such an index indicates a geographic distribution of geodiversity on a specific territory, and at the same time implicitly provides the information for the evaluation of the variability of biotic factors. For that reason, the estimating of geodiversity of the Nature Park "Daugavas loki" was performed based on the methodology developed by of Serrano et al. (2009). A regular grid of 100 x 100 m was used, and the calculations of geodiversity index were done based on geological data, soil composition, slope angle and geomorphology of the study area. The input data were processed and converted into ESRI Grid raster data format. ArcGIS 10.0 software and tools of Spatial Analyst extension were used for generating the geodiversity index map. The obtained data can be used for the needs of geoconservation and development of nature protection measures in this part of Latvia.

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APPLICATION OF METHODS OF DENDROCHRONOLOGY FOR IDENTIFICATION OF MEDIUM-TERM CLIMATE CHANGES IN SOUTH-EASTERN LATVIA

During last decades, we can observe the increase in the number of scientific studies in the field of various applications of tree-ring analysis. For instance, in Quaternary studies, methods of dendrochronology are widely used, which allows identifying a variety of factors and processes affecting tree trunk ring growth and thereby to interpret trends of global climate or environmental changes. Review of the scientific literature reveals that in a semi-humid temperate climatic zone, where south-eastern part of Latvia belongs, a key factor limiting rate and size of wood growth is the temperature during the vegetation season. Hence, assumably, application of dendrochronology methods could allow to identify the medium-term climate changes that have occurred due the impact of global warming. To verify this assumption, the goal of the study was to evaluate the dynamic of tree rings growth of Scots pine (*Pinus sylvestris* L.) during the last 80 years. The study was conducted in south-eastern part of Latvian, where Scots pine forests are widely distributed. First of all, according to data provided by State Forest Service of Latvia, cutting sites were chosen. In order to obtain comparable data, sampling sites with well-drained mineral soils were selected. To verify the composition of soil, field survey by Eijkelkamp single gouge auger were realized at each site. For each cutting site, ten samples from lower part of pine trunks were obtained. The samples were scanned by large format optical scanner at resolution 1200 dpi. Subsequently, identification of tree rings and analysis of their growth patterns was realized by LignoVision software. In order to remove the trend of aging, radial-growth series were processed by COFECHA program. Finally, analysis of data and constructing of graphs was done by Microsoft Excel. The preliminary results demonstrate that all graphs do not clearly indicate the curves of rising temperature trend.

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GEOLOGICAL STUDIES OF THE TERRACE VII, THE AUGŠDAUGAVA SPILLWAY VALLEY - RESULTS OF CLAST MACROFABRICS AND SHAPE ANALYSIS

This paper presents the preliminary results of geological studies of the terrace VII of the Augšdaugava spillway valley. Two sections of the uppermost part of the terrace sediments were studied in the Grantskalnes sand and gravel quarry near Veckaplava, the left slope of the spillway valley. One of the sections is located transverse and the other parallel to the direction of the stretch of the terrace. Sections were cleaned, and the orientations of a long axis of elongated pebbles embedded in sediments were measured. Considering the requirements of conventional field techniques in glacial geomorphology, 50 clasts per each section were measured. The azimuths of dip and inclination angles for each collected pebble were taken with a Silva 15 TDCL compass. The collected macrofabric data was processed using the StereoNet 3.1 program. It allows visualizing macrofabric data as the three-dimensional diagrams of pebble a-axis orientation on the lower hemisphere and in equal area projection. In addition at both sections 100 pebbles of the fractions 8–16 mm, 16–32 mm and 32–64 mm were collected. Subsequently, the three axes of each pebble were measured by digital calliper and plotted in triangular diagrams using the TriPlot module to estimate the shape of clasts according to the classification of Sneed and Folk (1958). It permits to obtain substantial scientific data. The results of studies demonstrate that azimuths of the elongated clasts plunge towards the WSW and show quite a unimodal pattern. Hence, it coincides with a flow direction of meltwater streams in this area during the formation of spillway valley. Considering the obtained data, it is likely that terrace VII is not an

erosional fluvial terrace but rather a kame terrace or part of the local glaciofluvial delta. However, it necessary to perform further investigation of geological structure of the terrace VII by ground penetrating radar.

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MORPHOMETRY AND GEOGRAPHIC DISTRIBUTION OF RUŽINA-ANDRUPENE ESKER SYSTEM

Many eskers and their systems have been mapped in the Latgale Upland and adjacent Eastern Latvian Lowland. However, the extent to which the morphology and geographic distribution of these landforms are currently studied is insufficient. One of these landscape features is Ružina-Andrupene esker system. To obtain data about the morphometry and other geomorphological characteristics of this landform, field and desk-based studies were carried out. For these purposes topographic maps at scale 1: 10 000 and SRTM digital elevation model were analysed in GIS environment. Also, relevant data were obtained during geomorphological and geological field reconnaissance. The results of the study demonstrate that the esker system is elongate, straight to slightly sinuous ridge-like formation of glaciofluvial sediments, represented mainly by sand, gravel and pebble deposits. The esker system is more than 14 km long and is rather a complex formation, where typical esker ridge-like segments alternate with groups of parallel distributed elongate hummocks. In general, the system is oriented from NW to SE and marks pathways of subglacial meltwater drainage. The altitude of the esker varies from 170 to 200 m asl., the relative height is from 14 to 35 m. Along both sides of esker system, the numerous closed depressions of different morphology are located. Review of the information given in literature indicates that origin of these depressions can be associated with the development of glaciokarst kettles. In several such depressions, lakes or bogs have been formed. Obtained results demonstrate that considering the morphology and geographic distribution of esker system, presumably it was formed as a time-transgressive glaciofluvial structure by streams of glacial meltwater during the Kaldabruņa (South Lithuanian) phase of deglaciation. However, to verify that further more detailed studies are needed.

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ESTIMATION OF SHORT-TERM DYNAMICS OF MID-CHANNEL BARS WITHIN THE RIVER DAUGAVA STRETCH FROM KRĀSLAVA TOWN DOWN TO KRAUJA VILLAGE

Despite the presence of mid-channel bars as natural obstructions for timber floating in Daugava was described on the navigation maps since the 19th century, until now the data on dynamics of these alluvial landforms have not been analysed. Hence integrated desk-based and field studies were realized within the river stretch from Krāslava town down to Krauja village to understand and quantify the short-term evolution and changes in the geographic location of mid-channel bars. Studies include manual digitising of orthophoto maps at scale 1: 10 000 of the 1st till 5th cycles of aerial photography. These maps were prepared by Latvian Geospatial Information Agency and cover the time span from 1999 till 2014. Besides, geological and geomorphological field surveys were realized during expeditions, which allowed collecting data on vertical composition, internal structure and morphology of studied mid-channel bars. The obtained results demonstrate that geographic location of bars within Daugava stretch from Krāslava down to Krauja is rather stable. In the period 1999–2014 position of bars in some places changed for 10–15 m, however, in average these changes in position

are only some meters. Recognition of the fact that bars basically are stationary within the Daugava bed allows referring these aggradational forms to the non-migrating or forced bars. Identified changes of configuration and area of bars can be explained by the different extent of inundation resulting from differences in water level in the particular years when the aerial photographs were taken. The stability of bars is associated with the presence of very coarse material, i.e. boulders and gravel in the core of bars. Such a concentration of coarse material create the local perturbations of stream flow and favour sandy sediment deposition over stony rises in the river bed due to a decrease in stream velocity. Thus, a combination of mentioned factors enables the formation of these specific riparian habitats.

DABAS AIZSARDZĪBA UN VIDES PĀRVALDĪBA

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NATURE PROTECTION AND ENVIRONMENTAL MANAGEMENT

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DAUGAVPILS CITY MUNICIPAL BUILDINGS ENERGY CONSUMPTION EVALUATION BEFORE AND AFTER THE IMPLEMENTATION OF ENERGY EFFICIENCY MEASURES

To satisfy nowadays people needs there had been consumed a very large amount of energy, but modern research shows that the volume of world's major energy resources decreases and pollution that is emitted to get energy grows. In comparison with other sectors, the household, including needs to exploit building, requisites significantly more energy. It is essential fact why in household sector need to assess the opportunities to consume less energy and to integrate energy efficiency-oriented measures.

Most Latvian buildings have been built till 1990 – that's why Latvian residential can be considered as passed and maintaining it from a technical point of view is unprofitable. For building could be qualitatively fulfill their functions, be strong, stable, non-combustible, human health and the environment-friendly, energy efficient, it is necessary to evaluate the various aspects and after analyses apply complex measures to maximize its improvement.

In this research there have been generally evaluated the Daugavpils municipal buildings energy consumption, its characteristics and more detailed – three apartment buildings specification in Daugavpils (buildings on Cietokšņa street 70, Jātnieku street 88 and Vienības street 4).

After these concrete apartment building analysis from technical, economic and environment point of view, there were concluded that acting prudently and integrating in building a variety of targeted and sustainability-oriented measures, it is possible to achieve many benefits, including the achievement of substantial energy resources and financial resources savings.

After renovation works in all these buildings there were achieved essential heating energy savings – now the building residents do not need to consume so much energy as before to get comfortable conditions in their apartments and that's why they can hence the financial savings too – bills for heating are not so big and the investments in renovation pay off very quickly.

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THE CHANGES IN THE LANDSCAPE USE IN THE NATURE PARK “DVIETES PALIENE”

Floodplains are constitutive components of river landscape and very important for the conservation of the biodiversity. Floodplains are inhabited not only by the characteristic plants, animals and microorganism species, floodplains also have an important role in the life cycle of migratory birds. In spite of the fact that in Latvia in the beginning of the 20 century the meadows of floodplains were one of the common meadow type, exactly in the middle of the 20 century the most substantial changes took place in the landscape of floodplains. This happened in the end of 1960 when the intensive land reclamation had drained two thirds of the floodplain meadows and according to this, flooded territory had considerably diminished. That is why the aim of the research was to find out how the structure of landscape in nature park „Dvietes paliene” has changed: if the area of the forests and meadows has been increased or diminished, as also if the new land reclamation system was created. The nature park general area is 4989 ha and it is one of the largest and the better saved samples of the floodplain’s ecosystems in Latvia and in Europe. By the using contemporary and historical cartographic material was made geospatial analysis using ESRI software ArcMap 10.0 version. The obtained results of work shows that land reclamation most affected central part of the nature park “Dvietes paliene” and the forest area has slightly decreased.

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SUGGESTIONS TO PREIĻI REGION TOURISM MARKETING DEVELOPMENT PROGRAM

Tourism development in Latvia is recognized one of the priority of national economy and environment development. To improve tourism industry, Preiļi region had made Preiļi region tourism marketing development program, which purpose was to define main directions and actions of tourism from 2013. till 2018. year. But in this document have not specific targets in what kind of way and how will be to landscape tourism infrastructure. In two expeditions in Preiļi region where surveyed 27 tourism objects. In surveying method where valued: physical accessibility, objects environment, level of comfort, object distance from others tourism objects, popularity of objects and information accessibility, objects value and tourism activity. And in this research where looked and evaluated target, visions and tasks of Preiļi region tourism marketing development program till January of 2016 year.

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THE ASSESSMENT OF LANDSCAPE OF THE LAKE MEIRANI

Keywords: landscape, analysis of view, landscape research, lake Meirani, development of tourism

Some services of the Rezekne region Development program for the years 2012–2018 average duration priorities “Varied public services and service infrastructure development” prescribe to landscape public green and blue zones, modernise infrastructure of open-air culture, sports and active tourism and to promote development of sacral, cognitive and nature tourism.

In order to define the potential modes of tourism at the littoral of the lake Meirani, which is located in Berzģale rural district, the analysis of the existing landscape views was performed. This method

includes photographing surrounding objects with the view from the researched territory and with the view towards the territory. By the author's scale the modes of views were determined. The method helps to evaluate attractive and aesthetic views that must be maintained and perfected and visually uninviting and degraded views that must be improved.

Through the analysis of the results it can be concluded that wide and visually attractive views dominate at the littoral of the lake Meirani, which assign the territory a landscape value.

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ASSESSMENT OF THE TREE VITALITY IN THE PROTECTED ALLEY OF THE EASTERN LATVIA

Keywords: *Latvian landscape, natural monuments, alleys, protection, cultural-historic elements, vitality of trees, management*

Alleys are significant elements of Latvian landscape. They are of vital aesthetic, cultural-historic and biodiversity conservation importance. Alleys make up the visual image of a territory. Thus it is important to have them managed.

Three protected alleys located in the eastern part of Latvia have been studied and assessed. Two of them are located in Daugavpils Region – the Grancova Alley and the Medumi Alley, and one can be found in the Ilukste territory – the Subate Alley. These alleys are of great importance due to their dendrological value. The Grancova Alley's length is 650 m. It is comprised of linden mainly; however it includes other species as well, such as elder, maple, pine, and larch. The Medumi Alley consists of oak trees. But the Subate Alley in its turn is comprised of linden.

During the study, health of alleys' trees has been assessed, and visual evaluation of trees has been performed. The indices of their trunk, crown, and root quality have been included in this assessment. The information on the height and diameter of the trees has also been summarized.

The protected alleys are of great value, and in order to ensure their sustainable functioning, it is necessary to perform management of trees growing in such alleys. This can reduce the risk of dangerous situations. First of all, it is necessary to build tree crowns systematically, to cut down the branches, which may endanger traffic or pedestrian flow. The uncovered tree roots have to be covered by a layer of soil to reduce damage to the roots.

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ZASA MANOR PARK: INVENTORY AND MANAGEMENT RECOMMENDATIONS

Manor parks mainly are perceived as an ancient and aristocratic green areas with historical planning. Old rural parks are assessed because of cultural heritage and aesthetic-recreational value.

Old parks mostly are admitted as one of the regions most important cultural heritage units, as well as important and potential touristic places. They assist to growth social ties in local towns or municipalities. Reasonable planning and maintenance of green space is considered as leading point for the park management, they turns into „green magnets” and attracts plenty and variety of visitors. For reason mentioned above, it is important to provide various viewing points, as well as wide range of activities at the park territory.

Zasa manor park is located in Jēkabpils district Zasa municipality. It is 23 hectare large landscape park. Park is a perspective place to spend an active and healthy lifestyle, accordingly create a tighter social ties. It is place where rural tourism with conservation of cultural landscape can be cultivated. Zasa park is classified as a significant local cultural and natural object with particular protection and assigned with landscape architectural monument status.

Within studies Zasa manor park was researched. Park territory is situated on both sides of Zasa river near the cascade of mill pond, where park territory is developed for recreational use. In the park composition are observed 18th century landscape park features in romantic tendency. In the manor park territory can be found such objects as the devilstone, healing stone, sacred spring, ruins, mound of sugar, island of love, white pond, lime and oak alley, as well as secular trees.

In the manor park it is necessary to restore bridges, benches, renew landscape viewing points, perform protective measures for castle remnants, as well as note walking paths. It is needed to create a manor park cartographic material, including park objects and also create informative material for visitors of the park, such as booklet of Zasa manor park.

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GEOSPATIAL ANALYSIS OF FOREST LANDSCAPE FRAGMENTATION IN ILŪKSTE MUNICIPALITY

Keywords: GIS, indices, forest, fragmentation, Ilūkste

Fragmentation of the landscape can be observed for a very long time and is mainly due to the increase in urbanization, land use/land cover changes and specific forest management. The rapid development of spatial technologies such as Geographic Information Systems and remote sensing in the last decade have created many new tools to analyze forest landscape fragmentation. During the last years we can observe an increase in the number of scientific studies in the field of landscape ecology, which are focused on research of spatial patterns of ecological processes. The study area is Ilūkste municipality which is located in the South-East of Latvia. Ilūkste's forests are habitat to a large number of rare and protected animal and plant species. As the biggest threat is habitat loss for land species due to clear cutting, which affects forest structure and composition and as more habitat is fragmented the greater the number of species disappearing. The aim of the study is to perform spatial and temporal analysis of forest landscape fragmentation using several landscape indicators. The importance of the study is to improve understanding of the forest dynamics, especially at a regional (large-scale) scale. This study provides detailed methodology which can be used as a reference when working with landscape pattern indices.

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EXPLORATION OF BROWNFIELDS IN DAUGAVPILS CITY NEIGHBORHOOD JAUNĀ FORŠTĀTE

To ensure the quality of urban environment, each city need to implement sustainable urban planning through regeneration of brownfields. Inventory of Daugavpils City Urban Planning and Construction Department includes 50 properties, that can be classified as brownfields. Detail brownfield exploration will allow Daugavpils Municipality to identify economically inefficient urban resources to further their management planning. So far such exploration in Daugavpils had not been carried out.

When performing brownfields assessment, scientists recommend to take into account population density of given territory. More people will benefit from the restoration of brownfields in densely populated areas. The most populated neighborhood in Daugavpils is Jaunā Forštate. This is also the most recently build residential area in Daugavpils city. Neighborhood still is not spatially and compositionally completed due to absence of public centers. Development of this area can be improved by expanding territories with business, social and recreational use.

During the inventory in Jaunā Forštate neighborhood, eight abandoned building areas, what correspond to Land Management Law brownfield definition, was detected. One of the buildings

found in these areas is unfinished, other buildings was formerly used for commercial, administrative or household purpose. 50% of territories described above are classified as potentially degraded, other – as degraded. The main criteria determining the classification of these brownfields are efficiency of use and impact on the landscape. If territories which at the moment are potentially degraded will not be properly maintained, impact on the landscape will increase, respectively, they will be classified as degraded.

IEKŠĒJIE ŪDEŅI, TO RESURSI UN VIDES KVALITĀTE

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RESOURCES AND QUALITY OF INLAND WATER OBJECTS

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THE FIRST INTERNATIONAL DRIFT EXPEDITION ON THE MIDDLE DAUGAVA RIVER IN 2015

The 9th annual drift expedition on the Middle Daugava River was conducted on March 26, 2015. As usually, it was organized by the Department of Geography and Chemistry, and the Department of Ecology (Daugavpils University). This was also the the 1st international drift expedition on the Middle Daugava River conducted by representatives of Daugavpils University and the Department of Hydrology and Climatology of Vilnius University (Lithuania).

The aim of the expedition was to collect new data about downstream variation of the water mass hydrodynamics, composition and properties along the river channel during the spring floods, as well as to assess possible influence of communal waste waters, stagnant floodwaters, streambed material, solar radiation, etc. The drift was conducted according to the Lagrangian research strategy by applying a drifting scientific research platform that was designed at Daugavpils University in 2007 and equipped with a HACH multiprobe, a GPS receiver, the zooplankton sampling net, an echo sounder and other instruments.

The drift was started at 08:00 15 km upstream from Daugavpils (at Krauja village) and finished at 18:15 about 35 km further downstream. During the drift, hourly sampling of the selected water mass for the phytoplankton and zooplankton communities was performed. In addition, water samples of the suspended load were collected at different depths of the river channel. Besides, the water mass temperature, pH, conductivity, dissolved oxygen concentration, turbidity, redox potential, and chlorophyll a concentration was measured at each sampling site by the multiprobe, and the drift speed and geographical position of the research platform as well as the channel depth and water transparency were recorded, too. In total, 43 samples of water were collected, and large number of real-time measurements of different physical, chemical and biological parameters of the selected flood water mass of the Daugava River were performed *in situ*.

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THE ASSESSMENT OF GROUNDWATER VULNERABILITY TO CONTAMINATION IN DAUGAVPILS DISTRICT

The assessment of groundwater vulnerability to contamination, as well as mapping of areas prone to contamination risk is crucial in order to protect groundwater and provide appropriate management of this vital resource regarding territorial planning and spatial development. That completely relates to Daugavpils district, where groundwater, particularly of porous Quaternary aquifers, still is the main source of drinking water supply for many people in the countryside areas. These groundwater sources are subject to contamination due to a wide distribution of covering water-permeable Quaternary deposits, e.g. glaciofluvial, aeolian or alluvial sands and gravelly-sand mixtures, which often constitute the upper part of sedimentary strata in Daugavpils district. For this reason, Daugavpils district was chosen as model territory for detailed studies. In this territory, integrative research was carried out to obtain data on the depth of groundwater table, a location of recharge and discharge zones of aquifers, hydraulic conductivity of the unsaturated sediments, their granulometric composition, point and diffuse sources of pollution or contamination within the study area, as well as other parameters. The input data were processed and transformed into thematic layers of *.shp format. It allows to integrate, analyse and visualize the information in the GIS environment. For this purposes, ArcGIS 10.0 software and tools of geospatial analysis of extensions Spatial Analyst and 3D Analyst were applied. The obtained results have been used to draw up vulnerability maps in GIS. The prepared GIS data and digital maps can be used in a decision support system as an integral part of territorial planning, environmental management and groundwater protection by responsible officers, planners, decision makers and members of local authorities of Daugavpils district.

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THE CHANGE OF ECOLOGICAL SITUATION OF LUDZA SMALL LAKE AND IT'S EFFECT ON THE CITY

Ludza Small Lake is located in the central part of the Ludza city, in a geological depression where the rainwater which is not being taken care of by the city drainage system, is accumulating. During the recent years, a rapid overgrowing of the lake's western part has been apparent. To evaluate the ecological state of the lake, sludge samples from its western part as well as water samples at different points of the coastline have been taken. To determine how the state of the lake has changed, a survey of residents who live in coastal areas has been conducted. The lake's depth has been measured using hand-held echo-sounder, and obtained results have been collated with historical information.

Taking into account the information provided by the residents, one of the main sources of lake's pollution have been several industrial companies, which were located on the western coast of the lake. They were dumping poorly treated or untreated wastewaters which contained different organic impurities, in the lake.

The accumulation of organic sediment has contributed to the creation of a thick sludge layer. Water temperature has increased, resulting in increased growth of various algae and bacteria. Several kinds of aquatic plants have become extinct, and the lake has become more shallow. All those processes are causing degradation of the biotope and a slow transformation of the lake into a fen.

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PONTO-CASPIAN GAMMARID PANTOGAMMARUS ROBUSTOIDES G.O. SARS, 1894 IN THE ҔEGUMA RESERVOIR OF THE DAUGAVA RIVER, 2015

P.robustoides is very common and successful Ponto-Caspian gammarid invader in Europe waters especially in the large rivers. In Latvian inland waters incoming Ponto-Caspian gammarids and mysids initially were introduced as a valuable fish food in the Soviet time. It was realized in the several nearest lakes to Rīga and the Daugava River Ҕeguma Reservoir in the 1960s. The assessment of Ponto-Caspian gammarid *P. robustoides* occurrence in the Ҕeguma Reservoir of the Daugava River was done in May and July, 2015 by qualitative sampling. The collection of gammarids samples and measurements of water physico-chemical parameters were performed simultaneously. *P.robustoides* was found both in May and in July. *P. robustoides* was observed in the shallow (littoral) parts of the reservoir (backwaters) and the creek of the small streams (Rites and Ҕegas) up to 0.5 m depth. Research project was supported by the national research program „The value and dynamic of Latvia’s ecosystems under changing climate - EVIDEnT” project “Non-native species distribution and impact on the Baltic Sea and freshwater ecosystems” sub-project 2.4. „Non-indigenous species distribution and impact on freshwater ecosystems”.

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BLOOMS OF TOXIC CYANOBACTERIA IN THE LATVIAN LAKES – POTENTIAL RISK FOR HUMAN HEALTH

Latvia is rich in lakes, especially shallow, naturally eutrophied lakes. The intensive agriculture and melioration acts as continuous supply of nutrients to lakes ecosystems. It results in intensive blooms of potentially toxic cyanobacteria in the majority of Latvian lakes. As model lakes were chosen lakes Burtnieku and Alūksnes, to perform the seasonal studies of toxin production and accumulation in different fish species. The algal biomass was sampled monthly from May – October 2015. The fishes (roach, bream, tench, perch, pike, pikeperch) were sampled in May, August, October, using Nordic type gillnets. The toxin concentrations in samples were estimated using ELISA kits for microcystin analysis. The bloom of toxic cyanobacteria reached the maximum in August with following decrease in September-October. The accumulation of cyanobacterial toxins in fish liver started in August, with an increase in October, confirming the accumulation and transfer of toxins via food chain. The tendency of increasing toxin content with increased fish size was observed irrespective of fish species. However the carnivorous fish showed higher concentrations of toxins in the liver. Interestingly the highest concentrations of toxins were detected in fish liver in May, suggesting that after heavy blooms of toxic cyanobacteria in summer 2014, the detoxification processes in fish liver were not efficient enough. The present study reveals the potential risk for human health from the increased consumption of fish from the lakes with pronounced algal blooms. The further analysis of toxin content in fish muscles are carried out.

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AN ANALYSIS OF THE THREE STRONGEST WINTER STORMS IN THE EASTERN BALTIC

The study covers an analysis of three major winter storms developed over the eastern Baltic region. These storms have been initiated by the fast developing extra-tropical cyclones. The analysed cases were the strongest during the past 50 years because of the produced hurricane strength winds. All of these storms are recognizable by their given names: "Anatol", "Ervin" and "Felix". Most of the devastating damages were made for the Lithuanian, Latvian and Estonian coastlines. Dunes and the beaches appear to be the most affected zones during these storms because of the sea surge and high winds however forest destructions and power cuts affected many residents not only residing in the coastal zone but also far away inland.

An analysis of the synoptic development of three storms is combined with their modeling using Weather Research and Forecasting (WRF) model. Results showed very uneven surface wind field approaching eastern Baltic coast demonstrating particular areas where maximal wind direction was perpendicular to the coastal line. Position of the center of the storm differed during each case which led to different penetration scales of devastating wind areas inland.

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QUARRY „JAUNDUTKAS” POSSIBLE EFFECTS ON GROUNDWATER LEVELS IN THE LIELO KANGARU SWAMP

The research was held in Ropazu county, Ropazu parish Vaverkroga, near the mineral resource extraction place „Jaundutkas”. Around the „Jaundutkas” quarry has developed into groundwater depression funnel and close to the quarry is located a *Natura 2000* site, nature reserve „Lielie Kangari”. The aim was to find out whether the quarry „Jaundutkas” is an effect on of the Lielo Kangaru swamp groundwater levels. Methods of research included groundwater level measurements piezometrical wells. The main conclusions: on exploratory moment no significant groundwater level fluctuations. This means that „Jaundutkas” quarry depression funnel does not affect the Lielo Kangaru swamp.

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QUALITY OF WATER SUPPLY NETWORK RELIABILITY

Water supply network is one of the most important parts of city structure and human life preservation. According to the buried environment, networks of underground utilities are heavily inspected and activities of network monitoring are limited. In the same time, quality of water supply largely depends on the availability of reliable information about the precise position of network parts and the surrounding environment.

Transmission of precise data about an accident or failure on water pipe into geographical information system – is an important and necessary part of a better understanding of underground environment processes and it's correlations with accidents.

Failure counting on water pipes, different activities of monitoring, precise positioning of failure and available information about natural and anthropogenic soil conditions make a better background for understanding environmental processes and failure causes and may provide a better quality of water supply network.

Water supply network is one of the most important parts of city structure and human life preservation. According to the buried environment, networks of underground utilities are heavily inspected and activities of network monitoring are limited. In the same time, quality of water supply largely depends on availability of reliable information about the precise position of network parts and the surrounding environment. Transmission of precise data about an accident or failure on water pipe into geographical information system – is an important and necessary part of a better understanding of underground environment processes and it's correlations with accidents. Failure counting on water pipes, different activities of monitoring, precise positioning of failure and available information about natural and anthropogenic soil conditions make a better background for understanding environmental processes and failure causes and may provide a better quality of water supply network.

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WATER LEVEL OBSERVATIONS IN THE LAKE PAKAĻŅA FROM 2013 TILL 2014 DURING THE CIRIŠA HPS ACTION

Investigations of the water level changes in the Lake Pakaļņa and water quality were done since 2012. There were observed considerable water level changes during the small Ciriša HPS action. Thereby, the main reason of study is to clarify water ecological quality due to water level changes and to give answer to question: does the water level change in the Lake Pakaļņa mainly depend on the Ciriša HPS action? Obtained daily water level changes (measuring relative meters) was comprised and analysed among the years (2012–2014), and correlated with date of precipitation from the Daugavpils Meteorological Station.

