Central Bohemia University International Conference 2016  
Innovations in Science and Education  
March 23-25, 2016  

Book of Abstracts

Chief Editor: Ing. Petr Hájek, Ph.D.
Editors and English Proofreading: Tavleen Sahota, Mary-Anne Jones

Published by
Central Bohemia University, o.p.s.
Pod Vodárenskou věží 1143/4
182 00 Praha 8
Czech Republic

ISBN 978-80-88042-03-7

2016

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INTRODUCTION

We had the great honor of organizing the CBU International Conference 2016 (CBUIC 2016) on Innovations in Science and Education in Prague the Capital of the Czech Republic. It was truly a great pleasure for us to greet a lot of participants from many different countries attending CBUIC 2016! We firmly believe that the conference will become an important international event in the field of cross-industry discussion about innovations in Education and Science.

CBUIC 2016 was organized by Central Bohemia University and Unicorn College, Prague, Czech Republic. Proceedings were published by Central Bohemia University. There were 139 full papers and 19 abstracts accepted for presentation at CBUIC 2016, contributed by total 351 authors (more than twice the number from previous year) from 28 countries. We had four plenary speeches and several well-known scientists and experts, to give invited presentations at different sessions.

The purpose of CBUIC 2016 was to provide a forum for the participants to report and review innovative ideas, with up-to-date progress and developments, and discuss the novel approaches to application in the field of their own research areas and discuss challenges of doing science and innovating education approaches.

We sincerely hope that the exchange of ideas on doing research, science and improving education will help the participants on one hand, and international cooperation sharing the common interest will be enhanced on the other hand.

On behalf of the Organization Committee of CBUIC 2016, we would like to heartily thank our colleagues for all they have done for the conference. We would also like to thank the authors for their contribution to the proceedings; the participants and friends of CBUIC 2016, for their interest and efforts in helping us to make the conference possible. Also to the Editorial boards for their effective work and valuable advice, especially the CBUIC 2016 Secretariat and the CBU staff, for their tireless efforts and outstanding services in preparing the conference and publishing the Proceedings.

Petr Hájek, Central Bohemia University
David Hartman, Unicorn College
Conference chairs
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ECONOMICS AND BUSINESS
MODERN ENTREPRENEURSHIP AS A FACTOR FOR SUCCESS IN THE OPERATION OF TOURISM ENTERPRISES
Kiril Postolov¹, Marija Magdinceva Sopova², Lidija Pulevska Ivanovska³, Tanja Angelkova Petkova⁴, Saso Josimovski⁵

Abstract: Working without limits, changes in consumer preferences, and contemporary processes of global integration have changed the traditional concept of conduct for business enterprises. The application of the modern concept of entrepreneurship in tourism enterprises provides conditions for increasing efficiency. A focus on innovative approaches for basic activities, and continued allocation of total resources represent the main features of modern entrepreneurship. Modern entrepreneurship is the process through which the entrepreneur and employees are devoted to the opportunities at hand. This changes the concept of what constitutes entrepreneurship. The main objective of this paper is to show how the modern concept of entrepreneurship is a main factor in efficient operation of business enterprises. In this respect, knowledge and intellectual capital represent critical resources in operating and implementing information and communication technology as a necessity in coordinating business processes among tourism enterprises. The applied part of this paper involves practical research to perceive the presence of entrepreneurship. The paper concludes with proposing a modern entrepreneurial model as a main factor for improving business operations. The specific results will be indicated in the sphere of representation of teamwork, introduction of changes, staff training, introduction of innovations, and level of tolerance.

JEL Classification Numbers: L26

Keyword: efficiency, innovation, knowledge, entrepreneurial model, work promotion.

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INNOVATIVE METHODS OF MARKETING MANAGEMENT OF LUXURY BRANDS
FOR EXAMPLE GUCCI'S COLLABORATION WITH THE FIAT COMPANY

Anastazja Magdalena Kasztalska

Abstract: Branding is a basic and necessary tool in marketing. Recognizable brands develop international trade, cooperation, and exchange of goods. Of late, luxury brands have entered a new level of marketing and customer interaction, whereas, previously, brands specializing in one sector of the economy, generally ignored others. Gucci is a luxury brand that has recently teamed up with FIAT, a company with a completely different profile to that of manufacturing in the apparel industry. The aim of this study was to establish whether customers buying products from Gucci were interested in its collaboration with the automotive industry and whether the Gucci brand had become more recognizable because of this cooperation. The conclusions were somewhat remarkable, with the Fiat 500, a product combining reliability and beautiful design, continuing to be immensely popular. In addition, the cooperation of both brands has brought large profits and a significant increase in awareness of both companies. Undoubtedly, the innovative marketing method of designing a new car model, in collaboration with a luxury brand, brings awareness to both brands. Further studies are likely regarding this unprecedented case of cooperation between a brand of luxury clothing and one of an automotive company.

UDC Classification: 005.3, 658

Keywords: Gucci, Fiat, luxury, automotive, management, marketing.
CONSUMER BEHAVIOUR DURING ONLINE GROCERY SHOPPING
Gabriela Hanus¹

Abstract: Today consumers can buy almost any product using the Internet. Online nutritional and grocery shopping is becoming increasingly popular. The aim of this paper is to present the conditions of online grocery shopping and consumers’ attitude towards buying food via the Internet based. The assessment is based on secondary information sources. With online grocery supermarkets there are no limitations connected with localization and opening hours, and consumers have access to a large range of stores and products online across the world. The most important advantages of online shopping are convenience and time saving, while the most significant disadvantages for consumers involve the risk of incorrectly valuating some products and apprehension about the selection and handling of perishables, such as vegetables, eggs, and meat products.

JEL Classification Numbers: O35

UDC Classification: 304

Keywords: Grocery shopping, e-consumer, e-commerce, electronic retailing.

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TRANSFORMATIONAL LEADERSHIP AND TRUST: A CASE STUDY
Adriana Zaharia¹, Carmen-Aida Huțu²

Abstract: According to previous research, an employee’s trust in his/her leader has been linked to: increased individual efficiency and commitment; increased organizational performance; effective team and organizational functioning where the tasks are complex and unstructured. Considering these findings concerning the positive influence of trust on various aspects of organizational performance, we used relevant theories in literature relating to trust in organizational settings and transformational leadership to devise our research framework that aimed at gaining a better understanding of leadership behaviors leading to higher degrees of trust by followers in their leader. The results of our pilot study in a Romanian small-to medium-sized enterprise show that leader’s behaviors such as enforcing observance of organizational rules, professional objectivity in employee appraisal processes, keeping promises and commitments, fairness, as well as leader’s professional competency are essential for achieving higher degrees of trust in intra-organizational relationships. In assuming the inherent limitations of a pilot case study leading to the necessity to further the methodological developments and follow-up studies, our research confirmed obvious relationships between the targeted domains, transformational leadership and trust. Also, our findings confirmed that the trust element in organizational leadership has a critical impact on building long-term employee commitment and drive for achieving higher individual and organizational performance and success.

UDC Classification: 308

Keywords: transformational leadership, trust, intra-organizational relationships.

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DEVELOPING RELATIONS WITH CUSTOMERS: PRESENTATION OF DIFFERENT VIEWPOINTS

Alena Piknová¹

Abstracts: The theme of customer relations management is constantly being developed. The goal of this paper is to provide insight regarding customer relations from multiple viewpoints. This paper collates the recent information on the subject. Based on all entries, the most important factor for both the customer, and more so, the retailer, is customer satisfaction. The most important relates to the human being. The study examines research results of various authors and study identifies possible risks arising from the interaction of providing services and goods.

UDC Classification: 658.8

Keywords: customer relations, values, customer satisfaction, long-term relations.

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AN EMPIRICAL VIEW ON VALUE THEORY AND VALUE-BASED MANAGEMENT

Marius Costin Daraban

Abstract: The main economic purpose of a business organization is to create value for its owner. The value concept is a complex notion that has developed alongside human history and reflects the concerns of human society through time. As a result of the value theory, the management of value has also emerged as an essential and accompanying activity. Value-based management emerged as a management philosophy rather than a management method. It consists of a change in mindset from managing resources or output quantities to value creation. The challenge is to identify or create the value flows and act upon these within the specific business organization to have proper value management. Value creation and value management will define the business organizations in the economy of the 21st century, which is governed by knowledge and information. The present paper focuses on the history and development of the value concept and the history and development of the management of value through value-based management.

JEL Classification Numbers: B00, N00, M2

Keywords: value, value-based management, economic value.

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INDICATORS OF ENTERPRISE OPERATING ACTIVITY AND LEVELS OF ITS ECONOMIC SECURITY

Alina Ianioglo

Abstract: In the process of ensuring economic security of an enterprise, special attention should be paid to the economic security of production. This article describes the essence of indicators of operational activity: break-even point, financial safety margin, and operating leverage. The analysis of these indicators shows that there are four levels of economic security of production. Formulas for determining these levels are presented and justified. The proposed method can be applied in practice and helps in determining the reserves for increasing efficiency of production.

JEL Classification: M11, D20

Keywords: economic security, break-even point, financial safety margin, operating leverage.
KNOWLEDGE-INTENSIVE BUSINESS SERVICES AS IMPORTANT SERVICES FOR INNOVATION AND ECONOMIC GROWTH IN SLOVAKIA

Tatiana Čorejová¹, Mario Al Kassiri²

Abstract: This paper illustrates the importance of Knowledge-intensive business services (KIBS) as a source of innovation and economic growth. In the article, we explain the impact of KIBS on innovation, the importance of KIBS as a support in economic growth, its positive impact on employment and important role in the knowledge-based economy of Slovakia. This paper shows KIBS as important for innovation processes provided by institutions, such as universities, where the most important part involves research and development. Low support in services such as KIBS may cause decreases in availability of highly qualified employees and output of knowledge for innovation. Productivity and economic growth are largely dependent on fast growing technological progress and transfer of knowledge. Innovation can lead to a reduction in manual workers on one hand, while on the other qualified employees will be needed for processes in the new applied technology. In order to fully understand the rapid growth of innovation and KIBS, we analyzed the correlation and number of scientists of its population in the EU countries.

JEL Classification Numbers: O31, O32, O34

UDC Classification: 338.1

Keywords: knowledge-intensive business services, intellectual property, innovation, knowledge.