Consequently, the water level changes were evidently unequal and unpredictable in the Lake Pakaļņa. Remarkable water level changes have been seen after several days of very low water level, for example, on September 2013, when during daily water level arise up to 50 cm. Usually quick changes of the water level were observed in summer time during low water period and in the fish spawning time (2013 and 2014). The analyse of correlation showed that the main factor that impact on the water level in the Lake Pakaļņa are not precipitation in the lake catchment but action of the Ciriša HPS.

BOTĀNIKA, ZOOLOĢIJA UN EKOLOĢIJA

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BOTANY, ZOOLOGY AND ECOLOGY

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PRELIMINARY RESULTS OF THE INVERTEBRATES MONITORING IN LATVIA

Invertebrates form monophyletic a group of animals that excels with large species diversity and are widely represented in the Latvian fauna. Large body of data, regarding the occurrence of various species in Latvian fauna, is available in scientific literature. However most of this information is fragmentary, and does not provide a unified, complete picture of the distribution of species, in relation to variety of environmental factors. There is also a lack of information about temporal changes in abundance and range shifts due to climate change. The studies of the invertebrate fauna predominantly have occurred in recent past and have mostly focused on protected nature areas, which form a strong bias for providing a complete view of the protected species occurrence in Latvian fauna. Invertebrate monitoring would provide chance to study and understand which habitats and which species could be good representatives for the whole country. During this monitoring, data on currently protected and species that might potentially be protected in future need to be collected, as well as other valuable information that can be used for creating conservation plans for particular species. In 2015 monitoring of four insect groups (butterflies, moths, dragonflies and ground beetles) in 15 square shaped study plots all over the country was carried out. Leading experts from according fields have been involved to assure reliable data. As a result from first year of monitoring several new findings of protected insect species have been reported, including six protected dragonfly species and nine protected and rare butterfly species. The most important and valuable records are: *Euphydryas aurinia*, *Lycaena dispar*, *Leucorrhinia pectoralis* and *Ophiogomphus cecilia*. These species are protected by the habitat directive, included in Annex II. During the monitoring insect species that are recognised as invasive and harmful to the agriculture and/or forestry were collected as well.

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LATVIAN LAKELAND EUROPEAN VENDACE (COREGONUS ALBULA) MORPHOLOGICAL CHANGE ANALYSIS

Coregonus albula, also known as the vendace or as the European cisco, is a species of freshwater whitefish in the family *Salmonidae*. Found in several Latvian lakes and included in a list of specially protected species with restricted use in Latvia. Included in the Red Data Book of Latvia under the category 3 (rare). Morphological analysis is important to set reasons of observed differences and to compare the results with earlier vendace investigations. Morphological values were obtained using Pravdin's (1966) described methodology. Investigated fishes were grouped by age. Fish age was determined by scale microscopic analysis. Morphological and morphometrical parameters in the vendace (*Coregonus albula*) population from Stirnu, Dridzis, Lejas, Svintes, lakes of Latvia were investigated. Morphological features include 8 morphometric parameters and 3 meristic parameters.

Statistical analysis of morphometric and meristic changes of *Coregonus albula* was performed using RStudio, LibreOffice Calc and Pearson correlation analysis. Morphometrical and meristic parameters of vendace population from Latvian lakeland were compared with Lithuanian, Russian, Belorussian local populations.

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MORPHOLOGICAL VARIABILITY OF THE EUROPEAN SMELT (OSMERUS EPERLANUS) IN LATVIAN POPULATIONS

European smelt *Osmerus eperlanus* (Linnaeus, 1758) belongs to family salmon (*Salmoniformes*). Communicating and lacustrine kind widespread in North Europe. Distinguishing feature of this fish, in that she smells a fresh cucumber. Morphometric parameters of fishes are one of basic indicators of the state of populations of fishes in water ecosystems. The different factors including anthropogenic contamination of environment, influence on the morphological parameters of fishes.

Interpopulation changeability of morphometric parameters of *Osmerus eperlanus* is was investigated in natural reservoirs, namely in the lakes of Geranimovas-Ilzes (Latvia).

During realization of morphological analysis for fishes the plastic determine and meristic (account) parameters: for example, plastic, length of body, length of head, the least and most height of body. Meristic – number of vertebrae, branchial stamens, presence and structure of touchline. Methodical advantages of morphological approach create possibility to study individual changeability on the basis of analysis of large number of morphological parameters. The study of individual changeability allows estimating possibilities of adaptation of populations in the unsteady terms of environment introduction.

Plastic parameters specify on the exterior of fish, correlation of separate parts of body and include the different measuring. To the meristic parameters take the number of vertebrae, branchial stamens, rays in the flippers of and other. In the research were measured twenty plastic parameters with program Libreoffice calc.

Changeability of general sizes and proportions of body is educed in both populations, that specifies on plasticity and in the presence of adaptation potential.

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MICROBIOLOGICAL CONTAMINATION AND DIVERSITY OF MOULDS IN SPICES AND HERBS

Spices and herbs consist of several anatomical parts of the plant, which are not of high nutritional value, however they have great sensory importance and influence on the digestive process. Nevertheless, in spices and herbs can be found spore-forming bacteria as *Bacillus cereus*, *Enterobacteriaceae*, and moulds as *Aspergillus*, *Penicillium*, *Fusarium* spp. In spices and herbs that are used in nutrition, mycotoxin-producing moulds can cause health problems for consumers, as well as contribute to food spoilage and reduce shelf-life. The aim of this study was to determine microbiological contamination in spices and herbs, collected from various retail points.

In the study were used 32 different types of spices (66%) and herbs (34%), which constituted in 75 samples. Materials for research were obtained from supermarket chains and local markets. For determination of moulds and water activity ISO standards were used. Mould genera was determined by the macro- and micro-morphological characteristics.

Study results showed that the highest number of mould was found in minced ginger $4,8 \times 10^4$ CFU/g that was obtained in the local market. Type of commercialization (a supermarket chain or market) significantly affects the microbiological contamination ($p < 0,05$) in spices and herbs. Moulds were

found in 58/75 (77%) samples. In all spices and herbs water activity ranged from 0,36 to 0,67, and it had a low correlation with the level of microbiological contamination. Overall 8 mould genera were found: *Aspergillus* spp. (45%), *Fusarium* spp. (31%), *Penicillium* spp. (10%), *Alternaria* spp. (5%), *Mucor* spp. (3%), *Cunninghamella* spp. (2%), *Cladosporium* spp. (2%), *Stemphylium* spp. (2%). From all the identified moulds *Aspergillus* and *Fusarium* spp. are the main cause for toxicosis.

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THE PARASITIC FAUNA RESEARCH OF SMALL MOUSELIKE RODENTS (CRICETIDAE, MURIDAE) AND SHREWS (SORICIDAE) IN LATVIA

Rodents and shrews are the largest and more common groups of mammals worldwide. In Latvia voles are represented by 3 genus and 5 species, rats and mice – by 5 genus and 8 species, shrews – by 2 genus and 3 species. They have a high rate of reproduction, are diverse in distribution, and have the ability to adapt to a wide variety of habitats. In ecosystem they play an important role in life of nature and human. Rodents and shrews can act as definitive and intermediate hosts of many endoparasitic species, several of which are common for domestic animals, and humans. Studied rodents are epidemiologically important for humans and animals because they can transfer parasitic diseases agents.

In Latvia, so far, research of rodents and shrews parasite fauna has not been studied before. Aim of this research is to obtain data of parasites in rodents and shrews from several sites of Latvia. Rodents and shrews were caught by pitfall traps. Animals were investigated using dissection method after which internal organs (esophagus, stomach, small and large intestines, liver, lungs, peritoneum, pectoral and abdominal cavity) of each rodent were removed and examined, using stereomicroscope, for helminths.

Registered parasites in rodents and shrews are still under detection, and part of them is stored in 96% ethanol for the future molecular biology studies. Morphometric parameters were registered.

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INVESTIGATION OF WILD CARNIVORES ON SARCOCYSTIS SPP. IN LATVIA

Sarcocystis spp. are common, worldwide distributed protozoan parasites of reptiles, birds, and mammals. Typically, herbivores serve as intermediate hosts, while carnivores act as definitive host of *Sarcocystis* species (Dubey and Lindsay 2006). However, recent investigations indicate that carnivores may also act as intermediate hosts of these parasites. The aim of the present study was to investigate two species of wild animals, red foxes and raccoon dogs, for presence of *Sarcocystis*.

Muscle samples, utilized in this investigation, were collected from hunters during the hunting season, also were analysed accidentally hit animals. Samples were analysed in the time period between 2013 and 2015. Totally, 401 red fox muscle samples, and 231 raccoon dog muscle samples were examined. Cysts were detected in 10 samples of red fox (2.49%), though sarcocysts in raccoon dog were not

observed. Intensity of infection was low and estimated 4.7 cysts per 28 oath-size sections of muscle (~ 1g). Low level of infection intensity could be explained by the fact that usually sarcocysts are more common in diaphragm, oesophagus, and heart, rather than in leg muscles. Based on molecular biology analyses, cysts from red fox muscles were identified as *Sarcocystis arctica*, previously detected in two arctic foxes (*Vulpes lagopus*) in Norway by Gjerde and Schulze (2014). This is the first time *S. arctica* was detected in red foxes; however definitive host of identified *Sarcocystis* species remains unclear. Phylogenetic results show close relationship of *S. arctica* with *Sarcocystis* spp. using birds as intermediate, and definitive hosts. Therefore, scavenger birds presumed to be definitive hosts of *S. arctica*. This implies further task, to disclose definitive host of *S. arctica*, by examination of intestinal tract of scavenger birds for the presence of *S. arctica* oocysts/sporocysts.

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A SHORT-TERM EXPOSURE TO PREDATION AFFECTS BODY ELEMENTAL CONTENT AND GEOTAXIS RESPONSE IN DROSOPHILA MELANOGASTER

A number of factors such as temperature, habitat, larval density, food availability and food quality substantially affect development of the fruit fly (*Drosophila melanogaster*). The results of this study reveal predation as an important determinant of adult phenotype and survival in *D. melanogaster*. The larvae of *D. melanogaster* were exposed to jumping spider (*Phidippus apacheanus*) predation, and this influenced adult body elemental content, body mass, lipid reserves and climbing speed during negative geotaxis tests. We found higher concentration of body nitrogen, lower body mass and lipid reserves, better climbing ability and survival in *D. melanogaster* reared together with spiders, while concentration of body carbon did not differ between fruit flies reared with or without their predators. This indicates the flies reared with predators did not suffer from predator-borne chronic stress but changed their phenotype to survive under risk of being attacked. Our results suggest that potential of predators to affect development and adult phenotype of *D. melanogaster* should be taken into account while planning laboratory tests and especially when comparing natural populations living under differing predation pressure.

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DETECTION OF FREE-LIVING PROTOZOA IN ENVIRONMENTAL SAMPLES BY CULTIVATION

Free-living amoebae (FLA) can be found in different natural sources such as soil, freshwater, salt water, dust. Some FLA are predators, and can control microbial communities, but FLA can be isolated from different industrial water sources, such as tap water, heating. FLA (most common *Acanthamoeba* sp., *Hartmannella* sp. and *Naegleria* sp.) can establish and stimulate biofilms, harbor intracellular bacteria, protecting them from unfavorable conditions like water chlorination. These bacteria can be pathogens like *Legionella* sp. therefore it is important to detect and identify FLA in domestic sources. First and most important step in this process is FLA cultivation (Vaerewijck et al. 2010).

According to method, one liter of water is required to filtrate through membrane filter, with pore size of 0.45 µm, after which, same filter is cut in small pieces. **First step** - is enrichment of the samples: cutted filter pieces are placed in Petri dish with 25 ml of PAS (Page's Amoeba Saline Solution) medium and 2-3 sterilized rice grains, incubating it for 5-7 days at temperature of 25°C. **Second step** - is preparation of another Petri dishes with Non-Nutrient Amoeba Saline Agar (NNA) where *E. coli* culture is placed at the agar, in shape of letter Z. **Third step** - is purification of culture: in the Petri dish, with NNA, 30 µl of sample from PAS medium is placed at the edge of letter Z. After 5 more days of incubation at 25°C, Petri dishes are examined under microscope magnification (x400). If a line of amoeba is detected, then part of the line, on medium, is cut out and placed in Petri dishes with PYG liquid (Peptone Yeast extract Glucose) medium for further cultivation. FLA is easier to take from PYG media for molecular identification, which is a next step of investigation.

Using this method amoeba can be isolated from natural water sources, tap water and washouts from water pipes.

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INTERACTIONS BETWEEN INSECT MIDGUT BACTERIA AND ENTOMOPATHOGENIC BACTERIA AND THEIR POTENTIAL IN INSECT PEST CONTROL

Gypsy moth (*Lymantria dispar*, Lepidoptera) outbreaks can cause great damage to forestry across Europe. In order to control this pest, there is need for new insecticidal bacterial strains for the development of more effective biopesticides.

Different kind of bacterial interactions might occur in insects' midgut communities - from pathogenic to obligate mutualistic interactions. Cooperation of two or more specific microorganisms have potential for exploitation in insect pest control (Douglas 2007). Latest investigations suggest that mixed infection of pathogenic and non-pathogenic strains has important evolutionary implications for the maintenance of toxin-based virulence (Raymond 2013).

The aim of this study was to characterize the bacterial midgut community of the important forest pest gypsy moth (*Lymantria dispar*) and to screen for new biocontrol agents with synergistic activity against insect pests. For bacterial community analysis a cultivation independent and a cultivation independent approach (16S rRNA gene sequencing using Single Molecule, Real-Time (SMRT) DNA Sequencing) was used.

We tested new pathogenic/synergist isolates from natural *L. dispar* midgut community and checked if their combinations can lead to increase of larval mortality. The influence of main entomopathogenic

bacteria on growth of midgut bacterial isolates were measured by spot-lawn agar assay and liquid medium broth method using live members of bacterial isolates. We tested isolates effect on larval mortality when they were applied individually and in mixtures.

We tested HD1 *Bacillus thuringiensis* strain as a control (Bt HD1), *Pseudomonas protegens* CHA0 – biocontrol agent of plant pathogens with recently discovered insecticidal activity (opportunistic pathogen), *Serratia marcescens* (SM) entomopathogenic bacteria isolated from *Pieris rapae* and bacterial isolates from *L. dispar* midgut community.

If compared with individual entomopathogenic bacteria, mortality increased in all bacterial mixture combinations. Spot lawn assay showed that entomopathogenic bacteria are able to inhibit growth of bacteria isolates that are less frequently isolated from insect midgut.

This project was conducted within the frame of the SCIEX program with ETH Zürich as partners.

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CURRENT DATA ABOUT THE PERCCOTTUS GLENII AS INVASIVE THREAT FOR RARE NATIVE AMPHIBIAN SPECIES IN THE PROTECTED LANDSCAPE AREA “AUGSZEME”, LATVIA

The invasive fish *Percottus glenii* inhabits the largest part of Latvia (Pupina et al. 2015). It is a new predator for amphibians and a vector of their parasites. *P.glenii* is especially dangerous in Latvia for small and fragmented populations of species on the northern edge of its European range: *Triturus cristatus*, *Bombina bombina*, *Pelobates fuscus*. These species co-inhabit in the protected landscape area Augszeme, Natura 2000. *P.glenii* was first registered here in 2007 (Pupins, Pupina 2012). Therefore, it was essential to conduct a monitoring of *P.glenii* modern colonization in Augszeme. We used scoop-nets for sampling in small ponds and fishing for deeper water bodies. The results of the research showed that, colonization of ponds by *P.glenii* is steady: it was repeatedly found in all ponds, where it was registered in 2007, despite that these ponds overgrew or were modernized. In total *P.glenii* was found in Lake Paberzu and in 5 ponds, where *T.cristatus*, *B.bombina*, and *P.fuscus* were found. Measures recommended for protection of the species from the influence of *P.glenii* in Augszeme: creation of isolated ponds, restoration of populations by individuals from zoo-culture and raising awareness among residents.

The research is After-LIFE-HerpetoLatvia project action.

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CURRENT SITUATION AND THREATS FOR THE FIRE-BELLIED TOAD (*BOMBINA BOMBINA* LINNAEUS, 1761) POPULATION “MEDUMI” IN THE PROTECTED LANDSCAPE AREA “AUGSZEME”

Population of *Bombina bombina* “Medumi” was registered in 2007 and is significant for conservation of northern edge of *B.bombina* European range (Kuzmin et al. 2008) since it is the second largest most northern population of the species. The population probably continues on the Lithuanian territory, being transboundary, and connecting Latvian populations of *B.bombina* to more southern stronger populations. In addition, population Medumi is the only large population of *B.bombina* in Latvia which entirely located in the protected landscape area (Augszeme, Natura 2000). This makes monitoring of population’s condition and threats relevant. In 2015 we studied number and distribution of *B.bombina* in localities (waterbodies with *B.bombina*), and also presence of fish in these ponds and other possible threats. As the result of the research 18 active localities of *B.bombina* were noted, all located in the southern part of Augszeme, with the biggest concentration in Ozolaine (7 localities). *B.bombina* tadpoles were found in 78% of localities. Average locality shading is 24%. 89% of localities are in the artificial waterbodies. As main threats for *B.bombina* there were noted in the research: lack of ponds suitable for spawning, overgrowing of ponds, beaver dam destruction, and distribution of native and invasive fishes. A major specific threat in this protected area is international motorway A13, which is being repaired in 2015 and is a barrier for the distribution of *B.bombina*. The research is After-LIFE-HerpetoLatvia project action.

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FINDINGS OF *EMYS ORBICULARIS* IN THE PROTECTED LANDSCAPE AREA “AUGSZEME”, POSSIBLE THREATS AND CONSERVATION MEASURES

Emys orbicularis inhabits Latvia on extremely northern edge of its range in Europe (Pupins, Pupina 2008). Special significance is gained here by findings of *E.orbicularis* in most southern nature protected territories for contacts with more southern strongest populations. Therefore we researched *E.orbicularis* findings in the protected landscape area Augszeme Natura 2000 by interview and by investigation of biotopes. In total, in 2015 only two findings of *E.orbicularis* were registered: Raudu pond (high plausibility) and Laukesu Lake (low plausibility). The Laukesu Lake, possibly, was used by *E.orbicularis* as a way for relocation from Lithuania. On the Latvian shore of the lake within a radius of 1km, there are no suitable biotopes for turtles. Thus, relocating to Latvia *E.orbicularis* cannot establish new populations here. *E.orbicularis*, probably inhabited Raudu pond, because the habitat on

the whole met its ecological needs. However, this system of ponds is relatively small and is near Rauda village. The nearest suitable ponds are located outside Augszeme border. The territory of Augszeme within 1km from Raudu pond is covered with forests and does not have any good ponds. Additional threats for *E.orbicularis* found in Augszeme are distribution of feeding competitor invasive *Perccottus glenii*, which is also a vector of parasites for turtles, and international road A13. The recommended measures for conservation of *E.orbicularis* in Augszeme: creation of ponds and sites for egg laying within 3km zones around findings, creation of bridge ponds to the nearest findings outside Augszeme, construction of tunnels for *E.orbicularis* relocations beneath road A13.

The research is After-LIFE-HerpetoLatvia project action.

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DEVELOPMENT OF WATER SUPPLY SYSTEM MODEL FOR ARTIFICIAL CONTAMINATION WITH LEGIONELLA: PRELIMINARY RESULTS

Microbiological contamination of drinking water is a widespread problem, which causes regular outbreaks of waterborne diseases worldwide. *Legionella* is a typical example of a waterborne pathogen, which can cause different forms of legionellosis. The aim of the study was to investigate conditions which are suitable for break out of *Legionella* contamination in a model of hot water supply system. Model was constructed from iron pipes, flow of water was maintained at the level of 0.5 litres per minute, temperature of water was maintained at 35°C (at the outlet of system). Model was installed on March 2015 and formation of biofilm was visually observed for four months. After this period, first water and biofilm samples were tested for presence of *Legionella*. After negative results, periodical contamination of the system was initiated. System was filled with tap water from *Legionella* contaminated building and contamination was performed once a week during four months. After each contamination event flow of the water was stopped for 72 hours. *Legionella* contamination of the system was detected in January 2016, when biofilm samples taken from two different pipe sections showed level of colonization 1.7×10^2 CFU/cm² and 3.2×10^2 CFU/cm². Additionally, *Acanthamoeba* sp. was found in both biofilm samples, what indicates that presence of amoeba facilitates the survival and growth of *Legionella*.

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RELATIONSHIPS BETWEEN FREE-LIVING AMOEBAS AND MICROORGANISMS

Free living amoebae (FLA) are widespread in terrestrial ecosystems, freshwater and marine environments, they are found also in food and food-related environment. Investigations confirmed that FLA “interacts with their food”. Some of microorganisms survive after ingestion by FLA, start multiply and are released. There are known several interaction mechanisms, such as phagocytosis, inhibitions of lysosomal fusion, particle including microorganism adhesion on amoeba cell, development of new virulence mechanisms, interference with host system, protein-protein interaction

etc. Investigations of interaction mechanisms are important because FLA and pathogenic microorganisms coexist in the same food-related environment.

FLA serves as mediators between human and pathogens. Survival in FLA provides their survival in harbor conditions, proliferation in trophozoite or cyst, which enhance their dispersion closely to anthropogenic environment. Intra-organisms use FLA as vehicle, vectors, and transmission reservoirs or as “Trojan horses” and “gene melting pots”. Human health could be impact in direct or indirect way by opportunistic FLA but if such amoeba cell contains viruses, bacteria’s or other pathogens, it is a double threat for human health. Species of *Acanthamoeba* genera interact with all above microorganisms therefore it is one of the most dangerous genera for public health. The mechanism of the bacterium-amoeba, virus-amoeba, fungi-amoeba and amoeba – other protozoans were studied.

Data about FLA in food or food-related environment are scarce and further research about the impact of interaction between FLA and microorganisms on human health is needed.

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IS THERE A RISK OF INTRODUCTION OF NEW PARASITE SPECIES BY ALIEN SLUG MOLLUSCS SPECIES IN THE NATURE OF LATVIA?

Result of globalisation caused massive travel, trade and transit stream, which may significantly increase influx of mollusks alien species on foreign lands which is an issue of modern world. *Limax maximus* (Limacidae), *Xerolenta obvia* (Hygromiidae), *Krynockillus melanocephalus* (Agriolimacidae) and *Arion lusitanicus* (Arionidae) are alien species for the fauna of Latvia.

The native distribution of *L. maximus* is Southern and Western Europe mountain regions. In Latvia species recorded since 19th century, and it is potentially invasive. *Xerolenta obvia* naturally occurs in South-east Europe and Asia Minor. First record in Latvia was in 1989. Snail may distribute and become invasive species. Natural distribution area of *K. melanocephalus* is Caucasus, Turkey and Iran. In Latvia recorded in 1997, and it can be treated as an invasive species. *Arion lusitanicus* in Latvia registered in 2008, and the species is potentially invasive. Native range of the species is Southern Europe. Introduction of these mollusks species to new areas occurs by human activity, such as with land transport, transport of soil, compost or plant material.

Snails play role as the first and second intermediate hosts of parasites in their life cycles. It is significant to understand the parasite transmission in alien species. There are two ways for infection transmission: parasites of alien snails may encounter with new host species through integration into our native parasite cycles, or through introduction of a parasite to a new habitat. There are recorded five groups of parasites in snails: protozoan, mites, nematodes (larvae and adult), cestodes (larvae) and trematodes (larvae).

The aim of the study was to investigate the parasites of four snail species. The material was collected in 10 localities of Latvia: Daugavpils, Jekabpils, Ieriki, Mazirbe, Dobeles, Lielupe, Augšligatne, Jurmala, Riga and Sigulda from 2014 to 2015. In total 908 snails were studied: 94 *L. maximus*, 200 *X. obvia*, 14 *K. melanocephalus* and 600 specimens of *A. lusitanicus*.

The parasites were detected by using compression method in snails from five studied localities: Daugavpils, Jekabpils, Dobeles, Lielupe and Mazirbe. Totally recorded 18 parasite individuals that belong to three systematic groups: Trematoda (11 individuals), Cestoda (4 individuals) and Nematoda (3 individuals).

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PLANNING PRINCIPLES, FIELD-TESTED METHODS AND TECHNIQUES OF HABITAT RESTORATION FOR GREAT BITTERN *BOTAURUS STELLARIS* - AN EXAMPLE FROM THE LAKE ENGURE, LATVIA

Key words: Great Bittern, wetland, habitat restoration

Lake Engure is a 19 km long shallow lagoon lake at the western coast of the Gulf of Riga. Lake was formed when cut off from the Littorina Sea about 6000 years ago. It is one of the most important bird lakes in Latvia and a nature reserve since 1957.

Human-induced modifications of the environment, such as eutrophication due to increased nutrient loading, can have profound effects on community dynamics of lake vegetation. During the past decades, the Common Reed *Phragmites australis* has spread extensively in previously open-water areas of Lake Engure. The spread of the reed can be explained by the high tolerance of reed to different environmental conditions, making it a robust competitor in several ways. It prefers nutrient rich habitats; hence, eutrophication may offer an explanation for the reed expansion.

Without management or regular flooding, dead reed builds up reducing the depth of water. Due to reed expansion the area of breeding habitat for bittern has decreased because their reedbed habitat was drying out due to natural succession, losing the areas of open water and wet reed edge which is important source of fish prey and as feeding habitat.

Importance of careful planning of habitat management was demonstrated. It included preparation of precise geo-referenced schematics with calculations of amount of sediments to be excavated. Incorporating management activities in site management plans and obtaining permissions to work within the nature reserve was crucial part of restoration planning.

Different restoration measures like reed cutting, bed lowering, construction of shallow ditches, removal of sediments in deeper ditches and re-profiling their edges, construction of shallow open water patches are discussed in the context of mitigation of niche diversity loss caused by homogenization and dry-out of reed monoculture stands.

Practical recommendations aimed at preventing lake pollution by suspended sediments from restoration works are suggested.

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SPATIAL DISTRIBUTION PATTERNS OF SPIDERS WITHIN THE APŠUCIEMS CALCAREOUS FEN - THE ROLE OF VEGETATION

Calcareous fens are highly endangered habitats in Europe, and therefore it would be essential to evaluate the quality of this rare habitat type. Spiders are thought to be good tools for assessing the conservation value of rare habitats because they are excellent indicator organisms. Unfortunately, the ecology of spiders in calcareous fens is still not well understood. In this study I focused mainly on the distribution patterns of spider diversity in the Apšuciems calcareous fen. The aim of my study was to determine whether there exist some specific spatial patterns of spider distribution within the focal habitat and do these patterns are dependent on the vegetation structural features. The research was carried out in the Apšuciems fen in 2012. The sample plots were located in a regular pattern throughout the fen, and the pitfall trapping and sweep netting were adopted as the main spider sampling methods. The data on vegetation structure was also collected. In order to evaluate the spatial

distribution of spider diversity in the Apšuciems fen, there were a number of contour maps prepared. The maps were developed by using different computer softwares: *Google Earth*, *ArcSoft PhotoStudio*, *Quantum GIS Desktop* and *ArcGIS*. The maps showed that spiders were not evenly distributed throughout the fen, and that spider diversity hotspots visually overlapped with those fen places where the plant diversity was higher. Overall, the highest number of spider species occurred near the fen edges, which could be explained by the two main reasons. First, the central part of the Apšuciems fen was shown to be extremely poor in plant diversity – the only plant species that grewed here was *Cladium mariscus*. Second, the ecotone might be more diverse than the central part of the fen because of the very high dispersal potential of spiders – it is known that spiders effectively disperse by walking as well as by ballooning, so they usually immigrate from the neighboring habitats very easily.

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PREDATION AFFECTS BEHAVIOURAL LATERALIZATION IN DROSOPHILA MELANOGASTER

Behavioural lateralization is a phenomenon when an organism displays clockwise or counter-clockwise biases in its movements. It is not correlated to, for example, hand dominance in humans. Behavioural lateralization has been observed in many species including the fruit fly *Drosophila melanogaster*. It has been shown that health condition, general activity, additional light sources, the maze arrays and the positions of the mazes within the arrays have no effect on the observed mean turning bias, while different fly lines may differ in variability of their left-right choices during locomotion. Since greater variability in turning bias adds unpredictability of individual behaviour, we tested whether flies reared together with their natural enemies differ in their turning behaviour from individuals reared without predators. We found that turning variability of Oregon R flies reared with *Phidippus* spiders differs in the Y-maze than that of flies reared without their natural enemies.

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RELATIONSHIPS BETWEEN PARASITE DOMINANCE AND SPECIES RICHNESS THAT INHABIT GILL APPARATUS OF COMMON BREAM (ABRAMIS BRAMA (LINNAEUS, 1758)) FROM LAKE LUBĀNS (LATVIA)

Common bream (*Abramis brama* (Linnaeus, 1758)) belongs to Cyprinidae fish family which is characterized by rich parasite fauna that make it suitable to study relationships of parasites within one host. The most inhabited organs of bream by parasite species are intestine and gill apparatus. Intestine is inhabited by endoparasites but gills apparatus harbor both ectoparasites and endoparasites. Depending on parasite species they may localize on or in the gill filaments and bonny structure of gill arch. The aim of present research was to investigate relationships between parasite dominance and species richness.

Totally 60 breams were collected from Lake Lubāns. The gill apparatus was dissected and investigated from both side. The microhabitat of parasites was recorded on the gill apparatus for each parasite individual. Dominance of parasites was evaluated by Tischler's scale for a species dominance (Tischler 1949).

Altogether, 15 parasite species were recorded on the gill apparatus of Common bream that belong to five systematic groups: Protists (n=2), Monogenea (n=7), Trematoda (n=3), Copepoda (n=2) and

Mollusca (n=1). The number of parasite species on the one bream individual varied from three to eight species. According to Tischler's scale four species of Monogenea (*Dactylogyryrus auriculatus*, *D. falcatus*, *D. wunderi* and *D. zandti*) and one species of Trematoda (*Bucephalus polymorphus*) were eudominant. The abundance of dominated species positively correlated with total parasite species amount on bream individual ($r=0.34$ $n=58$ $p=0.009$). The analysis of parasite dominance considering seasons showed that some parasite species dominate on the gill apparatus of bream in all seasons while other parasite species abundance fluctuates.

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THE MONTHLY RECORDS OF PARASITE FAUNA IN PERCA FLUVIATILIS (L.) FROM LAKE SILA (LATVIA)

European perch (*Perca fluviatilis*) is a popular fish species of recreational fishing and has a great commercial value in some regions. It is one of the most common freshwater fish species in water bodies of Latvia that inhabit many lakes, rivers and brackish waters of the Baltic Sea. According to Kirjušina and Vismanis (2007) European perch may harbor at least 48 parasite species in the freshwaters and brackish waters of Latvia including three host specific parasite species and one parasite species that use human as definitive host.

The monthly monitoring of fish parasites during whole year gives objective data of parasite community. Also, data of parasite monitoring show fluctuation of parasite prevalence and intensity of infection during four seasons. Thus, this information might be used to generate several ecological models.

European perch was examined from Lake Sila. It is glacial eutrophic lake located on the Latgale (Latvia) territory. Altogether, 97 perch were examined in the period from June 2015 to January 2016. Fish parasitological examination carried out according to Bychovskaya-Pavlovskaya (1969).

We recorded at least 22 parasite species that belong to 8 systematic groups: Protists (n=1), Trematoda (n=9), Monogenea (n=1), Cestoda (n=3), Nematoda (n=2), Acanthocephala (n=1), Mollusca (n=2), Crustacea (n=3). Among recorded parasite species two parasite species was host specific and *Diphyllobothrium latum* L. (E=2% I=1.5 A=0.03) which is pathogen for human. The obtained data show that parasite occurrence is related to seasonal changes. During the year we recorded both changes of parasite species composition and fluctuation of prevalence and intensity of infection.

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NEW RECORDS OF PARASITE FAUNA IN PERCCOTTUS GLENII DYBOWSKI, 1877 FROM LAKES OF LATGALE REGION (LATVIA)

Amur sleeper (*Perccottus glenii*) is invasive fish species that may inhabit several freshwater biotopes: lakes, ponds, quarry lakes and other closed water-bodies with slow-moving streams. In the last decades, it spread on the south part of Latvia and occupied mostly small water bodies. As sleeper is active predator it is becoming predominant fish species in small lakes and arouses interest of local fisherman by simplicity of fishing. There are several reasons to record parasite fauna of sleeper on

territory of Latvia: firstly it is a new host for local parasite communities that might be included in its life cycle, secondly sleeper may introduce new parasite species for other local fish populations of Latvia, and finally sleeper is one of the dietary objects of human. The investigation of parasite fauna of Amur sleeper from Latgale water bodies was processed previously, and the aim of this investigation was to update – include new data of parasite fauna of Amur sleeper from local fish population. It is report of actual results of investigation which will be continued.

Totally 95 Amur sleepers were collected from four lakes on the territory of Latgale (Latvia): Ļubasts, Zirgu, Trivarta and unnamed lake (55°47'09.7"N 26°25'13.8"E). The research was carried out in the period from September to December 2015. Fish were examined by full parasitological examination according to Bychovskaya-Pavlovskaya (1969).

Altogether, it was recorded 4 parasite species: at least two species of Protists (*Trichodina* sp. and *Spironucleus* sp.) and two species of Trematoda (*Diplostomum* sp. and *Posthodiplostomum brevicaudatum*). The prevalence and intensity of infection was low: *Trichodina* sp. 11%, *Spironucleus* sp. 27% and trematodes were recorded twice with intensity of infection one parasite per fish. 29% of Amur sleepers were infected with parasites where most of fish harbored only one parasite species while nine sleepers had co-infection.

ĢENĒTIKA, BIOTEHNOLOĢIJAS UN ŠŪNU BIOLĢIJA

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GENETICS, BIOTECHNOLOGIES AND CELL BIOLOGY

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ASSESSING EUROPEAN EEL GENETIC DIVERSITY BY MOLECULAR TECHNIQUES

European eels (*Anguilla anguilla* Linnaeus, 1758) have several characteristics that make them particularly vulnerable to overexploitation: long-lived, large, mature late, migrate long distances etc. Since 1980's European eel population have been decreased in most of their habitats and nowadays it is considered to be as an endangered species and nowadays it is restocking of European eel.

Genetic structure of European eel has been studied more than 25 years by scientists from different countries. Nevertheless a limitation of previous genetic studies is the lack of replication over time to test for temporal stability of genetic structure. Moreover the utilize of molecular genetics techniques in population studies has increased dramatically over the past several years, due the availability of techniques and increased awareness of the value of genetic data. Usually genetic data is dedicated to explore evolutionary differentiation among populations, phylogenetic sites, ecology studies and etc.

The numbers of molecular biology techniques are based on two fundamental procedures. The first one is the separation of DNA fragments to isolate or visualize particular fragments under interest, and the second one is the manipulation of molecules by using various enzymes. One of the most known separation technique is the electrophoresis, although size fractionation columns, magnetic bead separation, etc. are available as well. Regarding enzymatic manipulation, there are three principal classes of enzymes: restriction enzymes to cleave DNA; polymerases to synthesize new strands of DNA; and ligases to join two strands of DNA together.

During this investigation variable molecular biology techniques were utilized for optimization and validation for European eel samples collected in Latvia. Moreover sampling strategy for European eel samples is developing to understand the temporal stability of population genetic structure.

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ADAPTIVE ALTERATIONS OF MITOCHONDRIAL METABOLISM IN THE FUNCTIONALLY DIFFERENT ORGANS OF WHEAT SEEDLINGS AFTER COMBINED ACTION OF ANTIMYCIN A AND SHORT-TERM HIGH TEMPERATURE

An alternative pathway (AP) of respiration with a reduced ATP synthesis is an important mechanism in the regulation of cell homeostasis at the metabolic fluctuations in plants. To gain an insight into the possible role of AP in the reducing of the excessive generation of reactive oxygen species (ROS) under the influence of high temperature was used an inhibitor of respiration which causes a redistribution of electron flows. Therefore, we aimed our attention on study of the effect of antimycin A (AA), an inhibitor of electron transport chain on the rate of superoxide anion production ($O_2^{\cdot-}$), the content of malondialdehyde (MDA) and activity of ascorbate peroxidase (APX) in the senescent organs (coleoptiles), developing organs (first leaves) and in the roots of *Triticum aestivum* L subjected to the short-term elevated temperature (42°C, 60 min). The obtained results indicate that the rate of $O_2^{\cdot-}$ production was not significantly changing under exposure of short-term high temperature in the different organs of wheat seedlings. It was suggested that MDA content, which determines the level of lipid peroxidation was higher (19–26% in comparison with the control group) under exposure of short-term high temperature. It is necessary to highlight, that combined action of AA and short-term high temperature returned the rate of $O_2^{\cdot-}$ production and MDA content almost to control levels and increased an activity of one of ascorbate-glutathione cycle's enzyme (APX). These findings may indicate that the inhibitor of respiration AA causes a redistribution of electron flows activates AP which in turn prevents the excessive generation of ROS.

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THE ROLE OF PREADAPTATION TO THERMAL STRESS ON CHANGES OF MORPHOLOGICAL AND BIOCHEMICAL STATUS OF WHEAT SEEDLINGS

Plants during their development are influenced by various environmental stressors which adversely affect the growth, development and lead to significant reduction of their productivity. Physiological and biochemical changes of plants to unfavorable conditions play an important role in the regulation of ontogenesis. The main adaptive changes occur in plants at the morphological and biochemical levels. We have aimed at elucidating a preadaptation (32°C) to thermal stress (42°C) on morphometric parameters (fresh weight, lengths of first leaves, coleoptiles, maximal root) and biochemical parameters (the rate of superoxide production, catalase activity) in the some etiolated organs of *Triticum aestivum* L. Antioxidant defense mechanisms are the primary levels of adaptation of plants to the changing environmental conditions. Results showed a significant decrease of morphometric parameters of wheat seedlings in the early stages of ontogenesis due to the inhibitory effect of high temperature on the growth processes. We have revealed that a preadaptation to thermal stress decreased the rate of superoxide production (approximately by 31%) and was accompanied by the changing in the activity of catalase. Thus, preadaptation to thermal stress promotes attenuation of damaging action of high temperature which induces oxidative stress in the organs of wheat seedlings.

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MOLECULAR SCREENING AND CHARACTERISATION OF VEROCYTOTOXIGENIC ESCHERICHIA COLI IN RETAIL FOODS

Vero cytotoxin-producing *Escherichia coli* (VTEC) are one of the main causative agents of infectious gastroenteritis in prime risk groups, especially children and elderly in developing countries, adults in travel, as well as immunosuppressed, or HIV-infected. Pathogenic properties of VTEC are associated with their ability to produce subunit exotoxin with high biological activity, possibly causing haemolytic uraemic syndrome (HUS) and thrombotic thrombocytopenic purpura (TTP). This study presents the microbiological and molecular characteristics of VTEC isolates gained from the retail foods, such as meat and grain products from several regions of Latvia in 2014–2015. All VTEC species under study (n=69) were identified with Analytical profile index (API) system and compared with Matrix-assisted laser desorption/ionisation (MALDI-TOF) mass spectrometer readings, exhibiting a full match between the two identification instruments. Expression of type strains in isolates in the agglutination reaction was detected using a latex test-system. The isolates were assigned to serogroups O103 (n=2) and O26 (n=3) of three pools (O26, O103, O111, O145, O157, O55, O119, O125, O127, O128, O86, O114, O126, O121, O142), whereas the rest (n=64) displayed self-agglutination and were not detectable by the test, suggesting that serogroups of those isolates were not included in the potentially dangerous serotype pools. Virulence gene determination was asserted using the real-time polymerase chain reaction (qRCR) tool and all 5 isolates (100% of O103 and 100% of O26) carried the *vtx1*, *vtx2* and *aea* genes. Further investigations are necessary to study the spread of the revealed VTEC serotypes. DNA sequences should be also estimated.

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IMPORTANCE OF GENETIC DIVERSITY ASSESSMENT IN PARASITES: ADVANCES AND PERSPECTIVES

Genetic diversity is one of the powerful tools for assessment structure, viability, sustainability etc. of population. In addition, genetic diversity is an important measure for biodiversity in parasites. More than 80% of all known species are considered to be parasites; it is ecological group of organisms, where hosts and parasites exert strong influences on each other. Parasites negatively impact host fitness and can alter a multitude of host traits.

With advances in molecular biology techniques, it is rapidly increased knowledge concerning genetic diversity of different parasite species. Moreover a better understanding of parasites population dynamics is fundamental to design new strategies to monitor and control parasitic zoonoses. Excitingly, many recent studies have used genetic markers (e.g., mitochondrial and nuclear DNA) to investigate geographical movements of parasites due host migration. Genetic diversity is influenced by variable factors e.g. environmental, host immunity, host-parasite interactions etc. The parasite population genetic structure it is ability to adapt to a host and is linked to its own life history as well as the life history of its host. Nowadays the effects of parasite life history on their population genetic structure are broadly investigated by scientists from different countries. However the investigation of genetic diversity of parasites is complicated due the specificity of the group.

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ANTIOXIDANTS, STRESSFUL CONDITIONS AND NUTRITIONAL VALUE OF FEEDING IN THE GREATER WAX MOTH

Metabolism, like other aspects of life, involves tradeoffs. An imbalance between oxidants and antioxidants in favor of the oxidants, potentially leading to damage, is termed as 'oxidative stress'. Oxidants are formed as a normal product of aerobic metabolism, but can be produced at elevated rates under stressful conditions. It can cause extensive damage to DNA, proteins and lipids. Antioxidant enzymes such as superoxide dismutase (SOD) and total glutathione (tGSH) may characterize the immune system of insects. Superoxide dismutase (SOD) enzymes catalyze the breakdown of superoxide into hydrogen peroxide and water and are therefore central regulators of reactive oxygen species levels. Glutathione is involved in detoxification mechanisms of many molecules and probably in the transport of physiologically important lipophilic compounds.

As a study model we used the greater wax moth *Galleria mellonella*. The insects were maintained under two different feeding nutrient regimes. A cuticular injury was used to provide physiological stress. We measured SOD and tGSH using spectrometry. An investigating of these antioxidant systems may provide a better understanding of ecological relationships between oxidative stress and feeding in insects.

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TARGET TRANSPORTATION OF AUXIN ON MESOPOROUS AU/SIO₂ NANOPARTICLES AS A METHOD FOR SOMACLONAL VARIATION INCREASING IN FLAX (LINUM USITATISSIMUM)

Cellular delivery of drugs and bioactive molecules through the cell membrane is a subject of continuous researches and has a great potential for medicine and microbiology development. Though this subject is well-examined, the methods of drugs direct delivery are still not efficient. One of the most significant classes of carriers is inorganic nanoparticles (NPs). The gold nanoparticles were used due to their special properties: it is easy to track their trajectory in cells, they can be tailored to a desirable size and their surfaces might be modified to possess good biocompatibility.

The following experimental procedures were carried out: Au nanoparticles coated with SiO₂ layer were synthesized, calluses were grown on different medium and cells ploidy was assessed. Then, DNA was extracted and the levels of methylation were analysed.

The ability of the developed nano-structures to carry hormones of specific size and to penetrate cell walls was affirmed and significant changes in hormones common impact were detected. The great increase in ploidy numbers, embryogenesis, induction and methylation level was observed when compared to the "conventional" methods of targeted hormones delivery that embrace usage of AuNPs as a main hormone carrier. The developed method might be used in the future as a main approach to hormones transportation into the plant cells, since it is a great way to manage hormones concentration in cells and therefore is a probable entry point for the management of methylation, epigenetics and somoclonal changes in plant cells.

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ORGAN-SPECIFIC DNS SYNTHESIS AND FRAGMENTATION IN WHEAT (TRITICUM AESTIVUM L.) SEEDLINGS UNDER DIFFERENT PHOTOPERIODS

Photomorphogenesis plays great role in plants to adapt to environmental conditions. The changing of growth and development allows plants to react adequately to varying daylight duration, synchronizing all vital functions with the terms of environment. Therefore, various tissue-specific and light-dependent programmed cell death forms do exist in plants.

The influence of illumination periods and their role in the intensity of cell division and DNA fragmentation in different organs of wheat seedlings were studied during 6 days of shortened (8h) and attenuated (16h) daylight conditions.

The different DNA isolation methods from basal and apical part of the first leaves and coleoptiles were optimized. The quantity and quality of isolated DNA samples were checked by using ultraviolet spectrophotometer measurements at the ratio of the absorbance at 260/280nm, 260/230nm and horizontal 2% agarose gel electrophoresis.

The differences in mitotic activity, DNA synthesis and fragmentation were observed in the basal and apical parts of the first leaves and coleoptiles under shortened and attenuated photoperiods. The obtained data testify the intercommunication of illumination period and such basic processes in plant cells as DNA synthesis, modifications and degradation.

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OXIDATIVE STRESS REDUCTION AND DNA REPAIR ENHANCEMENT BY 1,4-DIHYDROPIRIDINE AV-153

Introduction: 1,4-dihydropyridines(1,4-DHP) possess important biochemical and pharmacological properties, including antioxidant and antimutagenic activities and stimulate DNA repair. Some of them may interact with DNA molecule directly.

The aim of our study was to study DNA binding of AV-153-Na and its modifications, to evaluate the capability of compounds to protect from oxidative stress and proapoptotic DUX4 protein expression produced damage, to assess the ability of the AV-153-Na to modify activity of DNA repair enzymes.

Methods: DNA-compound interactions were determined by measuring fluorescence intensity of the compounds ($\lambda_{ex} = 350$, $\lambda_{em}=480$) in the presence of increasing concentrations of DNA. DNA breakage was evaluated by the single cell gel electrophoresis assay, effects of AV-153-Na on activity of DNA repair enzymes was tested using Glyco-SPOT, and ExSy-SPOT chips.

Results: Ability of different AV-153 salts to interact with DNA was different. Na, Ca and Mg salts of the compound interacted more intensively compared to Li, Rb and K salts. AV-153-Na interacts with DNA via intercalation. AV-153-Na could significantly protect HeLa cells after preincubation against peroxynitrite and DUX4 induced DNA damage. AV-153 Na salt significantly accelerated DNA repair during the first 10 minutes after peroxynitrite treatment. AV-153-Na significantly stimulated excision/synthesis repair of 8oxodG, abasic sites and alkylated bases.

Conclusion: 1. Several salts of AV-153 can interact with DNA with different intensity. 2. AV-153-Na protects HeLa cells against peroxyinitrite and DUX4 induced damage in living cells. 3. AV-153-Na enhances the repair kinetics after peroxyinitrite induced damage. 4. AV-153-Na activate DNA repair enzymes.

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THE GENETIC VARIATION IN POPULATIONS OF VENDACE (*COREGONUS ALBULA* L.) AS GLACIO RELICT SALMONIDAE FISH IN LATVIAN-BELARUSIAN LAKELAND

Keywords: *Coregonus albula*, microsatellites, Latvian-Belarusian Lakeland, heterozygosity, genetic structure, genetic distance, allelic richness and differentiation

The vendace (*Coregonus albula*) is a fish widely spread in Holarctic waters. In Latvian-Belarusian Lakeland the populations of local *Salmonidae* fish are residues of Arctic freshwater faunal complex, and can be considered as glacio relicts – an indicator species of Lake ecosystem status. But in Latvia and Belarus the areal of vendace populations is decrease, the catch is insignificant and unstable and this species is included into the list of specially protected fish species with limited use. Unfortunately, environmental variables often affect the relationship between genes and their phenotypic expression significantly.

The study of genetic differentiation of vendace population from Latvian and Belarus was based on microsatellite DNA analysis. A total of 104 individuals from 7 populations were analyzed in this study. The microsatellites are ideal molecular markers which commonly used in investigations of *Salmonidae* fish because they have multiple alleles which are highly polymorphic among individuals. Five microsatellites markers (*BWF1*, *Cisco90*, *Cisco106*, *Cisco126* and *Cisco157*) were used to investigate the genetic structure and differentiation within and between Latvian-Belarusian Lakeland populations. For genotyping the PCR products were subjected on automated sequencer. The genetic parameters of *C.albula* populations: the number of alleles in locus, frequency of private alleles in populations, allelic richness, the expected and observed heterozygotes, F-statistic across populations of vendace from Latvian-Belarusian Lakeland were investigated with using GenAlEx 6.41 software. Structuring of the seven vendace populations were estimated by principal component analysis (PCA), Bayesian clustering (STRUCTURE) and by building UPGMA tree using genetic distance (Da).

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PSMA6 GENE EXPRESSION IS AFFECTED BY 1,4-DIHYDROPYRIDINE DERIVATIVES IN RAT KIDNEYS AND BLOOD IN STREPTOZOTOCIN INDUCED DIABETES MELLITUS

Background: *Diabetes mellitus* (DM) and its complications might be accompanied by dysfunction of the ubiquitin–proteasome system which is responsible for protein degradation in ATP-dependent way. 1,4-dihydropyridine derivatives (1,4-DHPs) have already shown antidiabetic and antimutagenic properties. We studied 1,4-DHP influence on proteasomal protein Psm6 mRNA expression levels in rats with streptozotocin-induced DM.

Methods: DM was induced in *Wistar* male rats by streptozotocin (STZ) (50 mg/kg) injection. Nine days after DM approval rats were treated with one of the compounds for three days: glutapyrone, J-9-125, metcarbatone, etcarbatone and AV-153-Na (0.05 mg/kg or 0.5 mg/kg). qPCR was used to detect mRNA expression of *Psm6* and *RNA polymerase II* genes in kidneys and blood.

Results: Induction of diabetes significantly increased *Psm6* expression in kidneys compared to control rats, but did not affect it in blood ($p>0.05$). All 1,4-DHPs used in the study increased *Psm6* expression in kidneys of control rats ($p<0.05$), while in model rats it was increased by AV-153-Na, J-9-125 (0.5 mg/kg), glutapyrone (0.5 mg/kg) and metcarbatone. On the other hand, in blood of control rats only glutapyrone increased *Psm6* expression ($p<0.05$), but in diabetic rats - etcarbatone (0.05 mg/kg) and AV-153-Na.

Conclusion: 1,4-DHPs can increase *Psm6* gene expression levels both in kidneys and blood of control rats and rats with STZ-induced diabetes.

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THE OPTIMIZATION OF DNA ISOLATION METHOD FROM FORMALIN-FIXED FIRE-BELLIED TOAD *BOMBINA BOMBINA* TISSUE SAMPLES

The fire-bellied toad *Bombina bombina* is endangered amphibian species. In the West Europe this species is significantly declining or extinct in many areas and are protected. It is included into Appendix II to the Convention on the conservation of European wildlife and natural habitats (European Treaty 1979). *Bombina bombina* included in the first category of Latvian Red Book and are protected by the Directives of Cabinet of Ministers. It is an important object of researches.

As it known, genetic diversity is important for ecological plasticity of the population. It allows population to adapt to varying environment conditions. To investigate population genetic structure and diversity, molecular biology study should be performed. Many institutions use formalin for sample fixation. This method fits for the long-term storage and transportation. Formaline-fixed fire-bellied toad tissue samples were received from Krasnodar region, Russia where is the southern border of the distribution areal of this amphibian species. But it is some difficulties in isolating high quality DNA from formalin-fixed fire-bellied toad tissue samples. Because, in this study the high quality DNA isolation method was optimized. The quantity, quality and suitability of the isolated DNA samples for polymerase chain reaction were checked by using spectrophotometric measurements at the ratio of the absorbance at 260/280nm and horizontal 1,5% agarose gel electrophoresis.

The results of the genetic study of the fire-bellied toad population from Krasnodar will give an opportunity to compare it with the dates which received from the analogical study in Latvia, where is the northern border of distribution areal of *Bombina bombina*.

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SURFACE-ENHANCED RAMAN SCATTERING AS THE DETECTION TECHNIQUE FOR MOLECULAR DIAGNOSTIC OF PLANT GENOMIC dsDNA CONDITION.

Raman spectra are based on the specific vibrations of atomic groups and can also use them to characterize and quantify a mixture of molecules as the composition of atomic groups by a method akin to fingerprinting. The analysis of these spectra provides data on the microstructure of dsDNA and also minor structural changes. Raman spectroscopy has been used to directly observe structural

features of double-stranded DNA molecules. Raman spectroscopy was used to investigate the shifts of genomic dsDNA after lyophilization at different stages of plant development by using *Elodea canadensis* (Michx. 1803) as an experimental model. In all cases to improve the signal to noise ratio and as an excitation source NIR laser with 785.0 nm wavelength was used. The best spectral resolution was reached at 2 cm⁻¹. Has been discovered, analysed and found patterns in the change of Raman spectra depending on plants dsDNA condition from young and senescent leaves. For DNA from senescent (yellow-brownish) and young (green) leaves it was demonstrated, that there are significant differences in spectral peak identification and peak intensity between these samples. For an example, the guanine nucleoside marker in the interval from 620 cm⁻¹ to 685 cm⁻¹ is diagnostic of sugar pucker and glycosyl torsion of dG residues. Raman bands assigned to adenine and guanine at 1558 cm⁻¹, 1461 cm⁻¹, 1310 cm⁻¹, 1250 cm⁻¹, 1110 cm⁻¹, 1024 cm⁻¹, 782 cm⁻¹, 728 cm⁻¹ and 654 cm⁻¹. The Raman band near 750 cm⁻¹ identifies C2'-endolanti conformers of dT. The PO₂- marker near 1092 cm⁻¹ is responsive to large changes in the electrostatic environment of the phosphate group. The Raman intensity in senescent (yellow/brownish) leaves of all major bands decreases rapidly and many lines weaken distinctly or disappear. The detailed analysis of changes in the Raman shift peaks and the intensity of the peaks in the future will be able to expand the application of SERS in the express diagnostics of DNA condition for molecular research.

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THE BIOCHEMICAL AND PHYSIOLOGICAL CHANGES IN ELODEA CANADENSIS (MICHX.) SHOOTS UNDER DIFFERENT SALINITY REGIMES

The macrophytes present in aquatic systems are a function of the combined effects of various hydrological, physical and chemical factors. Salinity is a major abiotic stress limiting growth and productivity of plants in many areas of the world. When the salinity increase is high (e.g. from freshwater to brackish levels) its effects may in some cases override all other environmental and pressure factors such as temperature or eutrophication. It can suggest that under future climate change scenarios, salinization of freshwater lakes may also be increased by rising sea levels. Adverse environmental factors induce oxidative stress and lead to changes of cellular processes, e.g., decreased activity of antioxidant ferments etc. It is important to understand the mechanism of salt tolerance in model plant, because defense mechanisms protect plants in variable environments.

The aim of this work was to assess the effect of NaCl at four concentrations (100mM, 50mM, 25mM, 10mM) on invasive freshwater waterweed, *E. canadensis* (Michx.), by biochemical (antioxidant activity) and physiological (photosynthetic pigments, electrolyte leakage) parameters.

Preliminary study of some enzymatic antioxidant activity under salt stress showed that antioxidant system activity increased and remained high with increasing salinity levels, in spite of the decrease in activity of the photosynthetic apparatus and the increase in cellular membrane permeability (from 14% to 88% depends on stress intensity). Spectrophotometric activity of catalase (CAT) increased 3-4-fold with increasing salt concentration compared to control samples. The increase in concentration of carotenoids in *E. canadensis* leaves under salt stress conditions can indicate their antioxidant activity. However, the concentration of carotenoids significantly decreased after long-term 100mM NaCl stress exposure.