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HEAVY METALS IN WATERS, PENETRATING THE FOOD, ECOSYSTEMS AND THE ECONOMY OF KOSOVO

Adem Dreshaj1, Bedri Millaku2, Afrim Selimaj3, Fidan Feka4, Muhamet Kelmendi5

Abstract: The waters of the oceans and seas play an important role in the hydrological cycle of the Earth. With Kosovo’s economic development, an increasing population has developed many branches of industry that have polluted the rivers with heavy metals, such as the Trepça’ mine, and the treatment of agriculture products with pesticides and herbicides. The eutrophication of lakes transitions the metals from agricultural products causing ecological imbalance. Uncontrolled exploitation of natural resources, irresponsible treatment (industrial waste and sewage), has caused contamination above the permitted ecosystem thresholds for toxic elements, such as: Hg, Pb, Cd, Cu, Zn, Ni, and Mn. Heavy metals in natural waters that are unpolluted are in low concentration (approximately 1μg/l); some are essential for enzymatic reactions in living organisms. Increased concentrations as a result of industrial activities often exceed the allowable limit, causing serious changes to ecosystems, including tourist areas, and to living organisms in aquatic ecosystems. Ecological preservation of ecosystems from heavy metals is vital for the environment, food security, and protecting ecological habitats, and this represent an economic cost for the Republic of Kosovo.

UDC Classification: 614

Keywords: metals, food, ecosystems, economy.
THE INTEGRATION OF BUSINESS MODELS AS PART OF PRE-MERGER AND ACQUISITIONS IN THE POLISH SECTOR OF MANAGEMENT INFORMATION SYSTEMS

Jolanta Wartini-Twardowska¹, Zbigniew Twardowski²

Abstract: This paper presents the methodology of assessing opportunities and threats related to the combining of heterogeneous business models in complex organizations (enterprise groups) from the point of view of added value. The main objective was to develop a methodology for assessing the risk of including a company with a specific business model within a complex organization. The authors carried out an in-depth analysis of mutual influences for fifteen typical business models. Guided by their original approach to classifying business models in the sector for management information systems, the authors used the cross-impact method to rank models in the value chain of this sector. The operational processes of the business models were also identified. The proposed methodology allows for a relatively accurate assessment of the impact of particular operational processes of one model upon the strategic objectives of another. The study established a set of data enabling the determination of the potential risks of combining two distinct sector models, the ‘integrator’ and the ‘added value reseller’, as a enterprise group. The methodology presented in this paper could be used to develop a computer system supporting strategic decisions regarding the allocation of resources in complex organizations.

JEL Classification Numbers: G34, L86
Keywords: business model, merger & acquisition, sector of management information systems.

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DYNAMICS AND EFFICIENCY OF EVENTS TOURISM, FACTORS IN GLOBAL ECONOMIC GROWTH

Raluc Georgiana Stoian¹, Manuela Liliana Muresan²

Abstract: Meetings, Incentives, Conventions, and Exhibitions (MICE) is an elite segment of tourism linked to business tourism. It has become dynamic worldwide in recent years. The efficiency of tourism events emerges with the connection between the corporate world and world travel organizations. This connection is a dynamic link that is profitable for all parties involved. Currently, about 40% of the activity and profit is due to worldwide business travel and the event industry. This paper aims to highlight the efficient role of tourism events through the dynamic “Convention Bureau”, at both the international and Romanian level, in terms of global economic growth. We found from the study of this activity sector that one of the important directions of innovation and raising the competitiveness of the tourist offer of any country is given the additional service diversification by stimulating tourism dynamics of events. The advantages and benefits that may be mentioned in business events tourism are revenues from services such as accommodation, facilities conference, catering, leisure, transport and entertainment. These revenues are stimulating the growth of the world economy.

JEL Classification Numbers: A1, M2, O4, Z32

Keywords: tourism events, associations, Convention Bureau, economic growth.
ECONOMIC CRISIS AND POLANYI’S DOUBLE MOVEMENT
Özgür Üşenmez¹, Levent Duman²

Abstract: As experts discuss the causes and results of the 2008 financial crisis and ensuing Great Recession, economists of various strands, led mainly by Keynesians, are slowly beginning to question the supposed wisdom of unfettered markets. Since Keynesian-liberal disputes revolve around the symptoms of the crisis, rather than the historical and structural features of market economies, we consider a fresh approach about Polanyi’s ideas on market, and his concept of double movement in regards to the effects of neo-liberalism on societies, as a timely intervention to these debates.

JEL Classification Numbers: B31, B40

Keywords: Keynesian, liberal, polanyi, double movement.

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OWNERSHIP STABILIZATION OF SAVINGS BANKS BY FOUNDATIONS

Holger Blisse

Abstract: Foundations have recently played a specific role in the transformation of savings banks to joint stock companies (corporations) in Europe. The current discussion about the recovery and resolution of credit institutions and the growing responsibility of depositors in the event of bankruptcy, shifts the risk from the banking industry to a group that traditionally was never affected. As a support, and also as security for depositors of risk-sensitive and risk-responsible credit institutions, the group of owners becomes even more relevant. Within groups that are possible, a foundation, as owner, can intensify stability and signalize risk awareness and responsibility. This paper analyzes the innovative aspects and positive effects of a savings bank’s foundation as well as the problems of retaining typical features of a savings bank.

JEL Classification Numbers: G21, K22, L32

Keywords: savings banks, ownership, foundation, Austria, Italy.
THE ACCOUNTING STANDARDS AND FINANCIAL REPORTING IN ALBANIA

Rezarta Shkurti¹, Brunilda Duraj²

Abstract: Albania implemented its first set of 14 National Accounting Standards (NAS), which were prepared in compliance with the International Financial Reporting Standards, in 2009. The 15th standard, specifically the Accounting Standard for financial reporting by micro-entities, was added to this set in 2011 and a 16th standard, relating to the reporting for non-profit enterprises, was added in 2015. In 2014, the National Accounting Council of Albania (NACA) performed a major revision of this existing framework of NAS. The focus of this paper is to analyze the current status, as well as the development of accounting and financial reporting in Albania for the Small and Medium Enterprises (SMEs). An international standard of financial reporting for SMEs was issued by the International Accounting Standards Board but was not fully endorsed by the European Community, nor by the NACA, who instead chose to revise their current NAS. In this study, we provide a general overview of the accounting regime and platforms currently applied in Albania, by focusing on the changes over the recent years. We also depict the main differences between the IFRS for SMEs and the NAS in Albania in treatment of several elements of the financial statements.

JEL Classification Numbers: M41

Keywords: accounting standards, financial reporting, SME.

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DETERMINANTS OF EFFICIENCY IN ALBANIAN BANKING INDUSTRY; AN EMPIRICAL DIAGNOSIS

Elona Shehu

Abstract: Many articles discuss the importance of banking systems and their profitability as well as the factors determining these. This article examines the determinants of bank efficiency in the Albanian banking industry. During the second half of this decade a considerable decrease in the efficiency ratio of the Albanian banking system was evident. To understand which factors affected the efficiency, and whether Albania should control certain factors in order to improve efficiency, relationships between particular factors were analyzed using a multiple regression analysis. The study examines 16 commercial banks in Albania, from 1998 to 2015. It finds a significant relationship between efficiency, capital adequacy, the return on assets, and solvency.

JEL Classification Numbers: G32

Keywords: efficiency, solvency, leverage, performance.

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USING MULTILEVEL MODELING TECHNIQUES FOR SOCIAL AND ECONOMIC MONITORING

Stanislav Dubykovskyi\(^1\), Sergiy Holub\(^2\)

**Abstract:** This paper studies the experience of applying the existing methods of modeling in the field of economic monitoring. The method of Group Method of Data Handling (GMDH) is suggested as an alternative for economic modeling. The research calculates and builds inductive models describing gross domestic productivity (GDP) using economic indices that are characteristic of the countries with developed information economies. The resulting models are then clustered by similar features. The obtained results are briefly analyzed.

**JEL Classification Numbers:** C00, O1, F5

**Keywords:** multilevel modeling, information economy, GMDH, economic monitoring, model of development.

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INTELLECTUAL ENTREPRENEURSHIP AS CAPITALIZATION OF KNOWLEDGE IN INNOVATIVE ENVIRONMENTS AND PATTERNS OF ITS EMERGENCE

Irina Sennikova¹

Abstract: This paper presents the results of an exploratory study into the phenomenon of intellectual entrepreneurship and the patterns of its emergence as understood through the experience of individuals. The research is of qualitative nature, and the results are based on secondary research and interviews of 16 intellectual entrepreneurs of Latvia. It provides a model of intellectual entrepreneurship, which is defined as capitalization of knowledge in an innovative environment. It also presents four patterns of emergence of intellectual entrepreneurship in Latvia; these include patterns characteristic of a transition period from command to a free market economy and that occurring during times of crises, and ones relevant to a stable economic environment. The paper contributes to the modern theory of entrepreneurship where the concept of intellectual entrepreneurship is used, but with different interpretations, and until recently had not been systematically studied.

JEL Classification Numbers: L26, O300

Keywords: intellectual entrepreneurship, entrepreneurship, knowledge capitalization.

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CONSUMER MISBEHAVIOR IN TOURISM MARKET
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Abstract: The activities of misbehaving customers represent a significant problem for organizations across diverse sectors and industries. Their need for satisfaction is the most important driver of consumer behavior with the consumer choosing how they fulfill this need. Unfortunately, consumer decisions often lead to consumer misbehavior and negative effects on the service provider or on other consumers. Consumer misbehavior is difficult to control. First, it is not always possible to prove misbehavior of a particular consumer. On the other hand, preventive actions, like social campaigns, may not always reach the target audience. Moreover, neither service provider regulations nor monitoring of infrastructure sufficiently prevents consumers from misbehaving in every case. It seems, however, that the consumers who reject the fraudulent behavior of others have a crucial role in the fight against consumer misbehavior, as they are constant observers of this phenomenon and can react immediately. The aim of this article, therefore, is to present the concept of consumer misbehavior with examples relating to the tourism market. Moreover, the attitudes of consumers towards consumer misbehavior are examined through nethnographic research.

JEL Classification Numbers: M00

Keywords: consumer misbehavior, tourism market, nethnography.

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Organizational Knowledge Acquisition - Strategic Objective of Organization

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Abstract: Knowledge is now considered the most important resource of an organization, with organizational knowledge acquisition identified in literature as a process that can determine the difference between success and failure of an organization. It is considered necessary for each organization to manage the acquisition of knowledge as a central element in business continuity planning, optimizing costs, and organizational objectives. The main goal of this paper is to develop a framework for organizational knowledge acquisition. This purpose is relevant because, until now, the literature encompasses the problem of organizational knowledge acquisition through human resources, from the perspective of staff ability to learn and implement new concepts, but not from the perspective of an organizational strategy. An organization is stressed by economic and financial alliances and by clients and suppliers. These constrain managers from identifying new solutions to problems. This study is relevant for business because it analyzes an important direction for the development of strategies in the context of market globalization and for academic research because there has been little research previously in this direction.

JEL Classification Numbers: M21, M10

Keywords: knowledge management, organizational knowledge acquisition, organizational strategy.

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IS THE GLOBAL COMPETITIVENESS INDEX INFORMATIVE?

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Abstract: This paper critically discusses whether, and to what extent, the Global Competitiveness Index (GCI) compiled by the World Economic Forum is informative, given the cross-positive effect across indicators that involve ranking of countries. The results suggest positive cross-effects between sub-indices for a group of economies in the European Union (EU) and other certain advanced economies. Economies with an advanced level of higher education and training, and a superior level of innovation, tend to experience a higher level of ranking in the global competitiveness index compared to countries with lower levels of education and innovation. The results of this study for a group of 28 EU member states during 2007-2015 reveal a heterogeneous position of the EU member states despite their obvious achievement of converging income-per-capita in the same period. However, the results also indicate potential methodological inconsistencies in terms of the ranking of countries, relating to a common problem in economics, known as endogeneity or reverse causality, and based on variables that, statistically, appeared significantly correlated to each other.

JEL Classification: 011, 047, P51

Keywords: competitiveness, endogeneity, Global Competitiveness Index.

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BANK CREDIT TO THE PRIVATE SECTOR BEFORE, DURING AND AFTER THE CRISIS – EVIDENCE FROM CESEE COUNTRIES

Rilind Ademi1

Abstract: The banking sector constitutes nearly the whole financial system in South East Europe and Central East Europe and as such is vital for the placement of loans in the economy. The period before the global financial crisis recorded high growth in loan, averaging 30% per year during 2004 to 2008. The period during and after the crisis recorded significant falls in loan rates, generally from reductions in funding from abroad and which before the crisis were abundant. This paper aims to examine loan rates in both periods, comparing the potential determinants of credit in the private sector. We also attempt to answer whether there was excess lending before the crisis and in addition deficient lending during and after the crisis.

JEL Classification Numbers G01, G21

UDC Classification: 336.7

Keywords: credit to private sector, financial crisis, banks, deposits.

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CREDIT AND ECONOMIC REGENERATION AFTER THE FINANCIAL CRISIS IN CESEE

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Abstract: The global financial crisis terminated lending growth rates in CESEE countries, and seven years after financial global crisis, bank credit still continues with depression rate. Demand and supply for bank credit are contracted, as a result of various factors. The paper tries to find the level of credit contraction and factors that may have affected it, as well as policy action which are being taken to improve bank performance. Economic activity on the other hand, despite the depressed credit growth rates seem to show a trend of regeneration. This phenomenon of increasing economic activity without the support of the loan seems is happening in this post-crisis period in CESEE countries, although we must say that it remains undesirable phenomenon.

JEL classification number: G21, G01

UDC Classification: 336.7, 338.1

Keywords: bank credit, financial crisis, economic activity.

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BUSINESS CAPABILITIES AND HR KNOWLEDGE’ AS THE CRITICAL FACTOR OF DUE DILIGENCE IN PRE-ACQUISITION PHASE

Alen Sacek¹, Baiba Šavriņa²

Abstract: Previous theoretical research has argued that due diligence in the pre-acquisition phase is traditionally oriented towards legal and financial matters. However, in the innovation-driven market environment, where firms need to maintain competitive strength, business skills and knowledge play important roles. Despite this difference, the due diligence research continues in traditional areas, e.g., financial history, legal and commercial liabilities, and tax issues. Hence, the problem may arise in acquirers overpaying or mistakenly rejecting a target firm. There is a need for assessing ‘Business Capabilities and Human Resources Knowledge’ for due diligence in the pre-acquisition phase. Based on a fundamental review of critical factors in mergers and acquisitions, this study seeks to examine the inclusion of this factor in due diligence during pre-acquisition. The research method includes a cross-sectional survey among firms with cross-border acquisition experience. The results of the empirical research provide reasonable support towards the organizational learning theory, suggesting that the more the acquirer learns about the critical factor, “Business Capabilities and Human Resources Knowledge”, the better the acquisition success. These results highlight the importance of expanding the traditional due diligence view by including this critical factor as the integral part of the pre-acquisition investigation.

JEL Classification Number: G23, G34

Keywords: Business capabilities, cross-border, due diligence, acquisition, acquisition premium, synergy effects.

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CREDIT INDEBTEDNESS AS CONVERGENCE CATALYST OF ECONOMIC REGENERATION IN THE V4 COUNTRIES

Martin Hudec1

Abstract: Financial institutions perform an important role as financial intermediaries in the financial market of the Visegrad group of four countries. These institutions ensure the smooth transfer and redistribution of funds from the various economic players with surplus savings to those who need freely obtainable funds through loans. This transfer and redistribution essentially accelerates the convergence of the four countries economics, through creating consumer debt closer to that of the developed and competitive western economies. The purpose of this paper is to research available statistics to evaluate and compare different aspects, conditions, and development of consumer credits in these four countries in terms of their progress with economic recovery, as a part of convergence after the crisis period, in Central Europe.

JEL Classification Numbers: D51, O4, O16

Keywords: consumer credit development, economic growth, financial market, Visegrad group.

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PROBLEMS IN FORMING COST ESTIMATES FOR CONSTRUCTION INDUSTRY

Sergey Oparin¹, Nikolay Chepachenko², Marina Yudenko³

Abstract: Problems of forming cost estimates for the construction industry is relevant in Russia, where many construction organizations face the issue of a current pricing system that does not consider new technologies in construction. This leads to underestimations of costs in construction and limits opportunity for competitive pricing between construction companies. This article aims to provide recommendations for improving reliability in calculating construction costs and enhance efficiencies in capital investments by construction participants. The article provides an analysis of the existing system of pricing in construction, and the peculiarities of the system of pricing in both Russia and the United States. Results indicate the need for expediency in applying certain provisions of the foreign system into that of Russia’s for determining the cost of construction. These measures would help minimize the presence of contractors in the construction market who do not actually perform the construction and installation work on their own, and to achieve the desired level of profitability of 8 to 10%.

JEL Classification Numbers: M21, M48, P32

UDC Classification: 338.51

Keywords: construction, pricing, cost, estimates.

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THE IMPACT OF BUSINESS ENVIRONMENT ON REGIONAL DISPARITIES

Viktor Šoltés¹, Katarína Repková Štofková²

Abstract: The structure of the business environment, as part of the socio-economic situation, indirectly affects a citizen’s quality of life. A “friendly” business environment has a positive effect on job formation, thus helping with employment. A country encourages formation and development of large enterprises through various incentives that reduce regional disparities, especially in less-developed regions. Nevertheless, a huge majority of enterprises in the European Union are small- and medium-sized. Self-employed persons are considered a specific form of business. Their activity is strongly influenced by state policy. This paper analyzes the business environment in regions of the Slovak Republic. Its principal aim is to examine the development of regional disparities and the related quality of citizens’ lives. An evaluation of statistical data of the structure of the business environment in the Slovak Republic indicated a change in legal units in relation to business. Although the number of legal units are stable, the number of legal persons has increased and that of natural persons-entrepreneurs decreased. Deepening of regional disparities was not observed across regions of the Slovak Republic.

JEL Classification Numbers: L22, L25

UDC Classification: 061

Keywords: enterprises, self-employed persons, regional disparities.

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VARIOUS APPROACHES TO SOLVE UNCAPACITATED FIXED-CHARGE FACILITY LOCATION PROBLEM ON POSTAL NETWORK

Jozef Štefunko¹, Radovan Madleňák²

Abstract: Availability and reliability of mail distribution services depends primarily on a network of postal operators. Choosing the appropriate layout of a network is key to maintaining quality while generating the lowest possible costs. This article focuses on creation of a postal network, based on an allocation model of an uncapacitated fixed-charge facility that considers road networks in the Slovak republic. A basic analysis of infrastructure is followed by incorporating service demands, and building and transport costs, in the chosen allocation model. Both construction and subsequent improvement heuristic algorithms are used to determine the number and location of postal sorting centers. The results are compared to find the lowest cost-generating solution. Even the best solution from available methods could be deemed sub-optimal as one does not know how close or how far the solution is from optimal. By varying the input variables, supported by a thorough analysis and consideration of future development of the transport network, one can improve efficiency in postal network operations.

JEL Classification Numbers: L87, R53

Keywords: postal network, allocation models, uncapacitated fixed-charge facility location, heuristic algorithms.

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CUSTOMER LOYALTY PROGRAM AS A TOOL OF CUSTOMER RETENTION: LITERATURE REVIEW

Magdalena Hofman-Kohlmeyer¹

Abstract: Customer loyalty is a highly valuable asset. To gain loyalty of current customers and create attachments, the growing ranks of entrepreneurs decide on implementation of loyalty programs. This article aims at providing a theoretical outlook on various approaches on loyalty programs derived from literature review and identifying the factors which lead to success of a company. The literature review offers some directives for managers which are useful in the preparation of rewarding programs and are also a source of valuable customer information that helps in building future marketing strategies. We concluded that loyalty programs impact customers using financial and psychological factors to maintain long-term loyalty. Furthermore, loyalty programs should include financial as well as affective components as only financial incentives don’t guarantee a long-term relationship.

JEL Classification Number: M31

Keywords: loyalty program, customer loyalty, customer retention.