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EVALUATION ECOLOGICAL AND GENETIC ASPECTS OF PRODUCTIVITY AND RESISTANCE TO POWDERY MILDEW OF COMMON FLAX

Flax (*Linum usitatissimum* L.) is traditional and valuable multipurpose source crop. Natural fibers have received much attention for the last decade. In terms of mechanical performance, flax fibers are the strongest of the natural fiber family. Flax fiber used mainly for textiles and yarns, and recently interest has also been focused on non-textile applications, and have high prospective for use in Latvia. The decisive role at the yield productivity of the plant is determined genotypic (varietal), which include ecological plasticity and resistance in relation to pathogens population as the ability to respond to variable weather conditions. In this case agronomically important traits, such as stem yield, bast content, vegetation period and resistance to diseases were evaluated for 25 Latvian origin flax varieties and lines. Investigation has been carried out over the period 2010–2015 in the Agricultural Scientific Centre of Latgale on field trials. The significant impact of ecological factors on flax yield was observed. The highest stem yield was obtained in 2012 growing period that characterized by higher moisture content (152 mm) in phase of the flowering and ripening, lower stem yield was obtained in 2014 that characterized by rapid low moisture content (25.20 mm) in phase of flowering and ripening. Correlation were found between stem yield and perception at the variety 'Rota I' (correlation coefficient $r = 0.78$) in all six growing period. In 2015 after evaluating disease severity of flax highest severity index has been powdery mildew (*Oidium lini* Škoric) with value in range from 1 until 34%. Evaluating powdery mildew resistance level with area under the disease progress curve (AUDPC) was identified resistant variety 'Rezekne'. Apart from the changing conditions highest stem yield (589.33 g/m²) and low powdery mildew severity index (1–7%) was showed line 'S13/5-7/5-93'.

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THE APPLICATION OF MEMBRANE FILTRATION TECHNOLOGY'S FOR ACCELERATION THE WATER QUALITY CONTROL OF FRESHWATER PONDS

The presence and extent of faeces contamination is an important factor in the assessment of water quality and human health risks from infection. Examination of water samples for the presence of *E. coli* and *Enterococcus spp*, which normally lives in the intestines of humans and other warm-blooded animals, provides an indication of such pollution. A test for coliform bacteria can be more difficult to interpret, since some live coliform bacteria in soil and surface fresh water and not always the intestinal. Thus, the presence of bacteria, but not evidence of faecal contamination, may indicate a failure in the handling, storage or distribution. Water samples were collected from water bodies in the city of Daugavpils in summer from 2014 to 2015. The technique for the transfer of *E.coli* and *Enterococcus spp*. bacteria to the membrane filter (pore size Ø 0.45 mm) was developed and evaluated. Membrane filtration technique determines the number of target organisms in the sample. This method makes it possible to analyse samples within 48 hours and make possible quantitative analysis without the use of subculture and identification of isolates.

FINANŠU UN SAIMNIECISKĀS DARBĪBAS ANALĪZES JAUTĀJUMI

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ISSUES OF FINANCES AND COMMERCIAL ACTIVITY

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INTERCONNECTION OF E-ENVIRONMENT OF ENTERPRISES AND ECONOMIC SITUATION IN EUROPE AND LATVIAN REGIONS FROM 2009 TO 2015

ICT technologies are a part of all infrastructure, moreover, infrastructure provides the existence and operation of all enterprises, because IT provides communication, roads provides a circulation of goods, electricity and utilities provides the existence of enterprise's building or factory etc. In other words, it is a important field, which clearly is related to entrepreneurship and activity of entrepreneurship is related to infrastructure.

Nowadays not only Latvia, but also the whole Europe is experiencing the ICT industry boom. Each sector activity is closely related with a information technologies. Each enterprise in it's activity uses IT. Now all "paper documents" systematized and converted into electronic forms and databases, which is very useful and comfortable, that is why rapidly is increasing for IT specialists. In the future all industries will cover information technologies, therefore, not only employees of the companies will have to adapt to this system, but also all citizens. There is no doubt, the Internet network is undispensable assistant to the company's activities. It provides fast communication between companies and Internet is a source of information. Internet network quality is a key factor for the effective operation of the company, hence the national economy as a whole, because the economic situation is dependent on the company activities.

The aim of the research is to determine the interconnection of e-environment of enterprises and economic situation in Europe and in Latvian regions from 2009 to 2015, using following indicators: GDP, Internet speed, The level of inflation and employment, Number of enterprises, Availability of Internet, The usage of home pages in the enterprises.

The research object: E-environment of enterprises in Latvia and Europe

The research subject: The interrelationship of e-environment of enterprises and the economic situation in Europe and Latvian regions.

The research question: What interconnection is represented between a e-environment of enterprise and economic situation in Latvian regions and Europe?

Methods: analysis, synthesis, induction, deduction, monographic, correlation, regression analysis, factor analysis, content analysis (media research).

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COMMERCIAL ROLE OF THE ROUND GOBY (NEOGOBIUS MELANOSTOMUS PALLAS) IN DIFFERENT COUNTRIES

So far there have been several studies on the round goby population and its influence on the ecosystem; however, there are no studies on its commercial role in different countries. The aim of the study is to assess the types of the round goby use and processing, and its market potential, taking into account the experience of other countries. According to the information provided by researchers and experts as well as the information obtained in the field trips and internet resources, the author found out the types of use and processing of the round goby in different countries, and analyzed its potential markets. As a result of the analysis the author discovered that in separate countries the round goby has commercial role, and it is processed in several ways, nevertheless, there are also countries, where it has no commercial role. At the moment it is impossible to judge about the market potential of the round goby. The countries should solve ecological and economic issues related to the round goby fully in the framework of the EU, implementing a joined strategy. The results of the study can help the institutions involved in the fisheries policy-making working and improving the common policy of the sector more successfully.

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INNOVATION: PROBLEMS OF DEFINITION

Innovation concept provides a broad set of measures which in any way can speed up and improve those aspects which can be used to develop and produce new products, improve production processes and services. All of these changes would result in creating new jobs, improving people's overall living standards and would encourage „green” growth and social progress.

Innovation concept explained and defined in Latvian Republic by a document approved by the Cabinet of Ministers – Business Competitiveness and Innovation Promotion Programme 2007–2013. The definitions mentioned in this document corresponding to Latvian and European Union common understanding of the innovation and its related concepts: innovation is the process by which new scientific, technical, social, cultural or any other field of ideas, developments and technologies are implemented in competitive and market demanded product or service.

Understanding the concept of innovation is very diverse. There are a lot of explanations of the concept of innovation in the world to express the essence of innovation. Each of them is expressed in a variety of aspects of innovation.

Vice President of the European Commission Antonio Tajani emphasizes: „Innovation in its broadest sense is a new thinking that provides value.”

Innovation is one of the new, efficient and knowledge-driven main economy driving forces.

The Scientific Activity Law of the Republic of Latvia defines that innovation is an implementation of a new scientific, technical, social, cultural or any other field of ideas, design and technology of the product or service.

There are different definitions of innovation in the world. For example, the British government uses the following definition: „Innovation is the successful introduction of new ideas in new technologies, design and other practices, which is a key success factor in the development of the business process ...”.

Latvian National Innovation Programme 2003–2006 uses the following definition of innovation: „Innovation – the process by which new scientific, technical, social, cultural or any other field of ideas, developments and technologies are implemented in competitive and market demanded product or service.”

The author analyzes the diversity of broad innovation determination options and offers its own definition of innovation in the article.

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INNOVATIVE DEVELOPMENT PROBLEMS NOWADAYS

The main trend of the world economic development is its innovative nature nowadays. Fundamental condition for the successful development of a company is its competitive products not only in domestic market but also in global markets. Twenty-first century has been marked as a rapid development era that increases competition not only between companies but also between countries. The state must enhance its innovative economic policies carefully and thoughtfully in order to withstand the increasing competition fights. Innovation policy successful implementation requires a number of conditions to comply with.

Innovation development requires huge financial investment, which is quite hard to find. This situation very significantly impedes the implementation of innovative policies in the country. In addition, investments in innovation are related to high risks – the possibility of losing financial investments, if the demand of an innovative product will not be sufficient, is particularly high.

Given the above, it becomes clear why the innovative actions are realized with certain institutional intermediation in the world. Resources are accumulated in the stock markets and concentrated in the specialized financial institutions – different funds, investment banks, etc. Risks are provided with specialized financial authorities.

Innovation development is a natural process of development of private business in a market economy. There are more than 60% of the total cost of research and innovation funded by private business funds in economically developed countries.

Innovation development requires the replacement of an old production infrastructure. When a company develops innovative, products or services output reduction occurs periodically, because innovation does not give the immediate economic effect.

Innovation requires incentives. It is a windfall profit as a bonus for the product or service average quality level exceeding in the market economy.

There should build infrastructure in the country, aimed at providing financial support to innovation, for example, specialized innovative development banks. One of the main problems is the lack of financial support for non-bank financial sphere: need for specialized guarantee funds that are established with state participation.

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LATVIAN INNOVATION CAPACITY

The concept of innovation capacity becomes increasingly important in business as well as in the regional and national characteristics nowadays. Innovation process today is not only the commercialization of new ideas, it is a continuous, planned and organized process in order to increase productivity, or to reduce production costs and increase competitiveness.

Innovation capacity as a concept is extended to three levels:

Human resources as the initiator of innovation, often also known as individual innovation; Companies operating in certain system; Regions and countries and their regional and national capacity.

The company's innovation capacity assessment or technological capability audit tool provides a mechanism to:

Perform rapid technological possibilities auditing; Determine the company's strengths and weaknesses; Determine the criteria as compared with other companies or „best practice” model.

Foreign and local experts have practically concluded that Latvian innovation capacity lies in its ability to be commercialized, it is to prepare a potentially successful scientific ideas to the market.

The experience of the European Union countries in innovation policy has shown the need for an intermediary between scientists and entrepreneurs, without which the great ideas of scientists are often forgotten and derive no progress. A great example of innovation policy, the author believes, is Poland. It has created the National Research and Development Centre Bridge Mentor, whose aim is to support management innovation commercialization process using professional consulting and mentoring, as well as to promote cooperation and communication between researchers and potential investors.

Commercial type of thinking among academics should be encouraged on the Latvian market, and it is also necessary to ensure effective communication and cooperation between research institutes and potential investors, in order to dispel misconceptions about the commercialization of innovations and contribute to the growth, as well as the country's international competitiveness. It is particularly important and should be taken into consideration in the planning of the programming period 2014 to 2020 of the European Union funds.

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MIB

Title of the paper „Possibilities for harmonization of Islamic and Anglo-Saxon accounting systems in the process of IFRS development.”

Several broad categories of national accounting systems may be distinguished around the World – Anglo-Saxon, Continental and Islamic accounting systems. The intent of the International Accounting Standards Board is to develop International Financial Reporting Standards (in abbreviation – IFRS) as result of national accounting systems' harmonization. The IFRS are to be applied for companies all around the World.

There are obstacles to harmonization of Islamic and Anglo-Saxon accounting systems in practice, however, since no interest is allowed in Islamic finance, while interest on debt instruments is normally charged in the Anglo-Saxon region. Valuation of assets and liabilities according to the present value of their future cash flows is a typical feature of Anglo-Saxon accounting. The prohibition of interest though puts the application of discounted cash flow model for valuation of assets and liabilities under question following the Islamic accounting principles.

The purpose of this paper is to compare Islamic and Anglo-Saxon accounting systems in the context of Islamic and Anglo-Saxon finance, in order to determine the possibilities for harmonization of Islamic and Anglo-Saxon accounting systems in the process of IFRS development.

The research methods applied are economic analysis, synthesis, and monographic method.

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ANALYSIS OF THE PROBLEMS OF YOUTH UNEMPLOYMENT IN LATGALE REGION AND VITEBSK REGION FROM 2013 UNTIL 2015

Youth, in a way, is a source and potential for any country, which must be activated and organized in the conditions of dynamic society.

Youth is the future of every country; what the country will be like tomorrow and the future wellbeing of our country depends on its youth. Lack of employment leads young people to complete degradation: problems in personal development and formation of personality appear, marriages end in divorce, birth rate decreases, crime rate increases, etc. Therefore, solving the problems of youth unemployment and providing occupation will help improve the social and economic situation in regions.

The highest unemployment rate is observed in remote regions of the country. In Latvia for many years the highest rate of unemployment has been observed in Latgale region. Whereas in Belarus, one of the highest unemployment rates is observed in Vitebsk region. There are various reasons for the high unemployment rate.

After finishing educational institutions, young specialists find themselves in the system of fierce competition with people who already have work experience, where the graduate must be able to prove that they have relevant knowledge, skills, abilities and competence. The lack of demand for young people on the job market is also related to the fact that a significant part of unemployed youth seeks to find a position that corresponds to their training and is highly paid but fails to find such a position, i.e. the reason is that the demand does not meet the supply of workforce.

Therefore the topicality is comprised of the study of the job market peculiarities in the territory of Latvia (Latgale region) and Belarus (Vitebsk region), i.e. from the perspective of demand and supply and its results.

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INCOME DIFFERENTIATION OF POPULATION IN LATVIA AND OTHER EUROPEAN UNION COUNTRIES IN 2007–2013

Income differentiation is a natural result of individual and economic performance of individuals. Individual heterogeneity in talent and effort will result in a variety of income results and consequently in a certain level of overall inequality. Nevertheless, there is also a wide list of circumstances that may also affect economic outcomes without being related to personal talent or effort. Today very actual is the fact that the high inequality level promotes the poverty growth. With any economic development and average income level the higher inequality implies the higher degree of poverty, as the inhabitants on the lowest income or consumption threshold receive the smaller part of resources. The slower economic growth is the primary inequality consequence. The higher inequality level can reduce the poorest benefit of economic growth, so in the case of the high initial inequality the poor get smallest part of new wealth. In the worst case, if all resources are concentrated in hands of few people, the poverty will not decrease in the result of any economic growth rate. At the same time, the high inequality also directly and negatively influences the society well-being.

The problem of income differentiation is essential for Latvia, because the gap between the poorest and the richest part of the population is one of the highest in the European Union. High income differentiation in the long term negative impact on economic growth and national development indicators. So in this work Latvian people income differentiation are studied in the context of other European Union countries.

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IN-WORK POVERTY IN EUROPEAN COUNTRIES. DYNAMICS AND PECULIARITIES OF DEVELOPMENT

The working poor are working people whose incomes fall below a given poverty line. Depending on how one defines “working” and “poverty”, someone may or may not be counted as part of the working poor. While poverty is often associated with joblessness, a significant proportion of the poor are actually employed. Largely because they are earning such low wages, the working poor face numerous obstacles that make it difficult for many of them to find and keep a job, save up money, and maintain a sense of self-worth. On the one hand, working poor can be regarded as poor persons who are working, on the other as working person who are poor. Each perspective has far-reaching consequences for the undertaken research: studies following the latter perspective – working but

poor – often stress the relevance of labour-market related factors. However, it is also important to focus on the question of how such differences can be explained from a broader perspective of poverty research. In general, there are results that confirm both welfare state measures and labour market institutions have an influence on in-work poverty.

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ENTREPRENEURSHIP REALIZATION PROBLEMS IN HIGHER EDUCATION SYSTEM OF LATVIA

Key words: *Entrepreneurship, profit, higher education, economic return*

Education Development Guidelines year 2007–2013 year states, that the main objective of the Latvian education system is: „To provide every citizen with the opportunity to acquire affordable high-quality education in lifelong-term in accordance with the individual interests, abilities and needs of the country’s economic development” (Ministry of Education guidelines, 2006). At the moment higher education institutions (HEI) in Latvia its core tasks and quality assurance operations ensures on the bases of the limited resources, which is made out of the public and private finance. Education obtained and its quality is hard to assess therefore simplifying the proposed situation the main product of the HEI is a diploma. Basic purpose of the entrepreneurship is to make a profit. Specifics of the HEI’s entrepreneurship objective is that, profit is in case of studies paid from private funds, but in case of the state budget financed study places entrepreneurship objective is to preserve allocated budget places or to attract the other public funding. In some cases HEI is interested to allow participate in study process such budget and privately funded students whose interests and abilities are not sufficient for the maintenance of a high quality education requirements. Research problem arises in the situation when the HEI, with the limited resources of public and private finance, needs to carry out entrepreneurship objectives in education sector with state prerequisite to provide affordable high-quality education in lifelong-term and appropriate to the individual student (also funding provider) interests and abilities. Situation when students regardless of their abilities wants to obtain HEI’s product forces HEI constantly make choices between the short term profit and the long term economic return, which [choice] makes direct impact on the prestige of the HEI via the quality of the main product of the HEI – a diploma.

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HEALTH CAPITAL IN THE STRUCTURE OF PERSON’S AGGREGATE CAPITAL

Keywords: *capital, health capital, aggregate capital, life strategy, competitiveness*

Health capital is considered from a systematic approach perspective. A research position that any type of aggregate capital can act as a basic and constituting one (that depends on many factors taken into account by a person while developing and implementing a life strategy) is endorsed. Analyzing the data of the carried out research projects on Aggregate Capital, the authors pay special attention to Health Capital, its specific weight in the structure of the aggregate capital of the respondents from different socio-demographic groups of the population in Latvia.

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FINANCIAL ANALYSIS OF ENTERPRISES

Three main types of freight transport in Latvia is the sea, railway and land transport. Railway is one of the most safety promising transport. Railway takes big importance in the economy of Latvia. Great role play railway locomotive repair and maintenance. To be able to compete successfully on the market, it is necessary to develop the existing advantages and create a different offer compared to competitors.

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FORMATION AND CHANGES OF ADMINISTRATIVE DIVISIONS OF LATVIA REPUBLIC: POLITICALLY-ECONOMIC ASPECT

In Latvia territory, starting from the 10th century, the Baltic tribes created military-governmental structures with administrative centres. Knights started to reconquer the Balts' lands, where governmental structures were founded. In the 14th century vogteys and commandries were established in Livonia: the Balts' administrative system with its centres was supplemented with stone fortresses and settlements. In Latvia territory the first cities were founded. The territorial division of the Duchy of Courland and Semigallia was determined by Governmental Formula (1617): the high manor-lords' courts were made, divided into the manor-lords' districts. The main territorial unit was a feudal land property manor. After the third partition of the Polish-Lithuanian Commonwealth in 1795 the Russian Empire obtained Vidzeme, Latgale and Courland together with Piltene Region. Reform was implemented in Latvia territory: counties, provinces and parishes were founded; manors were preserved as administrative units without being included in parishes. On November 18, 1918 Latvia Republic was declared: the division into provinces was cancelled; counties with parishes were preserved. On September 16, 1920 the Constitutional Assembly passed the law "About the agrarian reform in Latvia Republic"; new administrative centres were created. During the World War II Germany and the Soviet Union occupied Latvia Republic which lost its independence. On July 21, 1940 the Soviet power was restored in Latvia, but on August 5 Latvia was included in the Union of Soviet Socialist Republics. During the second Soviet occupation time (1944–1991) territorial reforms were carried out in Latvia.

On May 4, 1990 Latvia again declared its sovereignty and on May 1. In Latvia Republic the two-level municipalities were changed into one-level municipalities; administrative units – regions were formed.

Previous researches: Territorial Reform was implemented in Latvia Republic (1999–2009) to create municipalities that are able to develop themselves. The impact of the reform on the economics has been assessed insufficiently.

Topicality of the theme: analyse benefits and deficiencies of Latvia Republic Territorial Reform.

Research goal: find out the impact of Latvia Republic Territorial Reform on the development of administrative centres.

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DIFFERENCE IN CONSUMER BEHAVIOUR: TRADITIONAL MARKET AND ONLINE TRADING

Key words: consumer behaviour, online trading, marketing communications

The modern consumer has been integrated into technological environment and uses all the opportunities provided by it more often. With the help of technologies consumers can manage their time quicker and more efficient and that's why it is not surprising that the Internet market is becoming a popular place to shop. This is explained by the fact that on the Internet it is much faster to travel around shops, to compare prices and order goods with door-to-door delivery. Online shopping is no longer associated with unsafe consumer purchases, as it has been before. Therefore, consumers with a fast pace of living prefer doing the shopping directly online.

The aim of the paper is to choose and analyse the key differences in consumer behaviour in the traditional market and in online trading.

The following methods were used: analysis of scientific literature, conducting of consumer survey and its analyses, quantitative and qualitative analysis of the results using statistical methods.

The consumer survey is used as the main method of the paper. Latvian residents were asked about the use of online stores. Having analysed the survey the main differences between traditional consumer behaviour in the market and in online trading have been defined.

The results of the research can be used in practice. They show the key features in consumer behaviour in the traditional market and in online trading which will help assess how to communicate better with consumers in the Internet environment thus increasing the efficiency of online shopping.

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ICT SECTOR DEVELOPMENT AND IMPACT ON ECONOMIC GROWTH IN BALTIC STATES

Key words: ICT, information and communication technologies, economic growth, Baltic states

The paper examines the sources of economic growth in Baltic states' economy, with particular focus on the role of information and communication technology (ICT). Regaining independence in 1991, after the collapse of the Soviet Union, Baltic states were facing the same economic problems and challenges. Two decades later, Estonia becomes a world leader in technology and shows stable economic development. The main hypothesis of an article is: Estonian rapid economic growth in contrast with Latvia and Lithuania is mainly driven by ICT sector development. By analyzing this undoubtedly successful Estonian example, other Baltic states should evaluate the possibility to follow the same strategy in ICT sector support to stimulate country's economy.

New information and communication technologies are changing the way companies do business, transforming public service delivery and democratizing innovation. ICT companies are on top of the most successful and powerful world businesses. Different researches and theories proves that economic growth of the modern society is strongly associated with the rapidness of formation and development of information and communication technologies. Following these concepts, the aim of the paper is to analyze ICT sector impact on economic development in Baltic states.

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INTERNATIONAL INDEXES CAPTURING PROGRESS IN DIGITIZATION: RANKINGS OF LATVIA

Technological innovations are influencing many aspects of our lives. In many countries information and communication technologies can be even more fundamental for reducing inequalities and taking people out of poverty.

The aim of this paper is to analyse Latvia's positions compared with other countries within different indexes that covers different aspects of digitisation and ICT.

Different international indexes exist that covers different aspects of digitisation. The World Economy Forum Network Readiness Index seeks to better understand the impact of ICT on the competitiveness of country. The 2015 edition of NRI covers 144 countries. The European Commission Digital Economy and Society Index aims to summarize Europe's digital performance covering EU28 countries. Also other indexes cover different aspects of ICT – education, infrastructure, government policy.

The index show how country performs compared with other countries. If countries performance is low it can result in spoiled prestige and conversely – high ranks can improve country's reputation. In this case international indexes can play important role in country's place marketing. From another point of view, low indicators can reveal directions where improvements are needed.

The results show that Latvia performs poorly compared with other EU countries and also Baltic States having low indicators.

TĪKLOJUMĀ BALSTĪTA TERITORIĀLĀ ATTĪSTĪBA: ISLANDES PIEMĒRS

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NETWORKS-BASED TERRITORY DEVELOPMENT: THE EXAMPLE OF ICELAND

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CASE STUDY OF SOCIAL AND ECONOMIC INTERACTIONS OF ICELAND WITHIN GLOBAL ECONOMIC SPACE

Key words: *social and economic interactions, Iceland, world-economy, global economic space, territory development*

Iceland was identified as a country with relatively high achieved competitiveness level and at the same time negative growth capacity, i.e. trend of relatively fast declining of this competitiveness. As a research hypothesis the authors suggest that Iceland's social and economic interactions – looking at the interconnection of this country with other “worlds-economies” – are not diversified enough. The authors identified two established and rather big and two emerging “worlds-economies” in global economic space. “Ecologists with poor social infrastructure” (Brasil's/India's group) and “energy consumers with strong social infrastructure” (USA's/UK's group, where Iceland is also included) refer to the first ones, “ecologists with strong social infrastructure” (China's group) and “energy

consumers with poor social infrastructure” (Russia’s group) refer to the second ones. The analysis of export and import flows of Iceland shows that “energy consumers with strong social infrastructure” (USA’s/UK’s group), i.e. a market-capitalist “world-economy”, is an absolute leader (80–90%) for Icelandic international trade as well as other kinds of social and economic interactions. The analysis of international migration flows of Iceland shows almost the same situation, and the migration essence in Iceland could be called as “economically-cultural” migration, not just economic. The case study has been realized with support of the Marie Curie FP7-PEOPLE-2011-COFUND program – NEWFELPRO (The new International Fellowship Mobility Programme for Experienced Researchers in Croatia) within the project «Rethinking Territory Development in Global Comparative Researches (Rethink Development)», Grant Agreement No. 10, Scientist in Charge – Dr. Sasa Drezgic.

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ICELAND: SETTLEMENT PATTERN AND REGIONAL DEVELOPMENT TRENDS

Urbanization in Iceland took off later than in most other countries in Europe. In the beginning of the twentieth century the majority of the Icelandic population was still living in rural areas. During the twentieth century, urbanization took off, first in many small and larger towns around the country but first and foremost in the capital region after the Second World War. Around two thirds of the population now live in the capital region. Reykjavík, the capital city, can be termed a pimate city. The city along with its neighbouring towns attracts migrants from other regions and it is within this region where most of the population growth and economic activity takes place. Only around five per cent now live in rural areas. Regional development initiatives have not been able to impact this development to any considerable degree. This rapid development of the settlement pattern will be discussed and the various challenges this brings about in modern society in the fields of regional development, infrastructure development, services of general interest and more.

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IMMIGRATION AND WELL-BEING OF FOREIGNERS

Between 2004 and 2014, the number of immigrants living in Akureyri increased from 369 to 778. In 2013, a study conducted on the immigrant population of Akureyri showed that 82% of immigrants were satisfied with their life in their town (Meckl & Ólafsson 2013). In Iceland despite being every year one of the top countries on the OECD life satisfaction index and other similar inventories when it comes to studying the immigrant population the focus is nearly exclusively on dissatisfaction and problems like discrimination, prejudice and difficulties the immigrants are facing. This presentation intends to take a different approach and want to determine the factors and the reasons that make such a high proportion of the foreign population happy.

The debates which have dominated immigration issues have been far from addressing questions regarding well-being and happiness. Focusing on the wellbeing of the immigrants might help to shift the perception of immigrants in the public opinion from being connected to problems to a positive connotation of possibilities and enrichment.

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POLITICAL MARKET MEDIA IN ICELAND: TRUST AND DISTRUST BETWEEN POLITICS, THE PUBLIC AND THE MEDIA

Political parallelism was a characteristic of the Icelandic Media System until the late nineties. The transformation that Blumler & Kavanagh characterized as „The third Age of Political Communication“ and includes e.g. increased communication expertise within the political parties as well as professionalization of journalism, thus has had shorter time to develop than in many of the neighbouring countries. In this talk the results of three surveys are analysed, one among candidates from all political parties and all constituencies in the 2013 parliamentary elections, the second among candidates in the 2014 municipal elections and the third among voters in 2015. The findings suggest that politicians and voters have little faith in the professionalization, impartiality and balance to political parties of the Icelandic media and journalists, characteristics that would be expected to follow the commercialisation of the Media System and transformation from external diversity to internal diversity (Hallin & Mancini, 2004). Icelandic politicians on the contrary view the Media in a political light where political parallelism and external diversity is important. It is argued that in Iceland there has developed a “Politically Commercial Media System” due to a combination of reasons. Among them are the historical proximity of a system of political parallelism, a relatively recent professionalization of journalism, an unregulated media environment and an extreme ownership concentration of the media, where ownership powers and political parties became mixed with each other.

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MEDIA AND GENDER IN ICELAND

This study builds on a set of Icelandic as well as international studies exploring how the media in Iceland reflects the balance between men and women in the news and how much exposure women are getting in the news compared to men. The media play an important role in influencing opinions and attitudes, in building up a democracy or tearing it down. The media shape perception and is a powerful tool to create stereotypes or tearing them down.

The Icelandic State Television, RUV, has been operating for fifty years, or since 1966. From the very start this media has been man-dominated in its daily newscoverage. This study focus on the newscoverage in RUV over those fifty years from gender perspective. The very first quantitative study was done in 1986 covering the first 20 years of RUV-news. It showed that the average coverage of women in the news through those years were 8.4%, starting in 1966 with 0% coverage of women up to 13% in 1986. This study is compared with later studies, the newest from the fall of 2015 showing that there is still a great unbalance, or between 25–30% share for women. A study done last year by the International Economic Forum shows that Iceland was on the top in the world in gender equality. How does that fit with the lack of exposure of women in the news. Why is this unbalance still there and what can be done to change the situation.

CIVILTIESĪBAS

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CIVIL LAW

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FUTURE OF EMPLOYEE SHARE OWNERSHIP IN EU: LEGAL PERSPECTIVE

Recently EU Commission took a significant step towards promotion of employee share ownership and participation. Employee share ownership and employee financial participation in general has been on European Union (Further: EU) agenda for over twenty-five years. Across the member states of EU, employee financial participation is the focus of increasing attention.

The paper examines topical legal issues concerning employee share ownership in the European Union and the latest achievements in the field by European Commission. The aim of the report is to present insights that will serve as a basis for discussion for further developments and future legal framework.

While financial participation has been supported in a number of EU Member States through tax incentives and other forms of legislation, approaches differ widely across the EU Member States. Some EU member states lack employee share ownership regulation at all. The fact that forms of employee financial participation continue to be purely national in scope means that it cannot be expanded in Europe to the extent desired to harmonize the internal market. European Commission is still not offering common legal definition of employee share ownership and employee financial participation across EU member states.

At a time when the issue of equality is increasingly relevant in EU internal market, it is time to launch a debate across the EU on employee share ownership schemes and their legal framework, which can help integrate the economies of the Union, while improving opportunities for businesses and their employees in the long term.

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THE CONCEPT „THE BEST INTERESTS OF THE CHILD”

The author is going to analyse a concept „the best interests of the child”, which is often used for both international and national legislation. This concept is most often used in the context of family law determinations. For example, a judge may consider whether it is in the best interest of the child to change a child custody determination, to grant a child custody order, to grant visitation or to permit a relocation. However, there is no exact definition for this term.

Over the time the society has changed the views of the child as an individual who gives the benefit to the society and concluded that the child can be given the right to itself. Legislation regarding to children are focused on the child’s interests and they should be given a prominent position. The child should be able to enjoy his/her fundamental rights, he/she must have the knowledge how to implement and claim those rights.

My aim in this paper is to find out the meaning and the content of the concept „the best interests of the child”. I will focus my analysis on the judicial practice.

The concept „the best interests of the child” is a well-known component of many national as well as international private law and human rights, so the research of application of that concept is essential

not only in the Latvian court practice and expressed ideas and valuations in the jurisprudence in Latvia, but also in the international practice and experience in explaining content of this.

- The child's best interests principle is the most important principle that must always be respected for any legal proceedings affecting the child.
- The child's best interest principle limits the amount of adult authority over children and acknowledged that the adult take decisions instead of child just because the child have a lack of experience in decision-making.
- The judicial practice and legal doctrine should fill in the general principle "the best interests of the child" with specific content.
- Applying principle "the best interests of the child" the decision maker must disclose the child's identity and to anticipate the consequences of the decision, which can cause a child in the near and distant future, giving priority to the child's interests in the future.
- In order to more easily fulfil the content of child's best interests principle, countries can create a catalogue of children's interests or the tests of the interests of the child, but they should not be absolute.

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RECOGNITION AND ENFORCEMENT OF JUDGMENTS IN CIVIL MATTERS IN THE EU

The judgments from the courts of one State's have no force by themselves in another State. But successful party is interested to avoid repeated litigation in this another State. Besides there is a common interest to avoid private and public resources spent on re-litigation and in this another States. Therefore the concept of recognition of the foreign judgements could be helpful. Recognition is needed to because States still might have valid reasons to deny foreign judgments the same force as they grant to their own judgments since the foreign procedure may be viewed as deficient.

It is needed to say that the recognition and enforcement of foreign judgments is a relatively young phenomena. In antiquity, local law was applied to foreigners and foreign judgments were denied any force beyond their territories. Although in Roman law no clear difference was made between foreign and local judgments - foreign judgments were freely recognized and enforced. This liberal attitude changed with the rise of sovereignty. A duty to enforce foreign judgments was rejected as an undue restraint of sovereignty in 16th century. Once ideas of sovereignty limited the authority of judgments to State boundaries, the recognition of foreign judgments between sovereign States had to be based on new principles - reciprocity and politeness towards another sovereign. These principles that are still relevant today.

Nowadays the EU had formulated the aim of the creation of a 'genuine European area of Justice'. Tampere European Council on 15 and 16 October 1999 established as priorities for action in this area also mutual recognition of judicial decisions. As the result of that a number of the EU regulations have been adopted to promote more freely circulation judgements from the one EU country in other EU country in civil matters. The level of „integration” of mutual recognition of judgments among EU countries differs from subject matter. There are „spheres” where once a person has obtained a judgment in his/her favour in one Member State, that judgment must be recognised in every EU country - it may be refused only in highly exceptional cases. And there are „spheres” where once a person has obtained a judgment in his/her favour in one Member State, that judgment can be automatically enforced in almost every EU country without any special procedure. In this case person can go the enforcement authorities in another Member State where e.g. the debtor has assets without any intermediary procedure being required (the Regulations abolishes the „exequatur” procedure) - the debtor against whom the enforcement is sought may apply to the court requesting refusal of enforcement.

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MEDIĀCIJAS JĒDZIENA IZPRATNE JURIDISKAJĀ DOKTRĪNĀ

Mediācijas process izpaužas divu strīdā iesaistīto pušu sadarbībā, kura ir vērsta uz pastāvoša konflikta noregulēšanu, obligāti piedaloties trešajam neitrālajam starpniekam, kas pārliecina puses brīvprātīgi vienoties par sava konflikta izbeigšanu. Mediācija kā viena no alternatīvām strīdu regulēšanas metodēm norāda uz tiesību sistēmas pilnveidošanu un liberalizāciju. Vairākuma gadījumos minētais process un tās realizācija netiek regulēta ārējos normatīvajos aktos. Mediācija ir pazīstama jau no seno civilizāciju laikiem. Mediācijas procesa sekmīgai izmantošanai ir svarīgi zināt mediācijas sākotnējo izveidošanas mērķi un nozīmi. Mediācijas sekmīgas piemērošanas pamatā ir saidrs priekšstats par tās izveidi, filozofiju un koncepcijām.

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PERSONAL IDENTITY IN THE PERSPECTIVE OF FUNDAMENTAL RIGHTS

The objective of the paper is to provide a concise insight into a judicial assessment of personal identity in the perspective of the fundamental rights, clarifying the content of the named concept. To achieve the given goal a legal definition of a term has been clarified, summing the opinions provided by a various legal scientists. Moreover, having studied legislative regulations, the viewpoint of the legislator on the matter has been established.

In conducting the study and clarifying the content of the right to personal identity, the appropriate case law of the European Court of Human Rights and the Constitutional Court of the Republic of Latvia has been examined.

The following research methods have been used in the study: descriptive, comparative and analysis method. The paper is concluded with the relevant conclusions.

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TAX POLICY IMPACT ON INCOME INEQUALITY IN LATVIA

Keywords: *tax, inequality, income, VAT, GINI*

The income inequality in Latvia is very high for many years already, as shown by the GINI coefficient analysis, which is the second highest in the EU. This mainly reinforces regressive overall tax burden, resulting in a large income inequality. Compared to other European Union countries, Latvia has a very low average tax burden (below 30% of GDP in 2015). But this is not the case when comparing the tax burden on people with different income levels. Analysis shows that for people with low income tax burden is significantly higher than average and is higher than in other EU countries. As the Latvian tax burden falls mainly on people with low incomes, we can say that Latvian has high tax burden. That is, for people with low income tax burden is much higher than average, but for people with high income is lower. Regressive tax burden is mainly caused by VAT and other consumption taxes, because people with low income all income is consuming for daily needs.

To reduce the regressive overall tax burden, many countries have reduced value added tax (VAT) for food and also have progressive personal income tax (PIT). Based on the experience of other countries, also in Latvia the tax burden regressivity should be reduced by reducing VAT for food products, increasing the non-taxable minimum and taking other measures to reduce income inequalities.

The aim of the research was to evaluate impact of tax policy in Latvia on income inequality. The objectives of the research were: overview opinions of international experts about tax systems impact on income inequality; compare tax systems and income inequality in other countries; analyse tax burden of existing taxes on various groups of citizens with different income level; to find the best solutions how to change tax system to reduce income inequality in Latvia.

As the main methods in this research was used overview of legislation, policy documents and international publications, analysis of statistic data, econometric calculations, as well as comparative analysis was performed.

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MEDIATION BY INTERNATIONALLY RECOGNIZED SPORT BODIES: SPORT DISPUTE RESOLUTION CENTRE OF CANADA AND UK SPORT RESOLUTIONS SERVICE

Mediation is an alternative dispute resolution method. It is a voluntary and non-binding process aimed at reaching a consensus with the assistance of a third party/intermediary named mediator. Mediator helps parties to negotiate, facilitates the communication process and does not impose any decision unlike an arbitrator or a judge. By the means of mediation parties are allowed to work out their own solution to the conflict in a structured way. Mediation is strictly confidential. Why mediation and sport related disputes? Because an increasing growth and development of sports, commercialization of it and big sums of money involved cause enormous differences and disputes in the area of sports what constitutes a necessity for an efficient resolution of such disputes. Author suggests mediation as an effective method to resolve sport disputes and analyses the mediation rules and dispute resolution procedures of such influential international sport bodies as Sport Dispute Resolution Centre of Canada and UK Sport Resolutions Service.

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PRINCIPLE OF TRANSPARENCY IN PUBLIC PROCUREMENT OF THE REPUBLIC OF LATVIA: THEORY AND PRACTICE

Transparency is concerned with the quality of being clear, obvious and understandable without doubt or ambiguity. In article «Principle of transparency in public procurement of the Republic of Latvia: theory and practice» is examined the importance of principle of transparency. The work purpose – to analyse the information about theory and practice in sphere of public purchases. The study is based on the laws and regulations of the Latvia range, including the Public Procurement Law, Decisions of the Complaints Examination Commission of the Procurement Monitoring Bureau (Republic of Latvia). The study helps to identify the Latvian Republic procurement system development level, as well as outlines possible solutions for the challenges. The results of the research can be used by procurement practitioners.

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AIZBILDŅA UN ADOPTĒTĀJA MAKSIMĀLAIS VECUMA SLIEKSNIS

Lai bērna nodrošinātu ģimenisku vidi, kad bērnam vairs nav vecāki vai bērna vecākiem ir atņemtas aizgādības tiesības, saskaņā ar Civillikumu šos bērnus var nodot aizbildņiem vai adoptācijai. Par aizbildņiem iecerē lielākoties tuvākos radniekus un tie parasti ir vecvecāki, kas ir gados veci cilvēki, prakse rāda, ka šiem aizbildņiem bērnu audzināšana rada problēmas. Aizbildnis sava vecuma dēļ nevar nodrošināt bērnam pilnvērtīgu un interesēm atbilstošu aizgādību. CL 246. pantā ir paredzēts, ka likumiski no aizbildņu pienākuma pildīšanas var attiekties, ja aizbildnis ir vairāk kā 60 gadus vecs, bet pieredze rāda, ka likumiskā atteikšanās notiek reti. Kā arī Civillikumā nav noteikts adoptētāja vecums, tādējādi uzskatu ka nepieciešams papildināt CL ar jaunu normu, nosakot „Ka par aizbildni vai adoptētāju nevar būt persona, kas sasniegusi 55. gadu vecumu”, jo par aizbildni vai adoptētāju ir jābūt tādai personai, kas bērnam var nodrošināt harmonisku un satbilu vidi jaunā ģimenē ilga laika periodu kam ir plašākas zināšanas par mūsdienu bērnu dzīvi, kas līdz ar to sniegtu pilnvērtīgāku bērnu aprūpi.

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LEGAL STATUS OF A STATE ENTERPRISE IN INTERNATIONAL COMMERCIAL ARBITRATION

Nowadays it is internationally accepted that a state can conclude international commercial contracts with a private party (for example, purchase of goods) and as a dispute resolution mechanism choose arbitration. European convention on International Commercial Arbitration, Article II, states that [...] “legal persons of public law” have the right to conclude valid arbitration agreements. Case law indicates that in practice definition of a “legal person of public law” is not as clear as it may seem.

The purpose of this conference paper is to provide detailed analysis on a state enterprise, its definition and relevance to the state in cases when it concludes international arbitration agreements and participates in international commercial arbitration. The core problem lies in the practical determination whether legal entity's acts are attributable to the state, as well as interpretation of the European convention on International Commercial Arbitration and state immunity doctrine. If international commercial contract with arbitration clause concluded by a state enterprise is not attributable to a state, whether under certain circumstances it can rely on state immunity from jurisdiction or even immunity from execution?

Based on methodological, empirical and theoretical aspects, in summary of this conference paper recommendations and insights on legal status of state enterprise and state enterprise involvement in international commercial arbitration will be provided.

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GUARANTEE LEGAL INSTITUTE: SOME PROBLEMATIC ASPECTS

Key words: *guarantee, suretyship, reinforcement of obligations, Lithuanian civil law, Latvian civil law*

In post economic-crisis period the needs for reliable measures of enforcement of obligations still exist in commerce practice and guarantees are most acceptable one. However, a great number of civil cases in national courts and rapid development of international commerce practice – these both lead to some fundamental problems of guarantee institute that are not assessed properly in legal doctrine yet, i.e. like the concept of guarantee and structure of such legal relationship or convergence problem of suretyship and guarantee legal institutes. So this article is oriented to analysis of these three general problematic aspects of fundamental basics of guarantee institute without detailed analysis of working specifics of guarantee mechanism. In order to reach this aim there is analysis of main legal sources of Lithuanian law comparing with international commerce practice based on soft law documents (URDG rules, UNCITRAL Convention) and Latvian law, that is unique, because it's regulation does not recognize suretyship legal institute. So in parallel investigation of article there is object to find out the influence of such position of Latvian legislator to guarantee institute development. The results of article analyse show clearly the necessity to some changes of laconic and uncompleted Lithuanian legal regulation while in Latvian law legal regulation of guarantee becomes much more deviant form it's true meaning without competitive suretyship institute.

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MEDIATION IN LATVIAN HEALTHCARE SYSTEM

The aim of the paper is to provide some insight into an opportunity to use mediation in healthcare disputes in Latvia. The number of applications in healthcare cases before the court is growing. It shows that there are some problems in healthcare legal system that should be improved. The paper highlights the practical side of the problem to use mediation in disputes between patients and healthcare professionals. The results of the paper shows that legislation allows apply mediation in healthcare disputes. Nevertheless in order to make mediation process more popular in health care disputes it is necessary to comply with several difficulties and peculiarities mentioned in the paper. The paper has described some new ideas of mediation in healthcare disputes in Latvia.

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THE LEGAL ASPECTS OF PATERNITY (FILIACTION)

Civil law of the first part of the „Family right” the second chapter is devoted to the parent-child mutual rights and obligations. This chapter begins with a child's outbreak detection legal aspects. More are being discussed on paternity dispute. Civil Law Section 149. shall determine the cases in which it is possible to contest paternity, determines the limitation period. For example, paternity may be contested within a period of two years from the day when the child's father has learned that the child has not descended from him. The child itself can challenge the paternity in the two years after reaching the legal age. However, in practice, problems arise with the establishment of paternity through the courts. Civil law does not specify the period of limitation of these categories of cases. Legal doctrine is expressed in the knowledge that the right to bring an action for paternity or adoption law does not restrict the term. There are also problems with the provision of evidence. So sometimes this process is time-consuming. Author of the article analyzes the problems encountered in practice relating to the establishment of paternity through the courts.

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TOWARDS NEW EUROPEAN UNION BODY – THE EUROPEAN PUBLIC PROSECUTOR'S OFFICE

As enshrined in Article 325 of the Treaty on the Functioning of the European Union both the Union and the Member States have a duty „to counter fraud and any other illegal activities affecting the financial interests of the Union” as well as to „afford effective protection” to such interests. Despite this clear obligation directly imposed by subsequent EU treaties and already referred to in 1989 by the European Court of Justice[1], the Union's financial interests are still not protected sufficiently by many Member States: fraud, corruption and other offences affecting the Union's budget have reached disturbing levels in some areas and the lack of vigorous enforcement has helped a sense of impunity to emerge among fraudsters. Analyses confirm that hundreds of millions of euros of taxpayers' money continue to disappear due to such criminal activities. This concerns notably structural funds, the cohesion fund and areas of highly taxed products (e.g. cigarettes, alcohol etc.).

Discussions on how to best strengthen the investigation and prosecution of offences against the Union's financial interests, for example through the creation of a European Public Prosecutor's Office (EPPO), have been going on for more than two decades. Since July 2012 after the European Commission presented its proposal for a draft regulation on the establishment of the EPPO it has become an integral part of the EU's agenda.

It is expected that an EPPO functioning on the basis of a common set of rules and guidelines would contribute to approximating the judicial practices of the Member States in the area of crimes affecting the EU's financial interests and to achieve a higher degree of performance of prosecution in such cases.

A conviction for criminal activities increases the chances of a successful financial recovery as it provides an additional tool to ensure successful enforcement; it prevents the individuals concerned from committing further criminal acts, and generates wider deterrent effects. The more successful enforcement authorities are in bringing offenders before the courts and securing their conviction, the greater the chances of recovering more of the proceeds of crime, and the greater the deterrent effect. And this is the role foreseen for the EPPO.

This article aims to give an insight on how the work of the EPPO will be organised and carried out as well as to what the biggest challenges could be.

[1] 21 September 1989, Case 68/88, Commission v. Greece [1989] ECR 2965.

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INTERROGATION OF PERSONS IN ADMINISTRATIVE VIOLATION CASES

Recently there is much attention is paid to improve documentation in administrative violation cases in order to achieve high standards. It is important, because affairs on administrative violations on the essence and on nature of punishments on recognition of the European Court of Human Rights are estimated as „small criminal cases”. Now Administrative violation proceed law is developed and submitted for consideration. The main goal of the law is to provide observance of standards. One of the main action where it is necessary to observe the high standard is the proving. The officials have to be able to process proofs correctly. Unfortunately there is not all actions of proof processing are described in Latvian Administrative violation code, including interrogations of persons. But any official has to know how correctly to invite to interrogation and an order of interrogation. And also the official has to know how to apply coercive measures against persons who without the objective reasons avoid interrogation.

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REFORM NECESSITY FOR CRIMINAL LIABILITY OF MINORS

The Criminal Punishment Policy Concept approved by the Cabinet of Ministers on 9 January 2009, which emphasized that with regard to criminal liability of minors it is necessary to develop the current system of compulsory measures of correctional nature, paying a particular attention to the compulsory measures of correctional nature development. Within the framework of the Concept it was stated that the applicable range of duties defined for juvenile offenders in the „Law on Compulsory Measures of a Correctional Nature Application to Children” have to be extended, reinstating from the law excluded compulsory measure of correctional nature „behavioural restrictions” and appraising the possibility to include additional restrictions, such as participation in probation programs. In addition, on February 11, 2015 the Cabinet of Ministers approved the Government Action Plan in accordance with which the Ministry of Justice has to develop amendments to the normative acts conceptually reform the existing juvenile criminal liability, providing that to a minor criminal punishment shall be applied only in exceptional cases. For these reasons, it has raised the issue of the need to realize changes in the criminal punishment policy refusing minors’ criminal liability for the criminal offenses committed.

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EMOTIONAL (PSYCHOLOGICAL) DOMESTIC VIOLENCE: RESPONSIBILITY, PREVENTION AND COMBATING PERSPECTIVE

The European Union Agency for Fundamental Rights for the „Violence against women: EU-wide survey” results show that in Latvia more than 100 women each year suffer from domestic violence and violence levels in Latvia are higher than in Europe. But In Latvia from psychological violence have suffered 60% women, which corresponds to approximately 505 thousand Latvian women. **Emotional abuse** is one of the forms of domestic violence. It is the most common type of domestic violence, because there is any family, where there is violence. This is explained by the fact that the repeated violence leads to severe psychological suffering stress, depression, anxiety, but sometimes also with much more serious consequences, such as suicide attempt. Emotional abuse may exist without physical or other violence. The Council of Europe was established Convention on preventing and combating violence against women and domestic violence (Istanbul Convention). Latvia has not yet ratified the Convention, and to do this, you will need to think about certain changes in regulatory enactments, including how to ensure prosecution of psychological and emotional violence. In this article, author analysis of emotional domestic violence, and the improvement of the legal framework in order to successfully prevent and combat this type of violence.

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LATVIAN ADMINISTRATIVE TERRITORIAL REFORM ASSESSMENT

This article is dedicated to results evaluation of Latvian Republic’s administrative territorial reform, which was performed in 2009. At the end of 2015 Latvian government gave the idea to organize and perform the second administrative territorial reform in 2021 with the aim of reforming the existing municipalities by merging them. To do this it is necessary to identify and understand the

consequences of the already performed reform. In this research the consequences of the first reform were analyzed from the legal, health and economic points of view.

In this article is carried out research about gains and losses of implemented reforms, within which administrative territorial reform related laws and regulations are being studied and analyzed, with the major deficiencies being identified. To make this research comprehensive enough, interviews were conducted in all the Latvian municipalities (109 counties) with the objective to explore and find out gains and losses from the implemented reforms for every county's municipality. These results of surveys (positive aspects and admitted failures) could be used for implementation of the second administrative territorial reform.

Demographic situation, an important problem for Latvian state, which has been identified in the research as a significant factor to be taken into account for planning and building county's municipalities, has been raised within the research and reflected in the article. Problems related to normative regulations of the administrative territorial reform, specifically violation of these regulations requirements and conditions and associated consequences, which have been identified within the research, are being analyzed in the article.

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ESSENTIAL HARM IN ENVIRONMENTAL CRIME

The State shall protect the right of everyone to live in a benevolent environment by providing information about environmental conditions and by promoting the preservation and improvement of the environment.

Persons held administratively or criminally liable shall not be released from the duty to compensate for damages caused as a result of violations of the regulatory enactments.

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DISPOZĪCIJAS IETEKME UZ NOZIEDZĪGU NODARĪJUMU IDEĀLĀS KOPIBAS KVALIFIKĀCIJU

Referāta aktualitāte ir saistīta ar Krimināllikuma grozījumiem, kuri stājās spēkā 2015. gada 3. decembrī, izslēdzot turpmāk iespēju veidot noziedzīgu nodarījumu ideālo kopību pēc Krimināllikuma 260. panta trešās daļas un 262. panta otrās daļas, paredzot atbildību par minētajiem noziedzīgajiem nodarījumiem vienā Krimināllikuma pantā, veidojot atsevišķu noziedzīgu nodarījumu. Noziedzīgu nodarījumu ideālā kopība nav nemainīgs veidojums un nodarījuma kvalifikācija var mainīties atkarībā no Krimināllikuma aktuālās redakcijas - izdarot grozījumus Krimināllikuma normas dispozīcijā, iespējams izveidot jaunu vai izslēgt jau esošu noziedzīgu nodarījumu ideālās kopības gadījumu. Tāpat jānorāda, ka noziedzīgu nodarījumu kopības jēdziens drīzāk maldina, nekā ievieš skaidrību, jo kopības jēdziena pazīmes ir vispārinātas un jēdziena saturs noskaidrošana ir atstāta likuma piemērotāju ziņā. Noziedzīgu nodarījumu kopības jēdzienā nav skaidri nosaukti to veidi, kas, pēc autora domām, ir viena no būtiskākajām jēdziena nepilnībām. Referāta mērķis ir identificēt Krimināllikuma normas dispozīcijas ietekmi uz noziedzīgu nodarījumu ideālās kopības kvalifikāciju. Referātā pielietota salīdzinošā, loģiskā, analītiskā, induktīvā un deduktīvā pētniecības metode.

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INFLUENCE OF THE APPLICATION OF MEDIATION TO IMPROVE THE EFFICIENCY OF REPARATIONS TO THE VICTIMS OF CRIMINAL OFFENSES (CRIMES)

Usage of mediation helps to achieve a more effective resolution of the dispute. Victim of crime has an opportunity to convey the depth of the inflicted harm to the guilty person. At the same time during the usage of mediation guilty more clearly saw the harm, that he has caused to the victim. Mediation gives to the victim an opportunity to formulate the actions of the guilty person, that can bring the greatest satisfaction to the victim and thus resolve a conflict. Guilty person, participating in the mediation procedure, more clearly see the consequences of his actions and as a result guilty person wishes to repair the damage, inflicted to the victim.

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THE SUMMARY OF QUESTIONNAIRE ABOUT THE EVALUATION OF THE CRIMINAL OFFENCE IN LATVIA'S ELECTRICITY MARKET

Keywords: *questionnaire (interview), criminal offences, electroenergy market, specifics, Latvia*

Recognized criminal offences in the field of electroenergetics services, does harm to energy supplyment merchants, electroenergy users, human lifes and health, and leaves negative effect on the development of economics.

According to Directive 2009/72/EC of the European Parliament and of the Council of 13th July 2009 concerning common rules for the internal market in electricity and repealing Directive 2003/54/EC cancellation requirements, doing historically important electroenergy market opening process, it is significant and important to promote more effective prevention of safety threats and criminal offences to energy supplyment objects.

Latvian energy supplyment safety is one of the keywords tp implementation of energy policies for the next seven years, and leaded by these aims, Ministry of Economics worked out Energetics development guidelines for 2016–2020, giving suggestions to Latvian government's basic political principles, aims, and action directions in energetics for the next five years. The Cabinet of Ministers confirmed the guidelines.

To carry out mentioned basic principles successfully, it is necessary to develop energy supplyment safety threats and to avert criminal, and in comabting rims, counteraction criminal specifics should be overseen, this way contributing economics development.

To find out specialist's opinions about criminal offences, specifics and possible solutions, author did the research.

The research was conducted in 2015, when Latvia achieved historically significant electroenergy market opening process.

Analysing questionnaire results and statistical data, it can be concluded that successful criminal offences combating in electroenergy market, in majority, depends on police resources, energy supplyment merchant's technical solutions and specialist's cooperation.

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VEHICLE LIKE A OBJECT OF A CRIME

Vehicle crime is invasive. It affects our communities and families, both financially and emotionally. Vehicle crime typically comes in three forms; theft of a vehicle, theft from a vehicle or damage. The author thinks on this crime is that prevention is better than cure and there are simple things you can do to minimise the chances of person becoming a victim of car crime.

Vehicle crime is a highly organized criminal activity affecting all regions of the whole world and with clear links to organized crime and terrorism. Vehicles are not only stolen for their own sake, but are also trafficked to finance other crimes. They can also be used as bomb carriers or in the perpetration of other crimes. 'Vehicle' includes all modes of transport such as bicycles, animal drawn carriages and even a person riding an animal.

Within law enforcement, Motor Vehicle Crime may not always have the same priority level as the crime areas of drugs, trafficking in human beings, child abuse and terrorism. In fighting transnational organized crime, however, stolen motor vehicles should, in many cases, literally be seen as the "vehicle" of the crime. Stolen vehicles are found to be the way of transport for bank robbers; illegal drugs are paid for with stolen vehicles; victims of trafficking in human beings are being discovered in stolen vehicles and car bombs are traditionally hidden in a stolen vehicle.

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EVALUATION OF CABINET OF MINISTERS REGULATIONS NO. 279 „ROAD TRAFFIC RULES” OF JUNE 2, 2015 IN THE QUALITY CONTEXT OF REGULATORY FRAMEWORK

Mobility – a prerequisite for a person to be able to successfully integrate into the daily dynamic course of time, so that the road traffic area, its organizational and regulatory aspects that indirectly affect not only the person's social life, but also, possibly, professional development. Regulatory framework of road traffic area, which ensures the realization of the road traffic, which poses no threats to life, health, property and the environment, must be understandable and transparent, not only to those whose careers are bound by the jurisprudence, but for anyone who participates in road traffic. Will of the publisher expressed in the legal provisions setting amount of the subject of rights and duties must be clear and unambiguous, as the result would be ensured the uniform distribution in specific areas of regulating legal provisions, which in turn will enable to improve road traffic safety in general.

On 1 January 2016 entered into force the Cabinet of Ministers Regulations No. 279 „Road Traffic Rules” of 2 June, 2015 taking into account the importance of the matter to be regulated, the Author carried out the analysis of the enactment, and a part of the analysis included in the conclusions of the report. The research objectives – firstly, to identify the legislative provisions included in the normative act, the application of which, according to the Author, may be associated with problems, secondly, to evaluate the normative act as a source of information quality of the practical application point of view. Summarizing the study results, it can be concluded that in the Cabinet of Ministers Regulations No. 279 „Road Traffic Rules” of 2 June, 2015 is corrected a part of imperfections, which previously were found in the Cabinet of Ministers Regulations „Road Traffic Rules” No. 571 of June 29, 2004. By contrast, in the current regulatory framework, certain provisions (the inclusion or version) are not assessable unequivocally, because they do not essentially give a practical contribution to the improvement of traffic safety or are ambiguous, creating difficulties to a person to evaluate the legality of actions (inactions).