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ECONOMIC EVALUATION OF HEALTH CARE UTILIZATION IN THE SLOVAK REPUBLIC
Zuzana Haramiová¹, Ivona Malovecká², Zuzana Koblišková³,
Daniela Mináriková⁴ Viliam Foltán⁵

Abstract: Due to the economic changes and fast progress in health technologies countries face the challenge of rapidly growing health expenditures. Drug policies focus on identification of the most problematic areas for implementation of cost-effective measures. For this purpose, they need to be provided with accurate analyses of health expenditures and drug utilization.

Primary aim of this study was to analyze health expenditures of Slovak Republic in regards to factors, which are considered to have the largest influence on provision of health care. Secondarily we focused on providing a brief drug utilization analysis. Our study confirmed that since 2000 Slovakia invests a larger share of GDP in health care, while in 2013 overall health expenditure amounted 5.6 million EUR (7.6% of GDP). Despite recent growth (233.6 % since 2000), Slovakia remains under OECD average in regards to health expenditures per capita (PPP, USD). However, it is on the 2nd place among V4 countries. Patients’ share of the overall health expenditures is increasing 12.8 times faster than public reimbursement. Up to 1.5 million EUR was spent on pharmaceuticals in 2013. The most utilized group of drugs in terms of DIDs and sales were cardiovascular drugs.

JEL Classification Number: I50

Keywords: health expenditures, private health expenditures, public health expenditures, expenditures on pharmaceuticals, drug utilization research.

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THE EFFECTS OF OWNERSHIP CONCENTRATION ON PERFORMANCE OF PAKISTANI LISTED COMPANIES

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Abstract: This paper analyzes the effects of ownership concentration on investment performance in a large sample of Pakistani publicly-listed companies from 1997 to 2007. Special attention is directed to statistical methods from the field of panel-data econometrics, which are able to deal with endogeneity problems and with structural reverse causality. The preferred estimator that is based on firm fixed effects insinuates that the voting rights of ultimate shareholders affect Tobin’s q unambiguously negatively, whereas the squared voting rights affect it unambiguously positively. This implies a U-shaped relationship between Tobin’s q and voting rights concentration with a turning point at 45%. More than 75% of the companies fall in the upward sloping part of the curve. While positive incentive effects are at work in Pakistan, financial market development is retarded by the reluctance of minority shareholders facing dominant shareholders to hold small stakes in listed companies. Consistently, institutional shareholders do not yet provide a positive monitoring role in Pakistan.

JEL Classification Numbers: L2, G3

Keywords: corporate governance, ultimate ownership, institutional shareholdings, endogeneity of ownership, and investment performance.

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A FACTORIAL ANALYSIS OF INFORMACION SOURCES THAT INFLUENCE UNIVERSITY CHOICE IN ALBANIA

Elfrida Manoku¹

Abstract: These days Higher Education Institutions (HEIs) in Albania are operating in a highly dynamic environment. The aim of this study is to examine the sources of information that influence the student’s selection between public or private university in Albania by identifying the role of marketing communication in this selection. The data was gathered through self-administered questionnaires in 17 public and private universities throughout Albania. The factorial analysis conducted using the evaluations from 28 different sources of information, concluded that mainly four factors influenced university choice. These were, public relations, advertising, reference groups and internet marketing. Most of the Albanian Universities need a better understanding of the entire process the prospective students undergo during their university selection process. They also should try adopting a new orientation in their marketing communication strategies based on the students’ need for information.

JEL Classification Number: M31

Keywords: university choice, marketing communications, students, higher education institutions.

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ESTIMATING THE HEDGE RATIOS
Mária Bohdalová¹, Michal Greguš²

Abstract: This paper examines the problem of hedging portfolio returns. Many practitioners and academicians endeavor to solve the problem of how to calculate the optimal hedge ratio accurately. In this paper we compare estimates of the hedge ratio from a classical approach of a linear quantile regression, based on selected quantiles as medians, with that of a non-linear quantile regression. To estimate the hedge ratios, we have used a calibrated Student $t$ distribution for the marginal densities and a Student $t$ copula of the portfolio returns using a maximum likelihood estimation. We created two portfolios of the assets, one for equal weight and another for optimal weight in respect of minimal risk. Our findings show that an assumption of Student $t$ marginal leads to a better estimation of the hedge ratio.

JEL Classification Numbers: C21, C40, G11

Keywords: quantile regression, hedge ratio, copula.

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MANAGEMENT PERSPECTIVE AND DEVELOPMENT OF SMALL AND MEDIUM ENTERPRISES IN KOSOVO

Rifat Hoxha¹, Hamdi Hoti², Remzi Ahmeti³

Abstract: Issues undertaken in this work include: how to increase the development of small and medium enterprises, the factors that affect their development, barriers in this process, how to help new entrepreneurs, how to increase the number of employers in this economic activity, innovations in enterprises, improvement of retailer balance, and how to increase local production and performance in general. This study will help address specific difficulties and problems of enterprises in Kosovo, and provide necessary recommendations for future steps for small and medium enterprises, while making it easier and supporting them in economic activities to develop economic support and have better employment for future generations in general.

JEL Classification Numbers: M10, M13

Keywords: SME, development, strategy, management, process.

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KNOWLEDGE AS A KEY RESOURCE CONTRIBUTING TO THE DEVELOPMENT OF ECO-INNOVATIONS BY COMPANIES-SUPPLIERS OF ENVIRONMENTALLY SOUND TECHNOLOGIES

Magdalena Marczewska¹

Abstract: Challenges arising from global warming and climate change has realized the need to ensure wide development and diffusion of environmentally sound technologies. The aim of this study is to obtain new knowledge about sources contributing to the development of eco-innovations by companies that are suppliers of environmentally sound technologies in Poland. The objective is to show the importance of knowledge for the development of these novelties. Moreover, the paper aims to present and characterize the origin of the knowledge accumulated within the studied companies. The research uses qualitative methods and it is based on in-depth, semi-structured interviews, and a multiple case-study. It presents the sources contributing to the development of eco-innovations, which are specific to the companies-suppliers of environmentally sound technologies in Poland. The results confirm that, among others, knowledge accumulated within the company, including experience and skills of innovators, is essential for developing new ecological solutions. The results also demonstrate that companies-suppliers of own, innovative environmentally sound technologies devote considerable attention to knowledge management. Thus, the knowledge these companies acquire is fully and widely used in the eco-innovations development process. Moreover, this paper reveals ways in which such companies acquire different types of knowledge.

JEL Classification Numbers: O31, O32

Keywords: eco-innovation, knowledge, environmentally sound technologies, resources, knowledge management.

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The work has been supported by the Polish National Science Centre (Narodowe Centrum Nauki) funds allocated with the decision DEC-2014/12/T/HS4/00311.
MOBILE 5G TECHNOLOGY ADOPTION INVESTMENT TIMING DECISION MAKERS CLUSTERING AND WILLINGNESS TO INVEST UNDER VOLATILE DEMAND CHANGES

Saulius Adamauskas¹, Rytis Krušinskas²

Abstract: Enterprises need to identify the optimal timing for technological change in order to increase competitiveness and increase the value of the company in an uncertain demanding environment. Investment decisions for adopting new technologies are costly and sometimes risky because technological investments are irreversible. To simulate the process, comprehensive technological adoption regarding investment timing was used in a management decision support model. The constructed model is structured as follows: 1) historical demand paths analysis; 2) application of statistical data validity tests; 3) the forecast of market parameters regarding data arrays using the geometric Brownian motion method, based on Monte Carlo simulation; 4) determination of technological life cycle using a Hodrick–Prescott filter; 5) technological adoption time-window determination; and 6) calculation of company net present values (NPV) based on change in free cash-flow. The model for mature 5G mobile markets, created and empirical tested, was performed in relation to 18 largest Europe mobile service providers, as potential decision makers operating across 33 countries. Results confirmed that selection of the technological investment time depends on companies’ strategic financial decisions and financial state. The performed simulations revealed the consequence of 5G technology investment for investor roles, clustered according to financial data within a 5-year period (2010–2014). The analyzed companies were assigned to roles of pioneers-innovators, pragmatics, followers, or laggards. Finally, it is assumed and argued that financial parameters indicate the willingness to adopt new technologies in a global technologically changing environment.

JEL Classification Numbers: O16, O32, O33

Keywords: optimal investment timing, geometric Brownian motion, 5G technology adoption.

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EFFECTIVENESS OF EUROPEAN FUNDS GRANTED TO POLISH COMPANIES BETWEEN 2007-2013: ADOPTION OF MFB CONCEPT

Agnieszka Przybył

Abstract: The effectiveness of state aid granted to support companies is a subject of ongoing research and analysis worldwide. The support provided in the form of non-repayable grants from European Union (EU) funds is controversial, particularly in the European Union. This research will examine the effectiveness of European funds granted to Polish companies from 2007 to 2013 using the MFB (MoreFasterBetter) concept. The aim is to empirically investigate the impact of the European grants to the Polish companies in regards to amount (orders, customers, services and products), promptness (the moment and speed of project implementation) and quality (the processes, construction works, services and supplies). The analysis will be conducted on data available from an anonymous online survey sent to companies via the Western Chamber of Industry and Commerce (PL). The descriptive statistics will be used to summarize the sample. This research tool has been developed on the concept and definition of EU funds, and their status on the basis of state aid regarding European and national legislation. The results are important both for European policy makers, member states and companies.

JEL Classification Numbers: H20, H21, H26

Keywords: grants, subsidies, companies, performance, effectiveness, Poland.

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IN-SCHOOL MARKETING: BEST PRACTICE PRINCIPLES
Isabel Farinha

Abstract: This research examines in-school marketing in Portugal, and how a win-win partnership between public and private stakeholders can be established. The purpose is to identify suitable in-school marketing, which involves developing different types of marketing and media activities aimed at students aged 10 to 15 years. The research evaluates in-school marketing activities in terms of their short and long term impact on students and the brands used. In addition, a School’s Best Practice manual is designed to show how schools and their commercial and non-commercial partners can achieve a responsible partnership. Various approaches are used, including developing questionnaires for representatives of school management committees and semi-structured interviews of public-private stakeholders. The findings suggest an absence of formal policies guiding the practice of in-school marketing and different perspectives lead to validating the development of a best practices manual.