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PEOPLE TRAVELING TO MILITARY CONFLICT ZONES AND ITS HEDGING OPPORTUNITIES

The European citizens' involvement in the conflicts in the Middle East are to a large extent each personal choice, which do not support in any way, because a suffusion strengthens the extremist organisations capabilities, improves the resolution of conflicts and increases the number of victims. The largest threat to internal security are the persons who have acquired the combating experience and return to home countries ready to distribute extreme ideas and use this experience in Europe, in order to realise their ideas to life. The recent events show that the return of persons from military conflict areas and their extreme action at home, is also urgent problem to Latvia.

Although on 2015 February 12, the Saeima (parliament of Latvia) adopted amendments to the Criminal Law stipulating criminal penalties for involvement in armed conflict abroad, to influence the person until it gone to the conflict zone and engaged in armed conflict, essential cannot. Public authorities may be only to warn him about the consequences of this action. It is necessary to lay down the legislative instruments, which would lead not only to prosecute but also to prevent or substantially reduce crime. In this case, they might have the right to withdraw the passport if the information at the disposal of the special services provide the basis for believing that the person really intends to engage in armed conflict abroad. Any person against whom such deterrent would, of course, have the right to appeal such decision. This practice is in many European countries, which are in contact with its citizens going to Syria and Iraq. On 2014 March 13 France adopted November anti-terrorism law "Provisions of the fight with terrorism enhancement" ("Renforçant les dispositions relatives à la lutte contre le terrorisme"), which is a strengthen legislation (1986 "The Law on the fight against terrorism", "Criminal Law", "Criminal Procedure Code", 1881 "Press Act") and grant new powers to the national authorities in the fight against terrorism and reinforce responsibility for membership of a terrorist activities.

The state institutions of Latvia can respond to happened violations, but there is relatively limited scope for preventive action to prevent it. It is necessary to start consultations and discussions about the extension of the scope of the preventive legal system.

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SPORTS CRIMINOLOGY

Criminology, by virtue of its scientific status (as a complex interdisciplinary science) involves the implementation of joint research. It is noted that such studies are the most interesting and promising. Apparently, that is why criminology is considered to be a dynamic science. It is characterised by the appearance of new directions. This feature is of fundamental importance, as demonstrates the openness of criminology to cooperate actively with other sciences. Unfortunately, this openness can be abused, and as a result, there is a certain danger of dubious innovations, occurrence of pseudo original ideas and so on. In order to determine whether a new scientific field is authentic, there should be a real social problem, the study of which dictates need for a comprehensive interdisciplinary approach.

For that reason, even a cursory listing of well-known problems of the sports with a criminal expression and criminogenic potential (bribery of members of international sports federations in order to be eligible to hold the prestigious sporting events, riots involving fans, match-fixing, money laundering in the area of sport) points on the existence of sports criminology.

Unfortunately, at the moment there is no allocation of a special scientific field – sports criminology in international practice. However, it does not mean that, criminologists have not paid attention to the study of interactions between crime and sports. These studies are conducted in several areas: Crime in the area of professional sport; Criminality among athletes; Crime among fans; Sports in crime prevention system; Prison sports.

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THEORETICAL AND PRACTICAL ASPECTS OF PAPILLARY LINE PATTERN PRINT COPYING METHOD APPLICATION

To visualize fingerprint trace pattern are used different types of methods. One of fingerprint trace pattern visualization methods is print copying method, which is based not on its own print but visualization of their copies. It must be recognized that, in practice mostly is used visualization of prints rather than their copies visualization. However, if the trace bearing object is a living human skin, then the employed measures spectrum for visualizing fingerprint trace pattern is limited, because of health security reasons. This is explained by toxicity of several substances and reagents applied for fingerprint trace pattern visualizing.

In order to test the feasibility of the use of this method, the Author conducted a pilot scale; in the course of human skin were left experimental fingerprint trace pattern on the human forearm inside and outside. In the first part of experimental series experimental fingerprint trace pattern was ripped on the porous paper tape and then the tape was sprayed with ninhydrin. In the second part of experimental pilot series prints were copied on a glossy paper, and then the prints were sprayed with aerosol fingerprint powder.

The Author in her works out a detailed description of the experimental series recording in the dedicated table age, sex, skin condition and the pilot-print location of donors used in the experiment, indicating the material on which the print was copied to and any substance or agent treated, as well as recording the experiment results. In Conclusion, the Author carried out a summary of the results obtained and the analysis, describing the positive and negative circumstances of the method, giving her views on the practical application of the method in fingerprint trace pattern copying on the human skin with the aim to further visualization and personal identification.

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LEGAL REGULATIONS FOR POLICE OFFICER'S ACTIONS IN CASES OF DOMESTIC VIOLENCE AND RELATED PROBLEMS

In accordance with the Section 10 Part 1 Article 21 of Law "On Police" the basic duties of a police officer, in conformity with the competence of the service, are to prevent the immediate threat, if the person in the home or nearby can harm the life, liberty or health of person settled in their home, until the court reviews the issue of temporary protection against violence. The common understanding of the concept "family violence" does not defined in Latvian legislation and is replaced by the concept of "domestic violence". The methodology how to recognize violence for law enforcement officers isn't developed. The police officers in assessing the existence of immediate danger and deciding the issue of the separation of offenders often used the other regulations to reach the goal – to prevent the fact of violence or threats of violence and didn't used the temporary protection against violence. The content of police decision of the separation is to prevent an immediate threat of violence, but it not solved the problem of domestic violence generally.

PEDAGOGIJA

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PEDAGOGY

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THE DEVELOPMENT OF LOGICAL THINKING ON MATHEMATICS FOR 3RD GRADE

Keywords: primary school age children, logical reasoning, mathematics

Nowadays, people are faced with everyday problems which might call for logical thinking. State test results and international studies show that few students are able to solve tasks that require non-standard solutions and logic. How do we change this situation? How to help students solve the tasks of this type of inspection work and become successful with solving problems in real-life? To find an answer to these questions was conducted a research with **the aim** to find out: how can we contribute to the 3rd class pupils' logical thinking in math classes? To find out the answer to the raised issues the authors have:

- 1) studied scientific methodological literature and analysed EU documents, concluded that logical thinking develops for the 9th and 10th year old children and it can be obtained by offering appropriate tasks in mathematics;
- 2) organized for the pre-school and primary teachers (n = 50) survey on the need to promote pupils' logical thinking; created and piloted tasks of development logical thinking on mathematics lessons;
- 3) the authors have piloting developments in observation and interview with the teacher.

Research data analysis confirms that the promotion of the development of logical thinking on mathematics is possible by the use the developed methodology but sustainable results need an additional time.

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THEORETICAL ASPECTS OF CHILDREN'S CREATIVITY DEVELOPING IN COLLECTIVE MUSIC-MAKING

Key words: creativity, collective music making, child

The present article deals with the problem of children's creativity developing through the perspective of collective music-making. The essence, classification and criteria of creativity in music pedagogy, as well as the pedagogical aspects of developing creativity through collective musicking are analysed. On the basis of analysis of philosophical, psychological and pedagogical literature the author comes to the conclusion that the process of collective music-making is the most important for creating the atmosphere for disclosure and development of the child's creative potential: a) collective music-making provokes children's genuine interest in music and collective musicking; b) communication among team members is developed to the level of spiritual personal relationships.

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COMPUTER SCIENCE INTRODUCTION OF 1ST-3RD GRADE STUDENTS - A CHALLENGE FOR PRIMARY SCHOOL TEACHERS

Key words: computer science, 1st-3rd grade students, primary school teacher, challenge

In 2015 / 2016, 153 schools in Latvia has started a new subject „Computer science” in the 1st grade. Informatics teachers learn the basic concepts of computer science, develop and improve computer literacy, information literacy and media literacy. They gain an experience of work with a Software-devices and systems, develop logical and algorithmic thinking. They are motivated to develop their abilities in order to become a full-fledged member of the society of information. This will improve a learning process. However, the excitement caused by the primary school teachers, whose computer skills are acquired through home study, and their willingness to organize learning process for students who have mastered these skills under the guidance of specialists.

The aim of the research is to learn whether the primary school teachers are ready for this challenge – to use acquired learning skills in other subjects.

Data gained in the semi-structured questionnaires with teachers (n=100), aimed to clarify: 1) what are the primary school teachers’ knowledge and skills in a computer science; 2) how do they use of student computer science knowledge and skills in the learning process. The analysis of the data shows that teachers’ knowledge of computer science is superficial, only some teachers see the perspective of students’ newly acquired knowledge and skills use in other subjects.

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HOW TO DEVELOP THE NEXT STAGE TEACHERS CONTINUOUS PROFESSIONAL DEVELOPMENT MODEL: ICT IN SCIENCE AND MATH TEACHING/LEARNING PROCESS

The obtaining information communication technology (ICT) skills become an integral part of the contemporary teaching/learning process. Education experts focus on both – the integration of ICT in teaching/learning process and improving its efficiency, when the teachers and students use ICT.

Our ten years professional background in teacher professional development for ICT show as teachers who improve their ICT application skills since 2005 during continuous professional development (CPD) have gone through several stages of the use of ICT in teaching/learning process. The first stage is to acquire the technical skills to use various ICT tools, as well as to identify the resources available for the organization teaching/learning process in science and math. The second stage is to develop and to enhance ICT skills to organize teaching/learning process.

According to literature and our previous research the availability of ICT does not automatically ensure changes in teacher’s pedagogical approach. The use of ICT promotes improving of students learning outcomes only when teacher develops new professional knowledge and skills about meaningful use of ICT in teaching/learning process continuously.

The focus of research is to observe the ICT usage in the science and math teaching/learning process in the real classroom and to develop the next stage teacher CPD model according to current needs. The research poses following questions: Is the usage of ICT in science and math teaching/learning process meaningful? What are the recommendations for the third stage of CPD model?

The following research methods for data collection and analysis: lesson observation and analysis; analysis of experts’ feedback; analysis of teachers developed lesson plans approved in praxis. The lessons observation data are rated according to criteria to determine how meaningful is used ICT in

accordance with planned learning outcomes, teaching strategies used etc. The data shows limitations in ICT usage.

Observation of science and math lessons indicates the need to create a next stage CPD training model, where teachers themselves will be able to design their own lessons with a meaningful use of ICT tools and resources in the teaching/learning process. The initial stage of the model is described.

The research is ongoing since 2015 and is supported by the National Research Program Project VPP 2014–2017.

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EQUINE ASSISTED INTERVENTION FROM THE PERSPECTIVE OF THE FOUR MAJOR LEARNING THEORY SCHOOLS

Key words: *Equine Assisted Interventions, educational paradigms, adult learning theories*

The aim of this article is to provide a theoretical review of the subfields of Equine Assisted Intervention from the perspective of four major learning theory schools: behaviorism, humanism, cognitivism and constructivism.

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DIDACTIC GAMES IN MATH LESSONS IN GRADE ONE

Key words: *didactic games, child's development, math lesson*

At the age of seven the child's main place for the activities becomes a school. This event causes changes in mental processes. The attention of a student in the learning process is significant. First – focus is very low, so that the students cannot simultaneously perform multiple instructions, look at the picture and listen to what the teacher says. The first and the second grade children do not know how to draw their attention to the subject matter. Attention can be enhanced through the development of information and training forms of work that children at this age are available. The author developed and piloted didactic games with a focus to promote the development of mathematics lessons. The pilot study was conducted with the aim to find out how the use of a set of established gaming lesson promotes pupils' attention to the development. The data were obtained from observing the behavior of children when they were playing, as well as from the expert interview in order to clarify data evaluation. Data analysis shows that the focus of the development of students is promoted through games at the lessons of math. However, to be able to talk about the results of the persistent need additional time.

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PROMOTING OF INFORMATION LITERACY: A STUDY ON LATVIAN PHYSICS TEACHERS' VIEWS AND EXPERIENCE

Information is an essential part of our society and our lives, and education. Undoubtedly, information and technology literacy is one of the basic skills set of the 21st century. Information literacy (IL) is the set of skills that not only allows to find, comprehend, evaluate, and use the information, but also to filter out the information we don't need. Nowadays, however, it is an observed paradox: many youngsters have become computer-literate, but not many of them are information literate. According

to studies of OECD PISA, the level of reading skills of fifteen-year-old youngsters in Latvia is lower than in other OECD Member States. The results show a strong, statistically significant correlation between student achievement in reading, mathematics, and science. This affects their career choices and future studies. The aim of this study is to identify Latvian physics teachers' views and experience on the importance of development of IL during physics teaching process in secondary school. What are teachers' views related to development of IL? What are the methodological techniques teachers use to promote IL development? What sources of information do they use? These were the main research questions. The qualitative and quantitative research methods were used. The study conducted in 2015 year involving 10 physics teachers and 115 secondary school students from Daugavpils. The results show that a large proportion of students admit that their reading skills are not sufficient, thus they encounter difficulties of comprehension of physics tasks, concepts and laws. Teachers are focusing more of reproductive teaching, sometimes to interpretative, but less on the levels of the 3rd cognitive level tasks to developing students' IL and creativity.

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SUPPORT FOR PARENTS IN COMMUNICATION WITH CHILDREN IN THE AGE OF THE THREE-YEAR-OLD CRISIS

Keywords: *Three-year-old crisis, development peculiarities, stages of development, children, parents, communication.*

All parents, more or less often, experience difficulties in communication with their children. Nowadays, we can often observe the situation when irritated parents are unable to calm down their child, who is crying, screaming, falling on the ground, and thus showing protest. Usually, parent's knowledge about child development peculiarities is rather limited. It is popular now to look for advice in different social networks, where mainly, posts are made by the same uninformed parents, who trust other people's experience. In best case, parents study literature about child development and parenting, which certainly helps to get an idea about how to raise a child in a calm and friendly ambience, however not all parents have an opportunity to spend time studying scientific literature, moreover, the statements of different authors are often contradictory and for non-specialists it's difficult to understand.

Many classic psychologists (E. Erikson, D. Elkonin, L. Vygotsky, etc.) emphasize that the three-year-old crisis is one of the most difficult and important periods in a child's life, which defines child's further development. Three-year-old crisis is the most characterized by willfulness, stubbornness, negativism, defiance, bursts of anger, tantrums, protests, provocative behaviour, etc. All this makes raising a child more difficult and impairs the communication between children and parents.

In the present research were studied different author's (V. Baha, 2008; E. Eriksons, 1998; V. Golubina, 2007; H. Gudjons, 2007; I. Kaļva, 2007; P. Kolmens, 2004; J. Prekopa, 2004; G. Svence, 1999; R. Špalleka, 2003; etc.) concepts of development peculiarities, the manifestations of three-year-old crisis and ways how to overcome them.

In the course of the present research, parents were offered a questionnaire to find out how are pronounced the most characteristic manifestations of the three-year-old crisis got their child and whether parents experience any difficulties in communication with their child. At the next stage of the research, parents were offered an informative seminar about the essence of the three-year-old crisis and ways how to overcome it, as well as various activities for spending time with children, thus minimizing the manifestations of the three-year-old crisis. After having analysed completed parent's self-observation and self-assessment diaries, it was possible to find out if after receiving support, parent's idea and knowledge about a child's development peculiarities has changed and if communication quality between parents and children have improved.

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FACILITATION OF ATTENTION SPAN DEVELOPMENT OF 5-6 YEAR OLD CHILDREN

Key words: attention stability, 5-6-year-old children, promotion of attention stability, game lessons

Children's ability to focus attention and to concentrate on carrying out a specific task, to keep attention is essential, especially in preschool, when children get ready for a new stage in their lives—children prepare to go to school. At the age of 5-6, years children learn to focus on a specific activity, therefore they must be motivated, have clear aims of the activity, which is related to their interest in surrounding objects and the tasks to be done. Attention stability is related to the performance of all cognitive processes, as well as to different skills obtained at lessons, which are necessary in the various life processes.

In the present research cognitions by different authors is analyzed (A. Golubina, 2007; E. Krastiņa, 2011, A. Ļubļinska, 1979; A. Vorobjovs, 2000; G. Svence, 1999, etc.) on the importance of attention in children's development are being analysed.

Preschool age is an important stage in children's development. At this age in particular it is necessary to develop child's cognitive processes: memory, perception, thinking and attention. It is impossible to form new skills and abilities without stable attention. Attention stability as enduring concentration on an object is closely linked to the activity forces of individual's nervous system, as well as to the nature of its activity. During game lessons children gain practical experience, and creative activity is being expressed. In the course of the present research the most optimal conditions for an active performance of children were defined, as well as the attention stability during carrying out specific tasks was established. Criteria and indicators of attention stability were developed.

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STUDENTS IN PRE-SCHOOL AND ELEMENTARY SCHOOL TEACHERS' READINESS FOR PROFESSIONAL SELF-DEVELOPMENT IN PRACTICE

Key words: pre-school teacher, primary school teacher, profesional self-development, practice

Teaching practice is one of the most important components of future teachers in the development of independent professional activities. It is a possibility and the need to test their theoretical knowledge in action, to develop professional competence. **The research was conducted with the objective of:** clarify and analyze the teachers 'students' self-esteem, their views on the active practice lessons learned. The data was collected on students' readiness for professional self-development practice. Qualitative analysis of research data enabled to improve teaching at Daugavpils University.

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CASE STUDY IN MATHEMATICS FOR ELEMENTARY SCHOOL

Key words: case study, mathematics, secondary school

Modern society requires a pupils with universal abilities, skills and knowledge after graduating a school that could help in their future life to solve a concrete, realistic tasks, also pupils themselves usually ask: Why do we learn that? Where it will be usefull? How can I use that in my life? Pupils

should understand why this specific mathematical theme is important for them, that everything they learn is connected to a real life. Therefore, this is important to use a modern learning methods in mathematics. One of the methods employed was a *case study*. This method is used in different fields of education – economics, medicine, management, law, pedagogy and school training. Abilities, skills and knowledge of solving concrete realistic problem that are gained by active and independent operating is the essence of a *case study*. The content of *case* requires specific form, also using this method in mathematics at school is connected to specific nuances and organizational issues. The aim of this research is to work out and approbate tasks for mathematics at secondary school according to a theory of *case study* and to analyze how do pupils involve, operate and how they evaluate skills. The results shows that pupils enjoyed *case study* tasks and there were formed new abilities to use knowledge in solving realistic situation.

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SYMBOLISM IN PAINTING OF REPIN

Keywords: *painting, Repin, symbolism, symbolic analysis of painting*

A painter at all times had an interest in what and how an audience perceive their works. This problem touches the questions of an aesthetics. The picture can not speak with words. But the color, objects and their position in space can convey the meaning of what consciously or unconsciously the author wanted to say. There is a method of knowledge the meanings of art. This is a symbolic analysis. We applied this method to the analysis of paintings by Russian artist Repin. The analysis of space objects and the colors of numerous works of the author allowed, as we think, to capture a true meaning of work.

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IMPROVEMENT OF INFORMATION COMPUTER COMPETENCE FOR STUDENTS OF HIGH SCHOOL IN THE COURSE OF FORMATION OF COMPUTER USING SKILLS FOR SENIORS

The nowadays world depends on the computer with the Internet connection more and more. In the morning we can quickly find necessary information about the bus correspondences in the Internet, to choose the junior news, to pay for the bills or accounts, as well as to communicate with family, and friends. These are only a few abilities we are experienced at. But there are also a great number of people who have grown without mobile telephones and other new technologies. They are seniors, one part of which are fully against the progress and another part who are open to this new technologies and are interested to be into it.

It is very difficult for the youths to choose future profession now because of the fastest changes happen every day in the world, to choose exactly what will be actual and highly needed in few years in a job market. With a consideration of the problem for young people to choose the best career and seniors' incompetence in the area of the technologies, we can combine these two problems and get positive result. The results of a secondary school students' questionnaire show that students are ready to take responsibility for the seniors' education in mastering computer knowledges.

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DEVELOPMENT OF 5–6 YEAR OLD CHILDREN VOLUNTARY ATTENTION'S ATTRIBUTES IN PRESCHOOL PEDAGOGICAL PROCESS

Keywords: voluntary attention, attention's attributes, preschool pedagogical process, 5–6 year old children

Children learn the basic academic skills at the preschool age, and voluntary attention is one of the main consciousness conditions that affect child's learning ability. It was found, while analyzing literary sources, that an attention is defined in different ways in different fields of science. From the medical point of view, it is a targeted awareness initiative, which is closely linked to the will exertion and is also related with a large nervous tension. From the point of view of psychology, an attention is defined as a special state of consciousness, which is directed and focused on a human cognition. There should be special focus on voluntary attention's development in the older groups (5–6 year old children)

The goal of the research is: 1) to explore a potential to develop voluntary attention of 5–6 year old children in preschool pedagogical process, 2) to find out an opinion of a psychologist on attention disorders and their impact on academic achievements of 5–6 year old children, 3) to inquire an opinion of preschool teachers on development of voluntary attention.

There was organized voluntary attention's testing (Pjeron-Ruzer and Nemov methods) of six 5–6 year children during the research as well as there was interviewed educational psychologist and preschool teachers were questionnaire (N = 8).

This is important to realize that voluntary attention develops exactly in the pedagogical process.

Attention appears while children's activities, especially when these activities are organized. That is why this is important, that preschool teachers places an accent to voluntary attention's development exercises during everyday work with children.

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DIDACTIC GAMES FOR THE 3RD CLASS CHILDREN TO STRENGTHEN THE NATIONAL IDENTITY

Key words: didactic games, national identity, patriotism, 3rd class children

Everyone is important to belong to the state and nation. It is an integral part of human life, which helps people to develop their personality, self-realization a certain time and place and motivate to reach high goals in life. A person with knowledge, skills and attitudes forms their own national identity and shows how important it is for them. Every day people are faced with different situations at work, in the family, in society, when they are able to stand up for their own identity and be proud of it. It is important to involve the family, school, society and country in this process. For several years in a row National Centre for Education of the Republic of Latvia (NCE) as one of the priorities put forward at the beginning of the school year a national identity and patriotism of a learner. This is an issue that is topical in today's society and requires a deep research in spite of changes in the 21st century and the rapid rhythm of life. At the exam 3rd class children need to demonstrate their attitude towards the national identity, using their knowledge and skills in different types of tasks. In this research the author model didactic games for the 3rd class children. The content of the didactic games taken from different methodical material that are intended for teachers. The author also model their own games. Didactic games encourage children to play, subject to rules of the game, and gain new knowledge in a specific topic in a free and relaxed atmosphere without realizing it. It provides players a creative and intellectual activities. The research aims to create and to approbate didactic games and answer the question, how to strengthen national identity for the 3rd class children using didactic games. Sense of national identity does not arise in a jiffy. It is a process of sustained efforts, when children learn and share experience. Then gradually reaches inner sense which makes him to realize one's identity. It makes one emotionally rich and proud of what one is.

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THE IMPROVEMENT OF LEADERSHIP COMPETENCIES IN STUDY PROCESS OF PROSPECTIVE TEACHERS IN LATGALE REGIONAL UNIVERSITY

Key words: *teachers, competencies, leadership, study process*

„Sustainable Development Strategy of Latvia until 2030“ emphasises that “at the same time, with accumulation of specific competences and qualifications, the ability to integrate into the labour market and create a successful professional career, education is also a development process of human talent, emotional and social intelligence and personality”.

The Ministry of Education and Science in late 2015 has confirmed that the changes in subsequent years is intended for pre-school, primary and secondary education, and the development of competences as learning to learn, mathematics, natural sciences and technology competence, communication in different languages, social and civic competences, introspection, an own-initiative and business competence, digital literacy and competence of cultural understanding. These competencies approach will be integrated in all subjects. A new approach to the organisation of the educational process, material technical resources and literature requires teachers' knowledge and skills, especially the leadership competence improvement. Main goal is to implement 21 Century education paradigm shift not formally, but purposefully and in accordance with the vision. The objective is to examine the nature of the leadership competences of the theoretical and scientific, identified as possible prospective teachers to improve and develop leadership competencies in the context of education for sustainable development. Empirical study explored as a result of the symbiosis between the leadership competencies and education for sustainable development in the framework of their respective competences. Focus Group method used in the study, and interviews with experts in the field. Several proposals made for the improvement of the leadership competencies in study process of prospective teachers.

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CREATION OF CHEMISTRY E-LEARNING MATERIALS AND APPLICATION METHODOLOGY DEVELOPMENT FOR PRIMARY SCHOOL

The teacher has to organize daily work not only knowledge and skills increasing but also for pupils to acquire the chemical contents of the course evaluation. During the century has been developed test system, where a student written answers to questions and submit their performance to teacher. The diversification of forms of assessment and increasing the number of pupils, increasing teacher workload.

Chemistry exam results ending secondary school in Latvia have been reasearched and obtained that pupils skills in solving problems involving calculation tasks are decreasing. Information and communication technologies (hereinafter ICT) can solve the situation. Teachers felt the need for access to some kind of database, where each type of task would be a number of variations. Nowadays, the use of ICT, there is no need to manually enter hundreds of variations on the translation of possible solutions in order to know the answer. Using already existing electronic platforms, which are adapted to the needs of science subjects, and providing them with suitably prepared didactic materials, it is possible to organize the students' knowledge and skills, strengthening of self-evaluation and evaluation both at home and in the classroom.

In attempt to resolve existing problem the number of calculation tasks with a lot of variations has been developed and published at education portal yaklass.ru. Each task has been valued by experts – chemistry teachers with pedagogical experience between 5 and 35 years.

Research results shows that pupils would like to use ICT for studies but only in combination with printed materials. Developed tasks and their usability were high valued by experts and need to be increased with more different topics.

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IMPROVEMENT OF TEACHING QUALITY THROUGH NOVICE TEACHER INDUCTION PROGRAMS – AN INTERNATIONAL RESEARCH REVIEW

Keywords: novice teacher induction, teacher mentoring program, quality teaching, mentoring

Introduction: It is now widely admitted that the initial teacher education is rarely sufficient to provide all the practical knowledge, competences, skills, and qualities necessary for successful teaching and demanding teacher' career in the emerging knowledge society.

What happens to beginning teachers during their early years on the job determines not only whether they stay in teaching, but also what kind of teacher they will become in future.

The article presents the author's efforts to examine manifold meanings of teacher induction and focuses on teacher induction as a phase in teacher education continuum that implies both (a) a process of teacher in-service education, (b) teacher socialization and adaptation at work, and (c) a formal program of support and professional development for beginning teachers. The author also addresses the question regarding the principles and content of a beginning teacher induction program that would best suit beginning teachers' needs and provide coherent continuum of teacher education and development.

The study also includes a cross-country literature review on the initial teacher education in 11 European and North-American countries. The key aspects of the pre-service and in-service teacher education in each of the countries were compared and analyzed.

The result of the study demonstrate that there are numerous evidence proving that beginning teacher induction programs, either integrated into initial teacher education or implemented after initial teacher education as an in-service training, positively influence the following aspects:

- (1) beginning teacher's teaching quality and professional development,
- (2) beginning teachers' student learning process.

The study determines the issues and concerns regarding beginning teacher induction that need to be further conceptually clarified and empirically studied. The results of the study, as well as the future research on the topic, might provide a framework for developing quality teacher education continuum in Latvia.

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EDUCATION FOR SUSTAINABLE DEVELOPMENT

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MAKING SENSE OF HOLISTIC APPROACH IN THE CONTEXT OF PRIMARY EDUCATION CONTENT

Key words: holistic education, primary education, sense making, sustainable education

Education needs a holistic approach which would enable each learner to develop their individual capacities and talents at personally suitable time and pace, support learners' growth and accomplishments, nurture their inquisitiveness, encourage a lasting questioning attitude to the world and foster individual and cultural sensitivity. The present study aims to elucidate the theoretical and conceptual dimension of a holistic approach to primary education. The latter is construed as a methodology for overcoming isolation between discrete subjects in primary school and enabling learners not only to comprehend but also to apply new information. In the present paper, making sense of the holistic approach involves revising relevant contexts, conceptions and paradigms by drawing from germane philosophies and scientific disciplines with a view to substantiating the expediency of the holistic approach to shaping the content of primary education. The paper also draws on data from a survey that was administered to primary school teachers in different regions of Latvia with a view to pinpointing the essence of the holistic approach and appraising the opportunities it affords for shaping the content of primary education. A careful blend of quantitative methods enabled conducting a unique empirical study about the views of primary school teachers on the holistic approach and generated empirical evidence that corroborates the viability of using the latter for shaping the content of primary education. In addition, the findings from this empirical study allowed for drawing a typology of primary school teachers according to their preference of the formal or the holistic approach.

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MUSICAL CULTURAL VALUES FOR EDUCATION OF SUSTAINABLE DEVELOPMENT

Key words: musical culture; values; attitudes; traditions; sustainable development

Contemporary society understands more clearly the need to transform education towards sustainability. In numerous discussions and research studies it is emphasised that sustainability is not a new concept. Evaluation of basic school teachers' pedagogical work suggests that it is essential to foster teachers' skills, competencies and values, and to advance the development of a citizenship education for socially active citizens.

In music education the emphasis is being laid on a values-based education which draws on both national culture and multicultural values as well as on spirituality. These are some of the more frequently discussed issues at both national and international level. In this context, basic school is viewed as a place that helps children develop their systems of values in line with the ideals of humanism and democracy as well as Latvian national culture and traditions. Music education focuses on teaching learners to respect the traditions of their own and other cultures, maintaining national cultural values as well as fostering an active citizen's position among learners. This paper evaluates

educational paradigms and approaches to teaching musical cultural values whose acquisition is an essential condition for a sustainable development of a country.

The paper also draws on data from a survey that was administered to primary school teachers in different regions of Latvia with a view to pinpointing the essence of the holistic approach and appraising the opportunities it affords for shaping the content of primary education. A careful blend of quantitative methods enabled conducting a unique empirical study about the views of primary school teachers on the holistic approach and generated empirical evidence that corroborates the viability of using the latter for shaping the content of primary education.

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FORMATION OF EARLY SCHOOL AGE CHILDREN'S MUSICAL CULTURE: COMPARATIVE ANALYSIS OF GUITAR PLAYING CURRICULUMS

Key words: musica culture, guitar playing, primary school children

Since the main purpose of music education is a formation of early school age children's musical culture and their introduction to the world's musical heritage – the main criterion for the analysis of curriculums of non-formal music education is a development of musical culture. The article is devoted to a comparative analysis of the content of guitar playing curriculums. The author shows the importance of the formation of musical culture of school-age children, as well as determines the main characteristics, advantages and disadvantages of guitar playing curriculums in different countries (Lithuania, Latvia, Estonia, UK, USA, Japan and Russia).

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DEVELOPMENT OF SPATIAL THINKING IN CLASSES OF VISUAL ARTS IN THE ELEMENTARY SCHOOL

Keywords: spatial thinking, visual arts, elementary school, adolescence

A comprehensive development of personality is a goal of modern education. This goal also implies a development of mental processes and faculties. In cognitive development of a personality the perception of spatial objects, imagination and spatial thinking plays a very important role. Since the whole world is spatially organized, understanding of spatiality reflects the inherent world of objects, so not only architects, engineers or designers are required to think spatially in their professional activity, but also everyone else in their daily life. The development of spatial thinking in learning process effectively influences overall intellectual development of students and serves as a tool for comprehension of various objects and phenomena. Besides, the spatial thinking has an important role in psychological preparation of students for practical work of any kind. Spatial thinking can be developed particularly well during adolescence; at this age, specifically, the classes of visual arts play an important role in facilitating the development of spatial thinking. Visual arts develop rational thinking, logic, mind, as well as person's senses and perception in general. Despite its great importance, the contemporary educational research does not regard the spatial thinking as a popular research object. 164 elementary school students participated in the research aimed to examine the development of spatial thinking in classes of visual arts. The obtained results allow concluding that students mainly have poorly developed skills of spatial thinking. Often it is difficult for students to understand both theoretical and practical parts of the tasks of spatial thinking. The gap of spatial skills is reflected also in other school subjects that hinder the versatile growth of students' personality. Such topics as general characteristics of spatial thinking, development of spatial thinking in the context of education, characteristics of spatial thinking of elementary school students, tasks for the development of spatial thinking in classes of visual arts in elementary school will be reflected in the presentation.

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PARTICIPATION OF NGO'S IN YOUTH POLICY IMPLEMENTATION: ANALYSIS OF DAUGAVPILS' CASE

Although implementation of youth policy is the task of the state and municipality, it should be recognised that in the decision making process the non-governmental sector/youth organisations also play important role. Non-governmental organisations ensure achievement of aims important to the society, however their contribution is not always adequately assessed.

The aim of the study is to explore the level of participation and influence of youth non-governmental organisations on the youth policy in the city of Daugavpils. During the study focus groups and interviews with experts were organised. Number of participants of the study exceeded 200 in the age group 15 to 30. Data obtained from the study show that youth organisations play a crucial role in implementation of the youth policy and development of civil society. The study demonstrates the need to develop closer cooperation between state and non-governmental sectors, thereby improving wellbeing of any resident in a certain territory of the municipality.

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NICKNAMES - VERBAL MOBING OR INFORMAL IDENTIFICATION WORDS: RESEARCH OF THE SITUATION

Key words: verbal mobbing, nicknames, school, children, young people

Children have a natural desire for security, including the safe and secure environment. Also, the school environment should be one in which the child feels both physical and emotional security – heard, understood, accepted. However, school children often come across mobbing – exposure to the systematic, negative actions and attitudes of fellow party. For example, the Latvian Ombudsman's Office carried out the study „Violence or mobbing in Latvian schools' data show that 68% of the study involved educational institutions quite often found in mobbing cases and that most children and young people have to face verbal mobbing – mocking (25%) and name calling (23%). The World Health Organization study shows that a large part of Latvian children are faced with ridicule – up to 58% of children admitted that they faced with bullying by peers and 60% admit that they bullied other. Verbal mobbing may have different short-term and long-term consequences for the child's behavior, emotional condition and interpersonal abilities. At the same time nicknames (name, name of the compound, which is called human, usually highlighting or attributing a characteristic feature of) among young people are widespread.

But sometimes between nicknames and verbal mobbing is rather fragile border where nicknames, for example, are associated with the human physical characteristics, character traits, and often quite unpleasant and offending.

Research goal: to explore one of the districts of Latgale region used nicknames, their origin, emotional hue and persistence.

The research results show that nicknames are common, their origin, motivation often due to human physical characteristics, specific habits or completely random situations, as well as being present in derivatives of the name or surname. Most of the study aggregated nicknames are negative emotional tinge and is insulting and offensive. Since they are actively used in the communication process (both speaking and identifying a person), then it can be concluded that, in addition to nicknames, which caused a smile and reminds pleasant events are those that offend against human dignity, rather harsh and a wrong way pointing to his weaknesses, so that nicknames are considered to be verbal mobbing.

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PROFESSIONAL IDENTITY AND CAREER DEVELOPMENT OPPORTUNITIES FOR DAUGAVPILS PRIMARY SCHOOL TEACHERS

Key words: professional identity, primary school teachers, career development

The topicality of the study is determined by the countries' multilevel processes both in the field of education and on a job market. A successful teacher's career starts with the high quality teacher education. However, to conform to changing requirements, teachers also must be well aware of their professional identity and possibilities for continuous professional development which includes the engagement in a lifelong education and improvement of peer-cooperation skills. The profession of a teacher is traditionally considered to be a lifelong profession. This opinion may favour the development of situation when teachers, who have fully identified themselves with their professional activities and do not see other professional prospects, feel themselves unsafe in changing socio-economic conditions. The teachers have to develop their professional identity to build a future-oriented career in their field. The problem of a professional identity also becomes relevant in terms of specialist's professional activity. The study aims to explore the dynamics and components of professional identity of Daugavpils primary school teachers and opportunities of their career development. The data will be obtained contacting the primary school teachers from 14 schools in Daugavpils and the 1st and the 4th year students – future primary school teachers at the Daugavpils University. The data will be collected administering the survey "My Vocational Situation" (MVS, Holland, Daiger, & Power, 1980) as well as semi-structured interviews and questionnaires for teachers. As a result of this research, an assessment of the professional identity of future primary school teachers and working teachers as well as their possibilities of career development will permit the recommendations for the career development both for the future teachers and in-service teachers.

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ASSESSMENT SYSTEM OF COMPETENCES ACQUIRED WITHIN YOUTH VOLUNTEER WORK IN LATVIA

Keywords: volunteer work, assessment system, youth, competences

Exploring European experience, it was found that separate fields of volunteer work have guidelines developed for assessment of skills gained within volunteer work. The most known is YOUTHPASS certificate which is a tool helping to be aware of values, skills and acquirements gained within volunteer work. There is mainly outer evaluation reflected in volunteer work confirmations issued by municipalities for Latvian youth, rarely – self-evaluation.

Applying analysis of documents, interviews with focus group youth and organizers of a volunteer work, inquiries and interviews with experts the assessment system of competences acquired within volunteer work has been developed in municipalities. Research results obtained and materials developed is an essential support for individuals working in municipalities on organizing and management of youth volunteer work.

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THE IMPACT OF FAMILY ENVIRONMENT ON A CHILD'S MENTAL AND PHYSICAL DEVELOPMENT

Key words: children's development, family environment, pre-school teacher, impact, observation

Family environment is the grounds for a child's mental and physical development. A child's development is determined by the degree of interactions that parents are able to forge with the child. What matters is the quality of these relationships, which impacts child's mental and physical development.

The research aims to explore the peculiarities of preschooler's mental and physical development and discover how family environment affects children's mental and physical development. The research involves observation of children's behaviour in everyday activities, parent and teacher survey, interview with the child's psychologist and proposing relevant recommendations for teachers and parents.

The research draws on qualitative methodology. Methods of data gathering are as following: survey, observation and interviews. Methods of data analysis are: discursive analysis, thematic analysis. Design of the qualitative study-action research. Family upbringing and the experience of family relationships undoubtedly affects a child's mental and physical development. A child's mental and physical development is hampered by family problems, lifestyle and methods of child's rearing. Freud argued that successful transition across stages of child's development is determined by two factors: the acquired frustration (inability to reach a crucial aim and to satisfy one's needs).

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DEVELOPMENT OF UNEMPLOYED YOUNG PEOPLE'S EMPLOYMENT SKILLS IN LATGALE REGION

Key words: young people, unemployed people, employment, employment skills

The rapid social and economic changes in Europe are a challenge to all its inhabitants, however especially to young people. Employment of young people and decrease of unemployment rate among young people is one of the essential tasks of the European Union. By studying statistical data, reports and documents, it was established that employment of young people includes many different factors, for example, motivation, finance and useful skills for work. A survey and interviews were carried out in Latgale region and the main employment skills to be developed for every young person regardless of the employment area planned for the future were established. 120 unemployed young people, 4 experts – career counsellors, and 48 employers participated in the research.

The research results show the contents of employment skills. A methodic aid for seminars on developing young people's employment skills was elaborated on the bases of the obtained results. The methodic aid can be used by career counsellors, teachers, municipality workers and anyone interested in helping young people to develop skills necessary for being successful in the employment sphere and in life in general.

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MANAGEMENT OF CREATIVITY IN HIGHER EDUCATION

Key words: *creativity, organizational creativity, higher education, education management*

Creativity is an essential part of modern society from science to education and business. The importance of creativity for European higher education is highlighted in several strategic documents of the last decade. European Union stressed that higher education should develop students' creativity, critical thinking, entrepreneurship and communication skills. Creativity is no longer related to arts but to every subject, not pure talent but a competence. Creativity in education was studied mostly from a pedagogical perspective. This paper analyzes this subject in the education management context. The researches on how to manage creativity produced the organizational creativity theory. Management of creativity in higher education have similarities with organizational creativity but at same time it has specifics and a different structure.

The problem of the research is how to adopt the organizational creativity principles for education processes. The purpose of the study is to create the model of creativity in higher education. Empirical part of this paper examines opinions of two parts in this process: educators and employers of tourism industry. The findings of the study describe all the factors explaining peculiarities of the management of creativity in higher education.

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SPEED READING TO ENHANCE THE QUALITY OF ADULT READING LITERACY

Key words: *speed reading technique, reading literacy, adults, speed of reading*

In the 21st century, information is growing exponentially. Modern readers are unable to select properly the knowledge they require for different purposes, int. al. professional, let alone to grasp the immensity of current information flow. Not infrequently, adults tend to be slow readers, which constrains their professional activity. Speed reading technique can materially improve adult reading literacy. A fast-reading individual can properly structure vast amounts of information and achieve utmost compensation for the time and effort invested in reading. Speed reading technique enables learning principally new skills, which boost the success of further learning and work, through active inquiry. The present study yielded a theoretically substantiated further education programme for learning speed reading with adults. The programme was approbated in a cohort of nineteen master students. During approbation, the students' speed of reading was compared prior and subsequent to intervention. The findings suggest that the programme just about tripled adult speed of reading, and enabled readers to grasp the contents in a more comprehensive and structured manner. The findings support the need for learning speed reading technique in higher education institutions, especially in teacher education programmes.

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ANALYSIS OF CAREER TRANSITIONS: NARRATIVES OF LIFE EXPERIENCE AND “CAREER ANCHORS”

Key words: career, career transitions, narratives, “Career Anchor”

Due to the complex contemporary socio-economic situation and individual's internal and external development opportunities not only a simple career choice or a lineal career development is possible, but also the complex career transitions – change of profession or working place, which can envisage change of a country, employer, a way of work, a sphere of work, leaving work or leaving and coming back to work are quite popular today. Furthermore, these different ways of career transition– aspects of a career change are also related to the so called “career anchors” – one's self-image in career formation and during the course of its development. As nowadays ever more individuals are faced with different career transitions, it is important to establish the common and specific elements of these transitions, as well as the link between the different types of transitions and profiles of career anchors. Whereas, establishing the common and specific elements of career transitions permits to look for the solutions to the respective problem using the narratives of people's life experiences – life stories. Thus, in the present study narratives of life experiences will be perceived as the reference objects for problem solving. Whereas, narratives of people's life experience will be queried, using interviews of life stories. In the study aiming to explore the narratives related to different types of career transitions and their relation to the scales of career anchors, seven inhabitants of different age groups and levels of education from the Latgale region who have experienced essential career transitions will be interviewed. In the presentation the notion of career, the mentioned types of career, and the areas of life activity related to career will be explained. The determinants affecting career will be analysed, the main theories of a career development will be mentioned and the essence of career transitions will be explained, as well as the theories of career anchors and the pedagogical aspect of an “anchor profile” will be described.

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CHALLENGES AND POSSIBILITIES OF TEACHING PROFESSION IN THE 21ST CENTURY: THE ANALYSES OF STUDENTS' VIEW

Key words: teacher, students, educational programs, teacher's vocation

The aim of the educational system in the 21st century is to prepare a learner for live in the competitive work environment and in knowledge based and sustainability-oriented society. The main participant for implementing this aim and ensuring the quality of education is a teacher. Therefore, the teacher has to meet quite high requirements. At the same time, the status of teaching profession in Latvia and in some European countries is quite low. The bases of such an attitude is teachers' low salary and unsatisfying work conditions. Therefore, there is a growing tendency observed among young people to choose teaching career in school or in a preschool. The possibility to solve aging among teachers and a lack of teachers can be solved by the graduates of teacher training institutions. Therefore, the aim of this research is to analyze views of students engaged in teacher training institutions about teacher's profession and the possibility to work in the educational institution. For the research methodology the authors chose 156 Daugavpils University Bachelor program “The Teacher” students. The research results indicate that the graduates of educational programs chose a vocation which they consider to be the most appropriate. At the same time students admit that they see teaching as a complex, responsible and not highly evaluated vocation by the society members, therefore, they are not sure if they want to relate their future life to teaching. The emphases of educational programs is to motivate students to be aware of their mission and a vocation of teaching.

SPORTS UN IZGLĪTĪBA

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SPORT AND EDUCATION

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DESCRIPTION OF THE METHODOLOGY AND CONTENT OF KARATE TEACHING

The authors propose to adopt karate as a system for sports education and personality development. The methodology and content of organizing the process of teaching karate are described in the present research. While teaching karate, the skill formation process goes on in three stages: the primary acquisition stage; the profound and detailed teaching stage; and the consolidation and further improvement stage.

It is proposed that in the organization of the process of teaching karate, didactic principles, general sports principles, and the pedagogical principles of martial arts must be followed.

It is emphasized that the pedagogical principles of martial arts, which are based on humane and moral concepts, do not contradict the basic pedagogical principles of sports education and the requirements for comprehensive education of an individual.

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THE PECULIARITIES OF CHILDREN-YOUTH SPORT EDUCATION IN LATVIA

Key words: *sport education, humanitarian approach, directions of sport education in Latvia* The paper focuses on the characterization and analysis of trends in sport education in Latvia in accordance with the principals of humanitarian approach. The contemporary system of the development of children-youth sport in Latvia includes three directions of educational programs oriented towards the development of children sport. Despite the fact that the Ministry of Education and Science in Latvia implements programs aimed at promoting physical activities among children and young people, the proportion of pupils having a satisfactory level of general physical activities decreases. This research focuses on actualization of working out a new sport school model oriented towards the physical and spiritual development of children's and young people's personalities within the context of humanitarian approach.

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CADET PERSONALITY DEVELOPMENT PROFESSIONAL PHYSICAL PREPAREDNESS

An important role in the improvement of personality cadet is physical activity independence, the systematic nature, attitude and motivation to their physical and professional preparedness. Acquiring knowledge of the police officer professional qualities and skills by developing and improving its physical properties necessary for a police officer to the profession, as well as bringing up the special character – will foster a highly skilled police officer professional development. Every year the police knowledge and skills are becoming more voluminous collection. It must acquire more and more knowledge and skills. Course learning time is there for a little lecturers focused on new educational values-innovation, which provides a balance between academic and vocational-traditional approach. Academics are forced to look for new approaches to the study process. The new integrated learning basic principle of „learning by doing” encourage and ensure the agreed – connecting theory and practice. Professional competence in the process of being evaluated and applied to the National Police College and will become the next aspect of the research activities.

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PROMOTION OF CHILDREN’S PHYSICAL ACTIVITIES DURING EVENTS AT PRESCHOOL

Key words: *promotion of physical activities, children, preschool, events*

In the 21st century physical activities are considered as one the important aspects in children development. The task of regular physical activities is to maintain and strengthen health, promote development of cognitive, social and motor skills. “Physical activity strategy for the WHO European Region 2016–2025” was accepted in September 14–17, 2015 in Vilnius (Lithuania). This document defines physical activities as the prior factor of health and welfare for the inhabitants of Europe. The aim of the strategy is to embrace all kinds of physical activity at all stages of life, especially for preschool age children and young people. “Health Week” (MOWE Week) has been organized in Europe every September since 2011 and since 2015 also in September the “European Week of Sport” (be active) has been organized, in order to popularize physical activities.

The aim or the research is (1) to evaluate the European initiatives in the sphere of popularizing physical activities, (2) to sum up the examples of good practice in organising events promoting children’s physical activities from Daugavpils city preschool education establishments.

The results obtained in the research showed that in 2015, if compared to 2014, the number of Daugavpils city preschool education establishments participating in the “European Week of Sport” and the “Health Week” has increased by two times, as well as the range of forms of events has broadened. However, that still is one third of the total number of preschool education establishments in Daugavpils. Therefore, the discussion about a more active participation of preschool education establishments in ensuring physical activities for children has been actualized.

AKTUĀLAS PSIHOLOĢIJAS PROBLĒMAS

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CURRENT ISSUES OF PSYCHOLOGY

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EMOTIONAL INTELLIGENCE AND DEVELOPMENT OF TEENAGERS SELF-REGULATION PROCESSES

This research consists of teenagers emotional intelligence (EI) and self-regulations process development problematic. For a long time in society an opinion dominated, that emotionality and logical thinking are barely related phenomena. Descriptions of EI often overlapped with explanations about social intellect. With time, many of us lose this natural ability for living our own emotions, thus we get more used to caring about observance of decency than our own emotional health needs. Interpersonal relationship problems are strongly tied to stored negative emotions. For example, such problems as low self-esteem or insecurity.

In teenage years self-confidence of personality reaches new quality – it expresses in demands against others, firstly against parents and other adults, on acknowledgment of rights of respect and independence. Due to essential changes in self-awareness the hierarchy of motives reorganizes. Considering, that teenage years are a sensitive period for building interpersonal relationships, especially with the opposite sex, it is important to develop skill in self-regulation of emotions.

Self-regulation can develop through studying, in which modelling of social behaviour has the main role. Teenager searches for his own identity and forms his own view of the world. Crisis of identity actualizes in these years and is always connected with an independent choice. Therefore, to become a full-fledged member of society, it is important for the teenager to recognize, regulate and be aware of his own emotions.

Consequently it was needed to theoretically analyse and practically verify options on how to raise the level of emotional development for teenagers and the connection of it with self-regulation process development forming.

In this offered research conceptions and theories about EI, self-regulations action forming of processes from different authors such as P. Salovey and Mayer, J.D (1990), R.Bar-On (1999), D. Goleman (1995), P. Ekman (1992), A.K. Osnickis, E.Eriksons et al., are being analysed.

The hypothesis is being verified: Teenagers EI development level is connected with self-regulation forming of behaviour.

In the pace of implementation of research, two inquiries were offered to teenagers, in order to clarify the level of EI and development of self-regulation process. Programm „For rising teenagers EI” was drafted and conducted. The obtained results were worked, summed up, and it was clarified, whether significant connectedness between both variable quantities exists.

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EMOTIONAL BURNOUT SPECIFICS OF TEACHERS WITH DIFFERENT PERSONALITY TYPES

Position of the problem: to organize work with teachers as educational psychologist it is necessary to know the personality type relationship to emotional burnout. What is the difference of emotional burnout syndrome manifestations in teachers with different personality types?

The research question / hypothesis: teachers with high motivational personality types of emotional burnout syndrome shows more professional development and achievement reduction and depersonalization. Conversely, retrograde type of motivation for teachers is pronounced as emotional exhaustion.

The research aims: to identify the emotional burnout content for teachers with different personality types: progressive and regressive.

Tasks:

- 1) theoretical research of emotional burnout formation;
- 2) choice of research methodology;
- 3) finding respondent group;
- 4) applied research is carried out;
- 5) research results analysis and graphical presentation.

Methods:

- 1) The survey „Professional (emotional) burnout” which was based on Maslačs and Jackson’s three-factor model, it was adapted by Vodopjanova and Starčenkova. The method is intended to diagnose emotional exhaustion, general burn (depressive anxiety disorder), depersonalization, loss of empathy, impersonality in interpersonal relationships and personal growth, achievement reduction.
- 2) Milman survey „Personality motivation sphere research”. The method allows to diagnose motivation (MP) and emotional (EP) personality profiles.

Main results: I think that for teachers with high motivational personality types of emotional burnout syndrome is more pronounced reduction in professional careers, and depersonalization. Conversely, retrograde type of motivation for teachers will be more pronounced emotional exhaustion.

Conclusions: it is expected that the aim „to identify the emotional burnout content for teachers with different personality types: progressive and regressive” will be achieved through the operational objectives, such as theoretical research of emotional burnout formation; choice of research methodology; finding respondent group; applied research is carried out and research results analysis and graphical presentation.

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PSYCHOTHERAPY POSSIBILITIES: WORK WITH VICTIMS OF DOMESTIC VIOLENCE

W proponowanym wystąpieniu przedstawimy nośne elementy psychoterapii możliwości, jednocześnie wskażemy w jaki sposób w oparciu o metodę terapeutyczną pracować z ofiarami przemocy domowej, które w skutek zachowań agresywnych partnerów zostały wykluczone ze społeczeństwa, a jednocześnie w wyniku przemocy nabyły zespołu stresu pourazowego.

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SOCIO-PSYCHOLOGICAL CHARACTERISTICS OF CONTENTS OF “ANTOLOGY OF LATGALE’S POETRY” BY VITOLDS VALEINIS

Key words: poem, personality, living space, family, metaphor, anthropomorphism.

The aim of this qualitative research was to find out the typical of *Anthology of Narrative Poetry that may be transferrable into social psychology in form of concepts and categories and can be interpreted in accordance with its scientific apparatus.* This research is based on interpretative paradigm where in the center of attention is evaluation of poet’s subjective reality and values scale in accordance to social and individual context of time when their works were written in Latgale. Attention was paid to three main socio-psychological categories: personality, group and living space, when analysing contents of poems. Results of this study show that such categorisation fully covers the aim of the research and helps to learn about typical and characteristic for Latgale during this period of time. It also points to such socio-psychological formations as need of restructuring of personality, Self-image, ethnicity, social role differentiation, group dynamics in a family context, etc. that are related to life’s quality in Latvia in general.

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THE THEORETICAL RESEARCH ANALYSIS OF THE PROBLEMS OF YOUTH UNEMPLOYMENT: THE CASE OF LATVIA

Key words: youth, unemployment, education, integration

Unemployment and it’s rate in a particular country or a region within a definite period of time is one of the most important macroeconomic indicators, because it creates a whole number of unfavourable economic and social losses. As the level of youth unemployment this has been one of the most urgent problems for the Latvian society recently. **The aim of the paper** is to examine factors influencing youth unemployment, as well as it’s impact on the development of national economy in Latvia **as a result of study of reserch literature.** As the level of youth unemployment has been one of the most urgent problems for the Latvian society recently, this paper analyses factors influencing youth unemployment in Latvia.

The author **concludes** that from 2006 to 2009 the level of unemployment in Latvia had a tendency to decrease, yet with the start of the global financial crisis it has increased considerable. At the moment the level of youth unemployment is high; on February 30, 2014 it was already 9.7%. The level of youth unemployment depends on such economic factors as a level of education and youth motivation. The main problem which exists in Latvia as as following: young people are not interested to participate in community’s activities since they are not motivated enough. The outhors offer suggestions for motivating youth for a more active involvement in a community life and job market.

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TENDENCIES ON DEVELOPMENT OF EMOTIONAL INTELLIGENCE FOR CHILDREN AT THE AGE OF 7-10

The term Emotional Intelligence (EI) has become increasingly relevant in Latvia in a variety of areas. Modern society demands that an individual not only manage their own emotions but react adequately to appropriately the emotions of others, however EI research in Latvia one cannot call phenomenological, consistent and deep research within a specific methodology. It has been proven that EI has a direct impact on how an individual perceives and reacts to what is happening around therefore it is believed that EI has a direct impact on a person's success in various spheres of life.

Unfortunately, in Latvian schools greater emphasis is placed on the development of general intellect, with almost no focus on direct EI development for pupils. The development of EI is mostly left in the hands of the family.

Also, there is a presumption that development of EI increases self-esteem. To prove it, the research question is following – does EI development affect the self-esteem of 7-10 year-old children?

In the research there was used a survey for students' self-assessment and N.Holla methodology for determining the level of EI. An EI developmental program was developed and delivered. 9 preschool pupils took part in the research.

When measured before and after the execution of developmental programs, the main expected results provide confirmation that EI development affects the self-esteem of 7-10 year-old children. In particular, the development of children's EI, increases their self-assessment.

Thus, EI allows one to accurately perceive, assess and express emotions, providing the ability to feel other emotions and generate their feelings, which helps in the process of thinking, the ability to control the emotions of intellectual and emotional growth, developing the preconditions for ongoing individual social adaptation.

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MAIN PREREQUISITES FOR REMEDIAL WORK WITH CHILDREN FROM COMPLETE FAMILIES OF HIGH SOCIAL RISK

Psychological support improves the interaction of the adolescent with parents; however with the lack of adequate support, a child of any age experiences disappointment and is predisposed to antisocial behaviour. Parents in the process of interaction with adolescents often confuse support with praise and reward. Especially for supporting adolescents during failures, parents need to change the usual style of communication and interaction with them and not to focus on mistakes and misbehaviour.