JEL Classification Numbers: M3, M370

Keywords: in-school marketing, school commercialism, school best practice principles.

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SOCIAL SCIENCES
EFFECTS OF URBANISM ON MALACOFAUNA (NITRA, SLOVAKIA)

Barbora Holienková¹, Zuzana Krumpálová²

Abstract: Recently, the number of alien landscape species has dramatically increased, and this could be a serious threat, not only for native species but also in cases of outbreaks for farmers. Our objective was to examine the impact of the urban environment (positive or negative) on the diversity of native species; forecast biotic homogenization or diversification of urban fauna; and determine the extent to which each of the zones are affected by invasive species. To examine the effect of urbanization, we selected 16 areas (across three urban zones and one zone in the protected area for comparison) for this study in 2015 in Nitra. We found that snails in open locations had significantly greater species diversity and abundance of individuals than in closed locations. Slightly degraded areas had the most abundant snail species, but areas heavily disturbed had high species diversity and incidence of individuals. It appears that heavily disturbed areas are suitable as new types of refuge for snails, e.g., for *Helix lucorum* (Linnaeus, 1758), which was recorded in Slovakia for the first time (numerically recorded at the railway station) in 2014.

UDC Classification: 591

Keywords: urbanism, molluscs, *Helix lucorum*, invasion.

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ADAPTATION TO THE INFORMATION SOCIETY OF PEOPLE WITH DISABILITIES IN SLOVAKIA

Anna Ondrejková

Abstract: The information and communication technology (ICT) is an important phenomenon of contemporary society, in particular in developed countries. The massive use of ICT has created an information society. Changes caused by the increasing importance of information and ICT are not only technological or economic, but are social, directly affecting the lives of citizens. The ICT usage offers a great opportunity for people with disabilities. Important factors for enhancing quality of life for this part of the population include mapping the current state and the increasing level of digital literacy. The aim of this paper is to view digital literacy in the context of social and digital integration for people with disabilities in the society of the Slovak Republic and especially present results of social research in digital literacy of this minority in Slovakia. The study involves a quantitative type of social research. The techniques of data collection for the research included an electronic questionnaire form. The technology for developing the questionnaire involved Google forms. The results of this research show how people with disabilities could adapt to the information society.

JEL Classification Numbers: O330, J24

UDC Classification: 308

Keywords: digital literacy, the information and communication technology, people with disabilities.

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SHOULD WE INCLUDE TERMS IN READABILITY FORMULAS OF SLAVONIC TEXTS?

Ivana Škorecová¹, Aba Teleki², Ľubomír Zelenický³

Abstract: In this article we show how readability depends on the number of terms. We compare two different physical-didactical texts. We explain what readability means and how readability of some didactical text can be checked. We will analyze texts of natural science. First, we use an eye tracker for measuring the time to read long terms average sized terms, and words that are not terms. We perform a cloze test. A comparison of results defined a variable of the readability formula of Slavonic physical texts.

UDC Classification: 37.02

Keywords: readability, cloze test, school book, eye tracker, term.

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THE POSSIBILITIES OF USING BLENDED LEARNING IN FIRE SAFETY EDUCATION

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Abstract: E-learning is way of providing, rapid and adequate response for training in legislative changes and requirements. This is vital, because such changes are frequent in safety education and specifically fire-safety education. It is an enormous burden for schools and training centers to provide all such learning. Money, time saving, and simplification are the main reason to use a “blended” learning. This paper characterizes the advantages and disadvantages of education through the Internet. It deals with the possibilities and ways of using a blended learning approach in selected forms of fire-safety education.

UDC Classification: 001, 004

Keywords: blended learning, fire safety education, possibilities and ways of using blended learning.

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CULTURAL HISTORICAL ACTIVITY THEORY: EXPLORING PRINCIPALS’ INSTRUCTIONAL LEADERSHIP

Fulya Damla Kentli

Abstract: Instructional leadership activities are significant for school development. Although many researchers in this field consider leadership activities relating to the work of school principals, in effect, leadership is a network activity that includes all school staff. This study aims to show this interdependence network activity within Cultural Historical Activity Theory. The research question is “what are the activities of an instructional leader?” in order to understand instructional leadership activities in school from perspectives of Turkish graduate students and Cultural Historical Activity Theory. The answers are conceptualized within the framework of an Activity Theory. The students were asked to write about the activities of an instructional leader in the first and last course of the semester. Eighteen graduate students participated in this study.

UDC Classification: 378

Keywords: cultural historical activity theory, instructional leadership, principals.

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EDUCATION BY THEATRE PROJECT (2010 – 2014)  
Dagmar Inštitorsová ¹

Abstract: This article summarizes the almost four-year duration of the Vzdelávanie divadlom (Educating through the Theatre) project from 2010 to 2014, which was funded through European structural funds and based at the Faculty of Arts, Constantine the Philosopher University, in Nitra. This project was managed by the author. As part of the project, 27 workshops were held on historical and contemporary poetics in theatre and their application. There were 45 works published (28 monographs, 15 manuals, and 2 electronic publications) and 8 lectures, 1 colloquium, 1 international conference, and 3 school theatre productions. Eleven Slovak theatre companies were hosted and two theatre festivals supported. This article highlights the main aims of the project and its impact at a nationwide level.

UDC Classification: 378, 027.7, 7.06

Keywords: educating, the theatre, the project, the main aims, contents, the results.

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THE HIERARCHY AND TYPOLOGY OF FAMILY SOCIAL SUPPORT NETWORKS AND THEIR IMPLICATIONS FOR SOCIAL SERVICES

Ivana Loučková¹, Alice Gojová²

Abstract: This article examines the importance of family social support networks and their implications for social services. Social support networks are a significant factor in effective assistance to families. This research uses an integrated strategy and factor analysis to identify stakeholders of social support services and the extent in which these services are considered important by families in terms of solving their problems. Our findings show that assistance to families is expected in three levels. The first involves direct interpersonal relationships (between family members and friends) and when this level fails, the network of professionals and experts is the next provider. An effective network of support services to families “stands and falls” with active family relationships. Where family relationships are absent or dysfunctional, they are compensated by second and third levels of this support. In a developed network of support services, social workers should have tools available to support all three levels. In view of these findings, a trend emphasizing approaches in favor of families solving their own problems rather than professional dominance of such is worth investigating.

UDC Classification: 354

Keywords: social networks, family, social services.

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A DIDACTIC PERSPECTIVE ON THE FALSE TREATY OF MANIPULATION – WRITTEN BY ANA BLANDIANA

Florina - Irina Dima¹

Abstract: The present paper aims to underline the important role of introducing contemporary reading of autobiographical texts in high-school literature classes in Romania. It mentions the concepts of Shah Saria, Debra Edwards, and Linda Andersen, and the definitions of autobiography by Philippe Lejeune, Isabel Duran, and Karl Weintraub. For demonstration, it examines the text of the Romanian writer Ana Blandiana (a pseudonym of Otilia Valeria Coman), namely the False Treaty of Manipulation, published in 2013. The didactic generosity of this book is demonstrated with mention of the thematic stratification and uniqueness of the text, and by discussing the textual reference to the Romanian contemporary history, the connections between topics within the book, and how these might serve the interest and preparedness of teenagers for their adult life. The didactic approach of the book content involves extra-, inter-, and across-textual questions, as well as detailed passages, themes, and secondary themes relevant to the study of autobiography.

UDC Classification: 37.02

Keywords: autobiography, high-school pupil, manipulation, inter-disciplinary study, didactics, memory.

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YOUNGSTER’S ATTITUDES TO SCHOOL-BASED PREVENTION PROGRAMS FOCUSED ON DRUG ABUSE PREVENTION

Barbora Odraskova¹, Michal Kozubik², Lukas Odraska³

Abstract: This paper focuses on primary prevention of drug addiction, in particular the primary prevention programs implemented in school environments. It contains the results of a quantitative research conducted using a non-standardized questionnaire method. The study objective was to identify differences in attitudes of a group of pupils towards the issue of drug addiction before and after they completed the school-based prevention program. The study found that after completing the school-based prevention program there was improvement in attitudes towards the issue of drug addiction in the specific group of pupils. The number of appropriate answers to the question “Alcohol makes people happy” increased by 18.82%; respondents (62.70%) disagreed that they would adapt themselves if their opinion differed to the majority. The number of positive answers to the question “Smoking is addictive” increased by 13.66%; the number of positive answers to the question “Drinking alcohol is harmful” increased by 24.93%; and all respondents agreed with the statement that smoking threatens health.

UDC Classification: 314/316

Keywords: prevention programs, drug addiction, primary prevention.

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SHAPING SWIFT’S EXPRESSIVENESS THROUGH THE TRANSLATION OF HIS METAPHORS IN ALBANIAN LANGUAGE

Alma Karasaliu

Abstract: Metaphors have become the focus of a wide variety of discussions in the field of translation theory and practice. They are important rhetorical devices with cognitive function that have been thoroughly studied and considered important by various scholars. Taking into consideration the difficulties implied with identifying and translating such devices, this article aims to identify the procedures employed in translating some of the metaphors present in “A Tale of a Tub” and “Gulliver’s Travels”, two of the most prominent satires of Jonathan Swift. In this context, based on the translation procedures suggested by Raymond van den Broeck, special attention is given to the formal characteristics and efficiency of the relevant devices in the target language and the degree to which the originality of the message intended by the author in the source language is conserved and conveyed in the target language, with focus on the culture compatibility between both target and source languages. Finally, the high level of naturalness and presence of various translation procedures employed in the conveyance of metaphors in both works is stated, emphasizing the use of an additional approach, not mentioned in either the procedures suggested by van den Broeck or those suggested by Newmark.

UDC Classification: 81’25

Keywords: translation procedures, cultural differences, naturalness, adaptation.

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THE IMPORTANCE OF ELEMENTS OF ACTIVE LISTENING IN DIDACTIC COMMUNICATION: A STUDENT’S PERSPECTIVE

Flavia Mălureanu¹, Luiza Enachi-Vasluianu²

Abstract: Active listening is a core element of efficient communication, in general, and didactic communication, in particular. Proper listening improves communication, raises the level of comprehension and knowledge, and increases efficiency in everyday activities. In school, active listening is the key to sustaining the development of a student’s communication competence, with direct and indirect repercussions on the quality of the learning process. Hence, it is important for students to acknowledge the indicators of efficient listening and establish their relevance in the act of didactic communication according to key criteria. Thus, our paper focuses on active listening from a students’ perspective. The objectives of the research are to identify indicators of active listening, based on specific literature, and descriptively analyze the data in order to provide teachers and students with representative information concerning an efficient realization of didactic communication.