The main hypothesis of the research was formulated as follows: relationships with parents can become the cause of unlawful actions of adolescents; however if parents seek to understand and find common ground with the adolescents, positive relationships between the children and the father and mother appear.

Diagnostic work was carried out during research in order to reveal problems in the interaction between adolescents and parents; the way children see the attitude of both parents to them was studied. At the final stage of the research, remedial work was carried out in order to change the views and the understanding of the attitude of parents to adolescents. Remedial measures were aimed at developing communicative competence, self-confidence and the skills of gaining self-knowledge in adolescents. Participation in remedial groups was voluntary.

The following research results were discovered: 1) if one of the parents expresses constant authoritarian and aggressive attitude, then the relationships of the adolescent with both parents become distinctly aggressive; 2) the adolescents of this social group believe that autonomous and

independent behaviour of one of the parents towards them means decrease of control and receiving more independence from the other parent.

In the end, consulting sessions were also organized with the parents of adolescents from complete families of high social risk. Together with parents, their strategy of behavior with children was developed. Recommendations were given for improving relationships with each other.

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TEACHING THE IMPORTANCE OF MOTIVATION AND FACTORS AFFECTING SCHOOL-AGE LEARNERS

Problem: Many school children have problems with academic performance. Most often it is not connected with the performance of the child or his mental capabilities, due to the sharp drop in interest in teaching, learning motivation decrease. In order to understand the cause of poor performance need to know more or less conscious motives teachings.

Hypothesis: The development of motivational sphere of students will be provided in the event that the system of education will be based on psychological laws and principles of development and meet the cognitive needs and possibilities of students.

Objective: The aim of this study is to examine the scientific and methodical literature about the importance of learning motivation of students of different age groups. Also determine the level of motivation and the leading motives of educational activity of pupils of the junior, middle and senior school children in the learning process. Identify the students of different ages learning motivation goals that are relevant to their personal growth.

Methods: 1) Method for studying learning motivation for students in one class. About №1 to determine the motivation of school (Author: N. Luskanova) was conducted a questionnaire specifically designed to determine the motivation of school students of primary school. About №2 to determine the dominant motives for learning.

Main results: First-graders have a general interest in the teaching and the desire to learn. Most of them are dominated by social adaptation. Cognitive motives are rarely expressed.

The middle classes – Lower total motivation, but strong interest in a particular academic subject. It takes constant reinforcement exercises motive on the part of adults in the form of incentives, penalties, assessments. The main motive – the desire to find their place among their peers.

Senior classes – the main motive is related to the subject dedication, focus of training activities in the future. In high school there is a desire to find an answer to the question of self and a sense of satisfaction from the successful solutions.

Conclusions: Training activities, like any other human activity, is encouraged motivation. Modern psychology considers motivation as a process of human motivation to commit certain actions and deeds. The motivation of educational activity is a cognitive need, that is, the need for new knowledge. Cognitive demand refers to the highest spiritual needs, and its realization is due to the acquisition of knowledge. Motivation is divided into external and internal. The basis of intrinsic motivation is the cognitive interest, the desire to acquire knowledge, the desire to acquire knowledge, the desire to understand the properties of the object being studied, to solve the problem.

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PSYCHOLOGICAL ASPECTS OF PROCEDURAL JUSTICE AN INDICATOR OF POLICE OFFICER'S PROFESSIONALISM

Procedural justice has become an important focal point in the profession and strategy of policing in recent years, though the basic concept is likely nothing new to police officers.

Police officer's non-compliance can have serious consequences. Officers rejecting policies and regulations may not only hurt their department, but also members of public. The question is about the professionalism of the police officer on the merits.

Tom Tyler at New York University generally talks about two types of procedural justice: internal and external. External procedural justice is concerned with relationships between law enforcement officers and those outside of the department, internal procedural justice is concerned with the relationships officers have with their colleagues in their agencies. Dr. Tyler's research has found that officers who feel respected by their supervisors and peers are more likely to accept departmental policies, understand decisions, and comply with them voluntarily (Tyler, Callahan, and Frost 2007). Therefore, police officer is not only promoting his own and colleagues professionalism in mutual interaction with them, but also positive relationship with the community.

The article seeks to identify internal and external procedural justice role in police officer's professionalism.

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STATE POLICE OFFICERS PREJUDICES AND STEREOTYPES AGAINST WOMEN VICTIMS OF VIOLENCE

Sexual assault is underreported in Latvia. Survivors are often reluctant to make police reports for various reasons; one is fear of revictimization by criminal justice professionals.

The according literature shows that individuals who were raped more often experience depression, anxiety, and traumatic symptoms compared to nonvictims (Thompson & West, 1992).

However, the impact of rape on a woman is not limited to the act itself.

Instead, so-called secondary victimization could be a result of negative experiences within one's social group or with authorities who may have negative attitudes toward victims of rape (Campbell & Raja, 1999; George & Martinez, 2002; Ullman, 1996; White & Robinson Kurpius, 1999). Examples of such attitudes include blaming victims, requesting the victim's credibility, implying victim's role in being raped, disapprove them, and trivialize the rape experience (Ward, 1988).

Females have more favorable attitudes toward victims of rape than males (Jimenez & Abreu, 2003; Lee & Cheung, 1991; Ward, 1988; White & Robinson Kurpius, 1999; Xenos & Smith, 2001).

One of the possible factors underlying rape may be the general male population's continued acceptance of rape myths (Burt, 1980).

Rape myths are supposed cultural beliefs that can lead men to justify raping women.

Examples of rape myths include "women who get raped while hitchhiking get what they deserve" and "in the majority of rapes, the victim is immoral or has a bad reputation" (Burt, 1980).

These rape myths are harmful because they allow men to deny, to tolerate, or to excuse date rapists' behavior (Burt, 1980).

Although officer gender was related to interviewing skill, the effect was mediated by rape myth acceptance. Specific officer behaviors related to high rape myth acceptance were identified (Rich & Seffrin, 2012).

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EXPECTING REFUGEES IN LATVIA: CONFLICT OR INTEGRATION?

In 2015 Latvia agreed to accept 776 refugees as a part of the European Union plan of resolving the dramatic situation with illegal immigration in the EU. Latvian society remains very sceptic about such plans, and reportedly demonstrates strong negative attitudes towards refugees. Considering this to be just the beginning, the host society is preparing for a new social context, which may change the status quo and challenge national identities in Latvia. Therefore, it is clear that the preparatory phase is critical and the price of mistakes at this stage may be too high in future. Although the surveys indicate that the level of negation in the society is close to 80%, media report that these feelings do not really impact the behaviour of Latvian residents, reflecting cognitive and emotional components of such attitudes only. The present study is an attempt to make an in-depth social psychological study on Latvian residents' attitudes towards refugees. It applies realistic threat questionnaire, symbolic threat questionnaire, prejudicial attitudes survey and intergroup anxiety questionnaire to study the components of residents' attitudes. The original survey has been modified, translated into Latvian and Russian, and adapted for the current state of play in Latvia. One thousand respondents have taken part in this survey, evenly representing Latvia's demographic composition. The results identify factors influencing the formation of attitudes towards refugees, illustrate Latvian society's readiness to act and deal with the new social context – express its opinion, help, contribute, and interact with the new out-group, and reveal how these actions may shape the identity of the host society.

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ATTENTION AND ANXIETY MANIFESTATIONS REGULARITIES YOUNGER SCHOOLCHILDREN

Topicality of the problem is related to the fact that from the first school day a child is swamped with information, new obligations, tasks, responsibilities and the result depends on the child's ability entirely concentrate on the job performance. Thus, there were evaluated distracting factors of the educational success and was explored the connection between attention and school anxiety.

In nowadays the issue of attention has acquired a multilateral character and there are different points of view on the development of attention. It should be noted that the development of attention is important for younger pupils because it lays the foundations for the future educational success in this age group. In this regard, it is appropriate to examine the school anxiety and attention interference aspects of a child's education.

To investigate the regularities of attention and anxiety of elementary school children there was brought forward the hypothesis that there is a relationship between attention and anxiety in the younger group of pupils: if the level of school anxiety is higher, then lower is the level of attention.

For the necessary data there was used School Anxiety Questionnaire by Beeman N. Phillips and Toulouse-Pieroni attention test. The obtained data were subjected to statistical processing.

As a result, it was found out that the school and family mainly affects the pupils' anxiety level. Anxiety has an impact on pupils' progress, because there is existing a statistically significant link between attention and anxiety level of elementary school children.

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THE INFLUENCE OF IT DEPENDENCY ON TEENAGERS' AGGRESSIVELY

Key words: *computer, computer games, addiction, teenagers, aggression*

The tendency of a computer dependency is increasing in a contemporary society. At school and at home computer and internet is a significant help for children at home and outside. At the same time, internet is a biggest waste of time of children: the means to chat with peers and a means of playing games. There are lot of research that has been carried out about a harmful influence of internet on person's health and the psyche (Anderson & Bushman, 2001; Rubene, Krūmiņa, Vanaga, 2008; Schorb, 2005; Plaude, 2003; Veinberga, 2005). IT technologies become a significant tool in lives of children, youth and teenagers for processing information, carrying research, and exploration, but, at the same time it causes computer dependency. Research focuses on a number of personal features, such as depression, loneliness, low self-esteem and moodiness (Kaplāns, 2002; Yang, 2007) aggression, humiliation, inability to solve conflicts constructively and a lack of tolerance. The factors causing IT dependence and aggressive behaviour are similar: upbringing in the family, parents' business, teenagers' age peculiarities, and low self-esteem. The research reveals different concepts of different authors about the use of IT technologies (Kaplāns Dž., 2002; Čudovs N., 2002; Hamburgers I. & Ben-Artzi E., 2000; Griffiths M., 1999; Anderson & Bushman, 2001; Irwin, Gross, 1995; u.c.). The study also focuses on factors that influence aggression, as well as on the theories of the following authors: Parens, 1987; Furmanovs, 1996; Gugnrbjūls, 2000; Ådlers, 2001; Bandura, 1977.

The research focuses on a study of pupils' opinion gathered with the use of Kimberli Jang questionnaire. The study reveals the correlation between factors influencing IT dependency and teenagers' aggression.

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DYNAMICS OF VALUE FORMATION IN ADOLESCENTS

Values have a special significance in the processes of personal development; however, the 21st century draws attention to new criteria for values. This phenomenon is studied in philosophy and psychology. Values are a reflection of attitude; therefore in the theory and practice of interpersonal relationships, values are one of the basic categories.

At the basis of the development of society lies the individual with their identity, capable of self-improvement, discovering life purpose and choosing values. Therefore this process is one of the leading processes in the dynamics of personal development where questions about personal development and attitude to values naturally become topical.

The General Education Law of the Republic of Latvia states that it is necessary "... to create an environment for the development of a creative and comprehensively educated individual", which respects the guidelines of the educational programmes, in which the acknowledgement of the young person with mental autonomy and the need for the formation of personal beliefs and activity is expressed more and more often. Adolescents' needs for values and attitudes to values are different, which is why the research on the preconditions and process of value formation is carried out.

The present research employs M. Rokeach's instrumental and terminal value ranking test, C. Rogers' „Self-concept statement” test and A. Maslow's test for determining the hierarchy of the basic needs.

The results testify to the personal growth and value assessment of each respondent. According to the results of Rokeach's test, adolescents in general have a free, thought-out choice, which corresponds to their understanding of values. It creates the attitude, treatment, behaviour, all of which determine their personality orientation. The highest values for adolescents are family, love and trust. The results

of Rodgers' test testify to the adolescents' desire to find out, get to know and assess the peculiarities of value formation.

The formation of values for adolescents is determined by their personality orientation, which is the basis for the attitude to the surrounding world, to other people and to themselves, and by the world outlook and the core of the motivation for life activity.

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THEORETICAL REVIEW OF FRIENDSHIP PHENOMENON

Social sciences state that personality is not something human beings are born with, it is something they became living the life they live. No one denies the physiology like thirst, hunger but still social like belonging, love, acceptance is high above thirst or hunger. Personality is a social creature that builds up a net of social contacts and uses it properly. Interpersonal relationship is something that makes people who they are, it says about the choices people make, the preferences and needs they have.

The topic of the present article is theoretical review of friendship phenomenon. Friendship is long-term relationships, which are shaped in the terms of intimacy, unconditional support, shared interests and activities, trust, self-disclosure, interdependence. But does this kind of idealistic relationship survive in today's material world, where personal benefits and victories seem to be the most desirable and attractive or it's just an old school stuff that has no deal with the reality today?

Ordinary people define friendship in the terms of traditions, moral qualities e.g. loyalty, trust, brotherhood and so on. Some questions still stay open when the topic of friendship is touched. To start with, friends are they the result of conscious choice or friends are god's given and lady luck and chance take it all and there is no way to find a perfect match in accordance to pre-developed look of ideal friend. Secondly, there is a classical question or hypothesis no matter how it's stated by social scientists and just people who have no concern to scientific rigor, does the friendship between man and woman exist, or it's just so called unshared quite love, which burns inside ones heart.

Friendship researches focus on what a good and intimate friend is, and what kind of needs are satisfied in this particular kind of relationships named friendship. Types on friendship and friends also have been described in the literature.

MENEDŽMENTS

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MANAGEMENT

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SCHOOL PRINCIPALS' MANAGEMENT ASPECTS

Key words: leadership, management, principal, professional development, behavior

In a rapidly changing environment, principals no longer serve primarily as supervisors. They are being called on to lead in the redesign of their schools and school systems. The principal needs to obtain new insights and modern knowledge on management, leadership and organizational development. He needs to strengthen his skills and learn new ones. He needs to be aware of his

competencies and he needs to know which ones need special attention and further development. Principals urge the need for training management skills and information about modern educational management, like personnel management, financial and communication management. They also underline the importance of practice based or practice oriented theoretical knowledge. There should be a balance between theoretical knowledge, skills based on daily practice and one's professional attitude, so called: competence based education for principals.

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LEGISLATIVE BASES AND DEVELOPMENTS OF NON-FORMAL MUSIC EDUCATION IN LATVIA

Key-words: *non-formal education, music education, sustainability*

The aim of the abstract is to explore a legislative bases and developments of non-formal music education in Latvia. The issues around non-formal music education have been widely discussed in literature while the term „non-formal music education” did not have a clear conceptualization. The author analyses various scholar's understandings of non-formal musical education and offers an operational concept that is applicable to non-formal music education as one of the ways of bringing an individual in a closer and richer interaction with music.

Future professionals involved in non-formal education are facing the challenge of how to function adequately in ever changing educational landscape of non-formal musical education. Therefore, the author also analyses the developments in the field non-formal musical education and challenges placed for the musical professionals.

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LEGISLATIVE BASES OF A SUSTAINABLE RESORCE MANAGEMENT

Key words: *sustainability, sustainable resource management, transformation of societal consciousness*

The aim of this article is to explore the topicality of sustainable resource management in the international and national legislation. A growing number of institutions and individuals are embracing a more sustainable lifestyles and resource management strategies. The author analyses the main factors that can facilitate transformations of individuals' and societal consciousness resulting in benefiting from a sustainable resource management in individuals' lives and in organizations where they work. The fundamental transformations require changes in thinking in acting in individuals lives and in the society as a whole. The author argues that education for sustainable development facilitates people to shape future developments of the planet more responsibly and with care.

The contribution of this article lies in providing a framework for societal transformations of individuals by various channels and strategies of a sustainable resource management. The article concludes that sustainable resource management is not an issue of single individuals or organizations but rather requires cumulative and aligned efforts of all sectors and stakeholders, including sustainable legislative bases, whole system thinking, wise leadership and shift in worldviews and practices.

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THE NECESSARY OF SOCIETY INVOLVING IN SUSTAINABLE RESOURCE MANAGEMENT IN LATVIA

The purpose of this article is studying the current and perspective situation, which concerns participation of society in the sustainable management of resources in a national scale. Activation of modern life of society directly directly influences on increasing of consumption of natural resources and pollution of environmental. It entails the necessity of increasing recycling capacity, which, in turn, requiring additional energy. These changes require a transformation of societal consciousness and legislative acts of the government. The author shows the need public awareness of the vital need for and economical expediency of establishing a system, allowing re-use of waste and alternative energy sources for sustainable resource management and the defending of our planet.

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THE INTERRELATION BETWEEN ORGANIZATIONAL LEARNING CULTURE AND ORGANIZATIONAL CITIZENSHIP BEHAVIOR

Keywords: *leadership, organizational learning culture, organizational citizenship behavior.*

In the era of rapid technological transformations and under conditions of growing competitive environment and changes in customers' needs, the survival of the organizations depends on their ability to learn how to properly and quickly increase their efficiency and performance and adapt to the changeable environment. The management of changes is the first priority for the organizational leader. Leaders have to attract, motivate, and reward their workers, as well as train, educate and improve the performance of their employees by creating organizational learning culture (OLC). Organizations that have prioritized learning and development have achieved an increase in productivity and profitability. The organization, whose employees' behavior and attitude to job are demonstrated in their contribution made beyond the job's demands, beyond the level they are committed to and for what they are not recompensed by the organization, will always be able to be competitive and will succeed for years. B.K. Organ (1988) called such behavior „Organizational Citizenship Behavior” (OCB) and emphasized its being an important factor in assisting the organization to reach its goals.

Research aim: to provide the theoretical background of the interrelation between organizational learning culture and organizational citizenship behavior of employees.

A review of the respective literature identified a gap in the research on the concept OCB and its dimensions by the examination through learning culture characteristics. It is suggested that the organization should look for ways of improving OCB of their workers by creative OLC motivated by the leadership.

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DOCUMENT MANAGEMENT SYSTEMS AS QUALITY MANAGEMENT SYSTEM SOLUTIONS

Aim of the research is the document management system (DMS) in the organizations. It is one of the most important quality management system (QMS) and its component selection and maintenance are decisive for efficient organization of work. Document management system for software selection is big enough. It is available in both a specialized document management system only for the organization, as well as complex integrated solution together with the accounting, personnel management systems. Organizations driver can choose one of the programs selected. Selection criteria depend on the size of the organization, document circulation volume and financial possibilities. Importance of staff training for work with the selected program, as well as loyalty to the system use. The research viewed document management systems offer capabilities and use of practical recommendations.

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ANALYSIS OF PERSONAL AND ORGANIZATION CULTURE VALUES AT PUBLIC AND PRIVATE INSTITUTIONS

Key words: *organization, organizational culture values, personal values, employees desirable values*

Existing values system can describe organizational culture values. To have to understand values what unite the organizational employees and how those are changing, there is described and analyzing the personal and organizational culture values.

The ancient Greeks' philosophers already are analyzing values (Heraklits, Sokrats, Demokrits and others), as well as the Biblical authors, to explain the opportunities of world existence, human lifes' sence and lifes' signification.

In this article is analysing different Scientists' offered conclusions about organizational culture framework characterization, problems researching of values guidance, described view of culture meaning and influence of each of individual and organizational development (Hofstede G. 2010; Dubkevics L. 2009; Barets R. 2006; RengeV. 2008; Karpova A. 1994; Praude V; Belcikovs J. 2001 and others).

Organizational culture is unique resource to use for organizational development. In the well timed supervision of organizational culture, there is a possibility to identify and eliminate drawbacks. In the process of organizational development values organizational culture is issential meaning, therefore in article is analyzing values of organizational culture and in the opinion of leaders, the value of employees, as well as there are compared declared and actual state of organizational values. In-depth researching of organiational values in this article is viewed, based on A. Maslova (1943) theory of needs and R.Bareta (USA, 2006) worked out model of seven levels of consciousness.

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ARE WOMEN MORE EFFICIENT LEADERS THAN MEN IN OUR CONTEMPORARY SOCIETY?

Key words: *leadership, gender roles, stereotypes, societal management*

A number of studies have been published on women's leadership effectiveness, representation of women in community's leadership, as well on a promotion of women's leadership in a community management. There is an increasing evidence that women undertake leadership positions, climb up the corporate ladder of the organization, and prove themselves to be efficient leaders in their workplace. The aim of this article is to analyze gender stereotypes and perceptions on the role of women in a community leadership as perceived by the society and socio-psychological factors that prevent women to undertake leadership positions. Particular attention has been paid to the socio-psychological features of women as leaders that play a vital role in the development of an image women as leaders in the community. The authors conclude that in the market defined by complexity, disruption and change; the most successful enterprises are those which bring in diverse experiences and perspectives to every new challenge, so that the contribution of both males and females are of great value. Thus, diversity and inclusion offer a strategic advantage at the leadership level.

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PERSONAL DEVELOPMENT STRATEGY IN STATE BORDER GUARD ORGANIZATION IN DAUGAVPILS

Key words: *professional development, border guards, security*

Among the main responsibilities of the state's border guard organization is a patrolling of the borders as well as a control of foreigners in the territory of Latvia to ensure the security of the country. Therefore, one of the major managemental tasks of Border Guard institutions is training professional and motivated border guards. The main aim of this study is to outline strategies for the professional development of border guards, by reshaping the elements of existing quality management system. The main research methodology employed for this study is focus group interviews, and a questionnaire of personal on their self-evaluation of their professional development. This was concluded that societal respect and faithfulness can be reached only by carrying one's duties responsibly and with high honor. Professionally trained border guards are the guarantee of the securability of the state.

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PERFORMANCE EVALUATION INDICATORS SYSTEMS

Key words: *Strategic management, quality management, indicators systems and models*

Introduction: The company's or institutions operational efficiency and opportunities to upgrade is up to date management problem. At present, these problems become even more significant due to intensified competition between producers, consumers and customers of the increased requirements for product or service quality and price.

Aims: The study aims to summarize the literature data on the systems, models that can be used to assess a company's or institutions operational quality and efficiency.

Material and methods: The study used monographic method and analysis and synthesis method.

Results: C.F.McNair, Richard L.Lunch, Kelvin F.Cross efficiency pyramid.(C.F.McNair, Richard L.Lunch, Kelvin F.Cross, 1990) Authors studied customer-oriented corporate strategy impact to financial and quality indicators.

Robert S.Kaplan and David P.Norton balanced system of indicators-the balanced scorecard.(Robert S.Kaplan, David P. Norton, 1992). In the classic model, the system examines the company's activities on the basis of four criteria: finance, relations with customers, internal business processes, trainings and staff development.

L.S.Maisel balanced system of indicators(Lawrence S.Maisel, 1992). Business of the company's is also being studied using four groups of indicators, only, trainings and staff development instead analyses the company's human resources and innovations.

Cristopher Adams and Peter Roberts model. (Cristopher Adams, Peter Roberts, 1993)

Basically, the company is evaluated performance and progress. Authors studied the following operational aspects: service of customers, internal processes improvement, change and strategic management, freedom of actions.

Hubert K. Rampersad total performance scorecard(Hubert K. Rampersad, 2005).

The system analyzed, using five elements:

1. The balanced system of personal indicators;
2. The balanced system of organizational indicators;
3. The total quality management;
4. Competence management;
5. Trainings, learnings cycle.

Conclusions: Modern management science theory has developed systems that combine different quality assessment models. These systems resulting from economic analysis methods, cultivation and development, and the changing socio-economic conditions. Changes occurred customer-oriented strategy, quality management and human resources management direction.

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ILLEGAL MIGRATION IN LATVIA: SOLUTIONS AND PROBLEMS IN LATVIA

Key words: *illegal migration, migration crises, legislative bases, security.*

Since 1991 the government of Latvia pays a close attention to the security of Latvia in the transatlantic space. To ensure a security of the country, this is essential to secure borders of the country. Recently the issue of migration becomes a topical question in Latvia and in Europe, as well as it causes controversial debates and discussions in media. The aim of this study is to explore a legislative bases of dealing with the illegal migration in Latvia as viewed in the European context and as related to the border security, to explore the borders of responsibility and competencies of the Border Guard organization. The study focuses on the analyses on reasons of a lack of efficient legislation of administrative fine policy in the process of fighting illegal migration. The main methods employed in this study is the analyses of the legislative bases, legal documentations, and protocols. The study suggests amendments in the strategic and organizational work of a Border guard organization in Latvia with the aim to respond to the challenges brought in by the migration crises in Europe.

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DEVELOPMENT OF CONCEPT PUBLIC RELATIONS IN COMMUNICATION SCIENCE

The concept of modern public relations has been develop since beginning of 20 century. There are many definitions of public relations raised by theoreticians and practitioners but most of them refer to such fields as management, communication, psychology, political science and marketing. Still alive discussion had been started – can all communication be described as public relations, and maybe there is a time for separate science – public relations, should public relations called a science, an applied science or even art? The aim of this article is to examine the development of concept of public relations to establish the relevance of this concept to communication science. The method of research is discourse analysis.

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TYPES OF ATTACK IN SOCIAL ENGINEERING

Keywords: *social engineering, types of attack, phishing, trojan horse*

Aim of the research: To study types of attack in social engineering.

Tasks: Explore the theoretical materials about types of attack in social engineering. Gather information about types of attack in social engineering. To make conclusions and make recommendations for computer users to prevent loss information.

Methods of research: Information sources analysis

Social engineering is the art of manipulating people so they give up confidential information. The types of information these criminals are seeking can vary, but when individuals are targeted the criminals are usually trying to trick you into giving them your passwords or bank information, or access your computer to secretly install malicious software—that will give them access to your passwords and bank information as well as giving them control over your computer.

Results: Do not believe everything that you read, even if the e-mail or a web page looks safe, it may well be fraud. Ask yourself why interlocutor kontakt with you.

Be patient, many become victims of fraud being spontaneously.

As long as you are not absolutely sure about the interlocutor's identity and authorization to request information – does not provide any information about yourself or your employer.

Be suspicious of the unexpected e-mails, calls. Be careful when ordering any sensitive information on the Internet.

Layout of Manuscripts for the collection “Proceedings of the 58th international scientific conference of Daugavpils University”

„Proceedings of the 58th international scientific conference of Daugavpils University” publishes original papers, based on the presentations at the international conference, held in Daugavpils, 14–15 April, 2016. Proceedings of the scientific international conference of Daugavpils University are published electronically on www.dukonference.lv since 2010. It is not issued in paperback.

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 - the full Title of the article (font size – 16; **bold**; Caps Lock);
 - Author’s full name(s) (font size – 14; **bold**; *italic*);
 - Institution, Address, e-mail (font size – 12);
 - Abstract in English and Latvian – 1500 characters (font size – 10; line spacing – 1);
 - Key words (5–6) should be in abstract language (font size – 10; *italic*);
 - Text of the article. The recommended length of submissions is 12 000 – 15 000 characters (font size – 12; line spacing – 1,5; margin – 2.0 cm). It is recommended to divide the body of the text into the following chapters (humanities and social sciences): *Introduction (the Aim of the Article, Material and Methods)*, *Discussion*, *Conclusions*, *Acknowledgement*, *References*. It is recommended to divide the body of the text into the following chapters (natural sciences): *Introduction*, *Material and Methods*, *Results*, *Discussion*, *Conclusions*, *Acknowledgement*, *References*.
 - Pictures, charts and diagrams should be typed in *jpg*, *gif* or *tif* format in a separate file. Tables should comprise only vertical and horizontal lines. Tables, graphs, diagrams, charts and other illustrative materials should be presented indicating the source of the material and, if necessary, the methods applied to draw up tables, graphs, diagrams, charts (calculation, data summarizing and so on). All these materials should have a number and a heading;
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 - References (font – 12, line spacing – 1).
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 - if abbreviations are used in references (e.g. titles of dictionaries, etc.) they must be deciphered in bibliography but in the text reference just the volume and page numbers may be indicated without mentioning the year of publication, e.g. (LKV II: 81);
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- 2) style and compliance of key words and summary with the content of manuscript;
- 3) compliance with conventions for publication.

Sample

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IMPROVEMENT OF QUALITATIVE RURAL LIVING ENVIRONMENT IN LATVIA IN LEADER PROGRAM FRAMES

Abstract

Improvement of qualitative rural living environment in Latvia in LEADER program frames

Key Words:

.....

Kvalitatīvas lauku dzīves vides uzlabošana Latvijā LEADER programmas ietvaros

Atslēgvārdi:

Kopsavilkuma teksts

Body text.....

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