UDC Classification: 378

Keywords: communication, education, active listening, communication competence.

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MODERN LANGUAGE TRAINING METHODS AND THEIR APPLICATION IN CZECH AND SLOVAK BUSINESSES: A LITERATURE REVIEW

Adam Dékány¹

Abstract: This literature review outlines modern language-teaching methods used in the Czech Republic and Slovakia. It attempts to identify the current level of English proficiency in Slovakia and the Czech Republic. In addition, it aims to summarize modern methods of language teaching that became available with advent of information technologies. The review has three major parts. The first part examines the current level of English proficiency in Slovakia and the Czech Republic. The second part describes the commonly recognized language proficiency levels established by the Council of Europe. The last part of the review introduces some of the most recent language-training methods that have become widely available due to the development of IT in the last few years. The conclusion includes recommendations about the use of IT for language training. This paper provides an overview of the subject, focusing mainly on readers who are either new to the topic or looking for a simple overview of the present situation. Based on the findings, it can be concluded that the Czech Republic and Slovakia have an average level of English proficiency and at least nine modern teaching methods can be used to improve an individual’s language skills.

UDC Classification: 81’33

Keywords: education, language, training, method, English.

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FAIR TRADE AS A TOOL OF CORPORATE SOCIAL RESPONSIBILITY
Katarína Moravčíková¹, Elena Gregová²

Abstract: Fair Trade connects developed countries, where greater sustainability and justice is being sought, with the needs of developing countries where economic and social changes are needed most. It enables citizens who are consumers to favor the producers of poorer countries. This is a manifestation of humanity that helps producers to escape acute poverty and lead dignified lives. Fair trade is becoming a very “hot” topic, not only for businesses but also for consumers, who are trending towards buying Fair Trade products. By buying such products, customers express solidarity with the producers of Fair Trade products. This article aims to identify the importance of Fair Trade. Methods of analysis, synthesis, deduction, and comparison are used to establish the current situation of Fair Trade in Slovakia and the Czech Republic, as well as the perception of Fair Trade held by Czech and Slovak customers.

JEL Classification Numbers: M14, M31, M39

Keywords: fair trade, corporate social responsibility, customer, product.

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ARTS BASED INITIATIVES AS A HOLISTIC SOLUTION IN BUSINESS EDUCATION

Jeļena Maleško¹, Olga Tjurdju²

Abstract: Global economic changes have caused employers to look for multidisciplinary and value-driven leaders who can provide a holistic development solution for business. Modern business institutions are challenged with a paradigm shift towards programs of integrity in applying student-centered holistic approaches in the acquisition and development of cross-disciplinary using reflective learning. This study explores the holistic effects and arts-based value of practices, integrated into business education for personal and professional students’ development. Methods include a long-term research (3-years) involving focus groups, interviews, questionnaires, and observations that coincided with a theoretical analysis of conventional methods applicable to business education. Results show that arts based initiatives (ABIs) foster integrated development of skills that generate a strong holistic effect of multi- and inter-disciplinary. These are combined with powerful personal development, as ascertained in 360-degree reviews. It is concluded that an individual’s transformation, achieved through ABIs, can impact on team dynamics as well as the organizational strategy and performance, and generates a ‘spill-over effect’ between individual, team, organization, and community, thus ascertaining the value of holistic approach in business education.

UDC Classification: 3.378

Keywords: holism, ABIs, inter-disciplinary, business education.

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ALBA IULIA-LUMEA NOUĂ SITE (ROMANIA): HISTORICAL EVOLUTION FROM NEOLITHIC SETTLEMENT TO A MODERN RECREATION AREA

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Abstract: This article highlights the archaeological and geographical importance of the Alba Iulia-Lumea Nouă settlement and its functional development throughout history. Situated in a millenary city, the settlement displays obvious traces of the contribution of the civilizations that transformed and adapted the local geographical features according to their constant changing needs. Prehistoric and modern elements from painted pottery and the distinctive mortuary practices of various Neolithic and Eneolithic cultures, the 18th and 19th century military plans, together with Arthur Bach’s collection of photos illustrating a 20th century park, reveal the true value of this site. Drawing on these resources, we present a historical landscape analysis of the Neolithic to Modern Ages in the context of cultural change.

UDC Classification: 94(3/9)

Keywords: Alba Iulia-Lumea Nouă, prehistoric archaeology, landscape, modern garden.

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SEARCHING FOR WAYS OF IMPROVING TEENAGERS’ TOLERANCE: DETERMINATION BY MULTIERTHNIC ENVIRONMENT

Tatiana Voronchenko¹, Nina Vinogradova²

Abstract: The coexistence of people of different cultures within a state, as a consequence of mass migration, has created an urgent need to identify ways to promote effective interethnic dialogue and harmonic social relationships. This study examines the problem exemplified in the multiethnic Transbaikal region of the Russian Federation, where more than one hundred nationalities cohabit. The paper illuminates the notion of tolerance, and interprets an array of sociological data to analyze the level of teenagers’ tolerance in a multiethnic environment. Methods of study include a research survey, correlation analysis, and a systematic approach to interpreting results. Modern education systems require institutions to be competent in providing conditions for the formation of tolerance as a quality in a teenager’s personality. The results of this research show that a multiethnic environment provides an effective context for a teenager to form and improve tolerance through interethnic dialogue, and that special pedagogical strategies in educational institutions could contribute to improving cultural awareness and peaceful coexistence.

UDC Classification: 37.04

Keywords: teenagers’ education, teenagers’ tolerance, ethnopedagogy, multiethnic environment, ethno-contact.

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DEFINING CRITERIA FOR EVALUATING CULTURAL AND DIALOGIC DEVELOPMENT OF BILINGUAL PRESCHOOLERS

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Abstract: This paper examines an issue of cultural and dialogical development of bilingual children. The preschooler period is an essential time for learning a second language and forming ethnical and cultural components of education. The need for bicultural and bilingual education is urgent and vivid in Transbaikal Siberia region of Russian Federation as it is a multinational territory. Russian is the official language, and numerous members of the indigenous group of Buryat speak Buryat (minority) language. The study focuses on the Transbaikal Agin-Buryat preschooler institutions. Linguistic, cultural, and person-oriented approaches are used. The authors discuss criteria for evaluating cultural and dialogic development of bilingual preschoolers, taking into consideration that such a process is determined by a child’s identification of self in social relations and his or her ability to construct interactive dialogue using native and non-native languages. The study shows that cultural and dialogic development of a preschooler can be successful in a bilingual educational environment.

UDC Classification: 376

Keywords: cultural and dialogic development; bilingual preschoolers; bilingual educational environment.

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THE CAUSES OF LOSING TRUST IN THE GOVERNMENT IN RECENT YEARS IN ALBANIA

Anisa Proda\textsuperscript{1}

Abstract: As the last country in Europe to overthrow the communist regime, Albania has much to achieve in the legal system to build a full democracy. A government should be relied upon to create the necessary reforms to move a country out of transition. The governmental structure can either accelerate or prevent the country’s transition towards a market economy. The other pillar of society that reflects institutional performance is the country’s citizens. Trust is a factor that connects citizens with institutions. The main purpose of this research is to identify causes for citizens to lose their confidence in public institutions. The analysis, supported by quantitative data, aims to show the level of trust that citizens bestow to the most important Albanian public institutions. An Institution for Democracy and Mediation poll and this study’s results of meetings with focus groups were used to illustrate the public’s confidence in the governmental institutions, and to explore the causes of the citizen’s attitude towards the public institutions and their service in Albania.

UDC Classification: 323.2

Keywords: trust, government, citizens, institutions, social capital.

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RELATIVE CLAUSES FROM ENGLISH TO ALBANIAN
Suela Koça¹, Vasilika Pojani²

Abstract: This paper aims to describe the use of relative clauses in English and Albanian by comparing different clause types. Some theoretical issues addressed in this article include the definition of relative clauses, the relativized elements, and the use of relative pronouns and adverbs in both languages. Distinctions and similarities are identified by analyzing the way in which these clauses are translated from English into Albanian. The theoretical part is illustrated by examples extracted from “Animal Farm” by George Orwell and “Pride and Prejudice” by Jane Austin, and their translated versions in Albanian, “Ferma e Kafshëve” and “Krenari dhe Paragjykime”.

The issues treated in this article (either theoretical or practical) may be helpful to Albanian students learning English as a second language. By comparing English examples with their Albanian translations these students may understand and contrast several types of clauses to draw similarities and distinctions.

UDC Classification: 81'3

Keywords: relative clauses, comparison, translation, English, Albanian.

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INNOVATIVE TRENDS IN GEOGRAPHY FOR PUPILS WITH MILD INTELLECTUAL DISABILITY

Monika Šulovská¹, Alica Vančová²

Abstract: This contribution focuses on applying Google Maps in educating pupils with mild intellectual disability. To achieve this, we design and submit an evaluation tool for measuring the pupils’ skills in the Google Maps environment, inspired by Bloom digital taxonomy. We also assess the level of achieved skills of pupils with mild intellectual disability by comparing mapping with other variables in the geographic competences area. The study focuses on the result of research carried out within the VEGA no. 1/0789/14 project. The study also identifies the positive effect of a geographical information system (GIS) on the learning of intact pupils. To the surprise of the authors, the portal of Google Maps appealed to these participants to the extent that they continued to use it for self-study at their homes.

JEL Classification Numbers: I210

UDC Classification: 376

Keywords: pupils with mild intellectual disability, geography education, Google maps.

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PUBLIC FUNDING OF CIVIL SOCIETY ORGANIZATIONS IN LATIN AMERICA:
HOW DO WE EVALUATE PROFITABILITY?

Stephen John Beaumont1

Abstract: For Latin American states, it is common practice to channel public funds to Civil Society Organizations (CSOs) to meet various social needs. However, the impact of this investment is not well understood. There is a need for a deeper knowledge of the issues, such as the components that are being financed and how CSOs use the resources. Also, a better understanding of the impact on the individual beneficiaries of the CSOs is necessary. These issues need resolving to move towards optimizing the use of State resources for the common benefit of society. The main hypothesis of this study is that, although the State generally invests a large amount of funding into CSOs, this funding is inefficiently distributed. A more efficient State funding for CSOs, in terms of positive social impact, would make these organizations more socially profitable.

JEL Classification Numbers: H25, M89, I01

Keywords: civil society organizations, state funding, social profitability.

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INTEGRATION IN LATVIA: FLOWS AND EBBS IN NATIONAL AND EUROPEAN CONTEXT

Juris Rozenvalds

Abstract: Russian-speaking communities in the member states of the European Union (EU), especially the Baltic States and Germany, have earned special attention, in recent years, as subjects of important integration policies, on one hand, and the main targets of Russia’s propagandist efforts, on the other. Because a significant part of Russian-speaking communities accepted these efforts, questions were raised concerning the effectiveness of previous integration policies to strengthen the national identity and invoke a feeling of political togetherness. Thus the factors fostering and triggering integration and the relations between civic and ethnocultural components of integration are of wide interest. This paper presents a case study of Latvia, as a country with the highest share of Russian-speaking citizens among the EU member states and a clear prevalence of ethnocultural components in its integration policies in recent years. The study examines the successes and failures of the integration policies of Latvia during the last twenty-five years, using mainly direct observations and sociological data collected during the last twenty years. The results show that language knowledge, citizenship status, and socioeconomic conditions play an important role in integration. In addition, these factors appear more effective with development of inclusive political practices and civil society structures, cooperative discourse, and facilitation of mutual trust between ethnolinguistic communities.

UDC Classification: 323.1

Keywords: integration, Russian-speakers, inclusive politics, cooperative discourse.

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ABOUT SOME SOCIAL AND HEALTH PROBLEMS OF PERSONS, SEEKING INTERNATIONAL PROTECTION ON THE TERRITORY OF THE REPUBLIC OF BULGARIA

Hristina Milcheva¹, Albena Andova², Mariya Dimova³

Abstract: The influx of migrants to European countries, including the Republic of Bulgaria, is constantly increasing from regions experiencing military conflicts and countries that are economically undeveloped. At present, the Republic of Bulgaria is regarded by asylum seekers as a transit state on their route to the economically developed European countries. The people seeking asylum in the European Union have different sociocultural, ethnical, religious, and health cultures. These differences make their adaptation to their new environment difficult and the situation creates economic, social, and health problems for the accepting countries. The enforcement of uniform European standards and laws for social and health integration of migrants facilitates the process and protects the local people from infectious diseases and social-economic problems. The analysis of documents of the European Union, from international and Bulgarian organizations, shows policies have been developed to guarantee the rights of individuals, seeking protection. A major issue for the successful adaptation of migrants is their unwillingness to observe the laws and regulations of the countries where they settle.

UDC Classification: 614.1

Keywords: migration, asylum seekers, social problems, health problems.

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MODELS OF STRUCTURES IN DIDACTICS

Stefan Niewitecki

Abstract: The final aim of teaching students subjects, such as structural mechanics, reinforced concrete, and steel structures is to teach them how structures work in a given building as well as to provide them with skills enabling them to calculate and design structures. The behavioral model of the structure, contrary to the architectural model, which focuses mainly on the external form of the building, shows workings from both the static and dynamic points of view (e.g., the influence of the wind load, dead loads, and imposed loads). A series of fifteen behavioral models constructed of organic glass (poly-methyl methacrylate, also called Plexiglas® or metaplex) was built for didactic purposes for the academic staff of the Department of the Technical Fundamentals of Architectural Design at the University of Technology in Gdansk. This article presents the characteristics of these models, as well as their application in didactics. The usage of the models in specific educational subjects at the Department of the Technical Fundamentals of Architectural Design has been adopted as a classification criterion.

UDC Classification: 377

Keywords: didactics of architecture, structures, models of structure, architectural models.

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FACTORS AFFECTING THE CHOICE OF HIGHER EDUCATION INSTITUTIONS BY PROSPECTIVE STUDENTS IN LATVIA

Nadezda Rika¹, Jana Roze², Irina Sennikova³

Abstract: Because of increasing competition among Latvian higher education institutions (HEIs), the administrators of these institutions are becoming increasingly interested in understanding how their potential students choose their institution. Comprehensive knowledge of consumer behavior allows institutions to become more effective at making good strategic marketing decisions and to better respond to customers’ needs. The purpose of this study is to understand what factors affect the decision of secondary school leavers in choosing a particular higher education provider and the variables that might predict a student’s choice. The research is based on data collected by the means of a survey distributed among final year students of Latvian secondary schools, with 644 responses analyzed using Spearman correlation and stepwise regression analysis. Analysis of four major groups of factors: cultural, social, psychological, and organizational, revealed that psychological and organizational factors are the best predictors of the choice of HEI. These explained 48% of the variance of the dependent variable (R² = 0.48; F (1; 641) = 293.46; p < 0.001). The results provide details of the factors with great importance to young people of Latvia in choosing their higher education provider. The HEI can use these factors for designing various student attraction strategies, and thus increase their market share and competitiveness.

JEL Classification Numbers: I23

Keywords: Higher education, HEIs, students’ choice, Latvia.

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Abstract: Risks arise during municipal planning activities, the negative impacts of which can influence the lives of local residents. The importance of municipal planning lies in the proposed material and the coordination and timing of activities influencing the environment, cultural-historical values of an area, territorial development, and creation of landscapes in line with principles of long-term sustainable development. By implementing risk management with an emphasis on objectively selecting and assessing risks in the preparation and creation of a municipal plan, an increase in the safety of the territory as a whole is expected. Municipal planning authorities project specific intentions for an area, while coordinating the public’s interest. The results of our qualitative assessment of selected risks identified those that were most significant when creating a municipal plan and which require foremost consideration.

JEL Classification Numbers: H12, R14

Keywords: municipal plan, risk, assessment, QRAC.
ANALYSIS OF EMERGENCY EVENTS IN THE REGIONS (NUTS 3)
OF THE SLOVAK REPUBLIC

Tomáš Pavlenko¹, Veronika Mitašová², Ján Havko³

Abstract: The Slovak Republic is threatened by many risks, mainly of natural or social nature. Their existence constantly affects Slovakia’s security environment. Consequences of emergency events negatively threaten life, health, and the property of citizens, and also the environment and cultural heritage of the country. This article provides an overview of emergency events in the Slovak Republic. The main purpose of the paper is to identify the foremost kind of emergency events threatening regions of the Slovak Republic. Findings and conclusions are based mainly on historical data and statistics.

JEL Classification Numbers: H12, R14

Keywords: security, emergency event, flood, landslide, accident.

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INTRODUCING GRAMMAR LEARNING STRATEGIES IN A2 AND B1 CLASSES OF ENGLISH AS A FOREIGN LANGUAGE: AN ALBANIAN CASE STUDY

Benita Stavre¹, Anxhela Pashko²

Abstract: The issue of learning strategies remains a complicated matter in the field of teaching English as a Foreign Language (EFL). Although the research has been intensive in the last twenty-five years, it is difficult to draw teaching strategies that fit learning contexts that vary greatly due to particular features of the learner. Furthermore, regarding grammar, teachers are even more convinced that it is their primary duty to lead and monitor the acquisition process in the classroom. The case of schools in Albania, where English is taught as a foreign language, shows that pupils who do well in proficiency tests, do not perform adequately in oral communication for the same grammatical knowledge. This paper aims to introduce a range of available grammar learning strategies for learners of EFL to use in the A2 and B1 levels. The material is accompanied by concrete examples of how grammar learning strategies can be included in lesson plans, based on textbook material. The aim is to render interested readers the awareness of the possible need to increase communicative grammar proficiency in learners of EFL by increasing their awareness of the range of means available to create long-lasting associations between the theory, acquisition, and correct usage of grammar. The earlier the attempts to create independent grammar learners, the sooner the opportunity exists for these learners to reach native-like grammar proficiency.

UDC Classification: 37.04

Keywords: grammar learning strategies, course book, learning outcomes.

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INTERNATIONAL LEGAL COOPERATION IN SPHERES OF CULTURE – IMPORTANT PART OF INTERNATIONAL RELATIONS

Nuriddin Mamajonov

Abstract: This paper assesses the cultural and humanitarian spheres of the Republic of Uzbekistan in regards to International legal cooperation. The paper examines the influence of cultural and humanitarian spheres in international relations of the states, including Uzbekistan. The paper also contains a discussion of the, increasing role of Uzbekistan in the ‘culture factor’ in international politics. The legal base of the Republic of Uzbekistan, international legal documents, and the research works of domestic and foreign scholars, in areas such as culture, education, science, tourism, and medical science, provide the basis for the research.

JEL Classification Numbers: K33

Keywords: Law, Politic, Culture, humanitarian, relations, cooperation, development, globalization, agreement, international, research, multilateral, bilateral, analysis.

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TURKEY BETWEEN SECULARIZATION AND PIETISM
Taha Niyazi Karaca¹

Abstract: In Turkey, the secularization process has continued for over two hundred years without a successful conclusion. While part of the administrative group demands secularization, the other rigorously objects to this process. The main problem examined by this study is the conflict between these two groups. The core factors against secularization and the philosophical, juridical, and religious reasons influencing the process are discussed. The study focuses on past examples to analyze the secularization process. The study examines the main patterns in the process, starting with reflections on Nizam-ı Alem (Order of Universe), the philosophy of the foundation of Ottoman Empire, and the invariance principle. It continues with conclusions of the imperial edict of Gulhane (Tanzimat Fermani); then discussions on differences of civilization and culture in Turkey; and finally Mustafa Kemal Ataturk’s beliefs on unique civilization and secularization. As a result, this paper presents the main problems of secularization in today’s Turkey.

UDC Classification: 304

Keywords: secularism, Turkey, ottoman, pietism, order of universe, Ataturk’s reforms.

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ECO-TRAILS – AN OPPORTUNITY FOR LEARNING OUTDOORS CLOSE TO NATURE

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Abstract: Acquiring key competences is a priority in contemporary education. According to some authors, eco-trails provide an opportunity for training in natural ecosystems. The purpose of this study is to examine the capabilities of a constructivist design for learning that is close to nature with respect to acquiring practical knowledge, motivation, and formation of environmental competencies in students. To verify this assumption, the following methods were applied: curricula analyses of teaching biology in secondary schools (Grades 5–8, Ministry of Education and Science of Bulgaria) and high schools (Grades 9–10, Ministry of Education and Science of Bulgaria), and pedagogical experiments and surveys among students for approbation of a model for environmental education that is close to nature. A syllabus for selectable (optional) training on ecological topics was developed. A model of ecological training, “close to nature”, was devised through the constructivist design and active approach, and in approbation of the model, students acquired practical knowledge, formed environmental competencies, and an increase in their motivation to protect the ecological balance.

UDC Classifications: 57.08

Keywords: eco-trails, experiential, education, syllabus.

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HUMOR STYLES IN SOCIA LiALLY MALADJUSTED GIRLS AND BOYS: A RESILIENCE PERSPECTIVE

Anna Karłyk-Ćwik

Abstract: Resilience-concept-driven research of humor in socially maladjusted youth has been prompted by an urgent need to redefine Poland’s crisis-ridden rehabilitation system, through embracing rehabilitative theories and practices inspired by new frameworks and related modern intervention models. The paper presents a research project aimed at encouraging rehabilitation researchers, theoreticians, and practitioners to engage with humor as a “site of resistance” that offers juveniles a springboard to achieve expected levels of social adjustment. The study aims to identify and compare humor styles in socially maladjusted girls ($n_1 = 56$) and boys ($n_2 = 72$). The research problem included the level (intensity) and gender-related differences in particular humor types (styles) across the juvenile sample. The research tool involved an adaption of the Humor Styles Questionnaire (HSQ). The findings suggest a greater intensity of adaptive rather than non-adaptive humor styles in both studied subsets of the sample. Furthermore, a statistically significant gender-related difference was found for self-defeating humor, with significantly higher scores in girls than in boys ($p < 0.05$). Although the findings do not confirm the research hypotheses conclusively, they shed light on the viability of using humor in juvenile rehabilitation and thus, encourage further systematic research in this area.

UDC Classification: 376

Keywords: humor styles, concept of resilience, rehabilitation of juvenile.

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ROMANIA VERSUS BULGARIA: A SHORT ANALYSIS OF THE COMPETITIVENESS OF SEASIDE TOURISM

Mihai Costea¹, Cristian-Valentin Hapenciuc², Gabriela Arionesei³

Abstract: This research compares tourism competitiveness of two neighboring countries, Romania and Bulgaria, which have many similarities economically as well as from a geopolitical and historical perspective. Despite these similarities, immediately after the 1990s, which marked the fall of the communist regime, the tourism phenomenon in the two countries had divergent evolutions. As the tourism industry in Bulgaria, especially its seaside tourism, underwent unprecedented development, the tourism activity in Romania systematically lost its competitiveness. The factors affecting the appearance and increase of such a difference are of interest to the Romanian seaside tourism. To generate the answer to this problem, we perform a series of comparative analyses with data from the World Economic Forum, in terms of the Travel and Tourism Competitiveness Report (2011-2015), the National Authority for Tourism of Romania, and the National Institute of Statistics from Romania and Bulgaria. We identified a series of constitutive elements relating to the success of the Bulgarian seaside tourism and a sequence of deficiencies in the strategic and organizational maneuvers of the tourism activity at the Romanian seaside.

JEL Classification Numbers: L83, P52

Keywords: Romania, Bulgaria, tourism competitiveness, Romanian seaside, Bulgarian seaside.

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PERCEIVED PARENTING STYLES AND SCHOOL ANXIETY IN PREADOLESCENTS

Simona Butnaru

Abstract: The goal of this study was to test the relationship between perceived authoritative, authoritarian and permissive parenting styles and school anxiety (anxiety about aggression, about social evaluation and about school failure). A Romanian sample of 182 students (93 girls), enrolled in 5th to 8th grade in two secondary schools from rural areas, completed self-report measures assessing school anxiety and perception of parenting styles. Results indicated a predominance of authoritative parenting style and a moderate level of school anxiety. The highest mean score in school anxiety was in school failure. Gender differences were found in school anxiety, but not in parenting styles. Grade level differences were found in anxiety about school failure and in perceived parenting styles. Preadolescents whose parents expressed prevailing authoritarian and permissive styles had higher levels of school anxiety. Gender differences were found for the relationship between parenting styles and school anxiety. Implications of results in parental education field are discussed.

UDC Classification: 37.06

Keywords: school anxiety, parenting styles.
VIOLENCE IN PARTNERSHIP AND PERSISTING PROBLEMS OF ASSISTANCE

Hermína Mareková¹

Abstract: The article focuses on an attempt to answer questions concerning domestic violence in accordance with the epistemology in contemporary scientific research. The phenomenology of violence is defined with respect to the superficial as well as the essential side of the phenomena. The problems are covered with respect to interdisciplinary relations. We endeavor to open a broader view. The underlying research represents an alternative approach, attempting to reach a cumulative view based on the data acquired from various contexts. In social science research, it is important to look at the social reality not only through the numbers of quantitative research, because social reality is constructed in various ways. The issues of elimination of violence against women in Slovakia are entrenched in the program of various institutions. Based on the performed analysis, inconsistencies in the approach to providing assistance are identified as the most important problem. The paper deals with the institutional issues persisting in dealing with situations and identifies the fundamental failures of social intervention that still exist, among other reasons, due to the stereotypical, discriminatory perceptions of the issues by the competent.

UDC Classification: 305-055.2

Keyword: gender-based violence, abuse, competencies, legislation, reporting.

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THE PECULIARITIES OF SOCIAL PERCEPTION IN THE CONTEXT OF INFORMATION-PSYCHOLOGICAL WARFARE

Nane Zeynalyan

Abstract: In the recent decades, war fields have moved into the information sphere. Today’s person has reason to “be informed”; as having information provides a sense of security. In the modern world, great effort is invested in expanding information sources, because it serves to articulate both international policies and the context of wars. The exchange of information in domestic and international platforms influences the quality of public debate and ideology, which affects social attitudes and decision-making processes. This article presents the role of information-psychological warfare as a factor in forming public opinion. It discusses the peculiarities of organizing an information-psychological warfare during military conflicts. The goal of our research is to explore how social groups might perceive peculiarities in the information-psychological warfare. The research involves methods of survey, content analysis, and free associations. The effectiveness of psychological warfare significantly depends on how people perceive information. Consequently, in the contemporary world, it is necessary to not only protect or fight on the battlefield, but also to use information weapons. This imposes requirements on psychological scientists to explore peculiarities around the perception of information to help find mechanisms that safeguard people’s lives by way of contributing to the formation of necessary attitudes and stereotypes.

UDC Classification: 316.6, 305-055.2

Keywords: social perception, public opinion, psychological operations.

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LAND USE INDICES FROM SMMS DATA IN WESTERN THAILAND

Uten Thongtip¹

Abstract: This applied research was conducted by employing both quantitative and qualitative innovative research methods. This research investigates the satellite data of four spectral bands sent from the Small Multi-Mission Satellite (SMMS). Each band was analyzed to create color composition indices of the western areas of Thailand. Band 1 had a wavelength between 0.43 and 0.52 micrometers, Band 2 between 0.52 and 0.60 micrometers, Band 3 between 0.63 and 0.69 micrometers, and Band 4 between 0.76 and 0.90 micrometers. Three layers of satellite data were overlaid in non-repeating arrangements. Bands showing grayscale were substituted by three additive primary colors of blue, green, and red. The arrangements were permuted into 24 indices: 123, 124, 132, 134, 142, 143, 213, 214, 231, 234, 241, 243, 312, 314, 321, 324, 341, 342, 412, 413, 421, 423, 431, and 432. The data of color composition indices were then analyzed to create the land-use indices. The visual interpretation of the three levels of land-use classification were used in this procedure. The result was a land-use classification with 15 indices: City, Commercial, and Services; Airport; Golf Course; Paddy Field; Field Crop; Perennial; Aquacultural Land; Shrimp Farm; Evergreen Forest; Deciduous Forest; Mangrove Forest; Marine; River; Canal; Reservoir; and Road.

UDC Classification: 910.1

Keywords: color composition index, land-use index, SMMS data.

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AN AMICABLE AGREEMENT OR ANOTHER FORM OF DEBT RESTRUCTURING IN INSOLVENCY PROCEDURE FOR INDIVIDUALS IN LATVIA

Renata Konopecka¹

Abstract: The goal of this article is to explore the features of using insolvency proceedings in Latvia and to elaborate on special proposals for modernizing the laws. In the legislation, there has been no prospect from a legal perspective to restructure an individual’s debts. Namely, individuals have no opportunity to use legal protection within the framework of the insolvency proceedings to reach an amicable agreement with creditors, or create another form of debt restructuring. Eliminating this gap in legislation is therefore necessary.

In this article, analytical, comparative, historical and deductive methods are used to explore the legal norms that regulate the insolvency proceedings for an individual. The aim is to identify the distinctive features of the proceedings; to analyze the problematic aspects of laws and develop proposals for modernizing the legislation of Latvia in this field. The novelty of this research pertains to it being the first attempt in Latvia to examine the question of legal regulation of insolvency proceedings in complexity, with a practical proposal to improve Latvian legal norms and avoid bankruptcy problems. The outcome of this study includes a proposal to supplement the Act on Insolvency with the Article “Amicable Agreement”, for deciding upon the state of insolvency. This relates to an agreement between the creditors and the debtor to fulfill obligations before an auction of the debtor’s property.

UDC Classification: 347.9

Keywords: agreement, arrangement, bankruptcy, individual, insolvency, proceeding, legal, voluntary.

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THE IMPORTANCE OF CSR IMPLEMENTATION

Anna Křižanová¹, Ľubica Gajanová²

Abstract: The last three decades of the twentieth century and the beginning of the twenty-first century were marked by the expansion of managerial ethics and social responsibility of business. Business ceased to be perceived in terms of profit being the sole interest of management, and ethical aspects were stressed more so in connection with the company’s management. Specific managerial ethical initiatives and activities leading from outside and inside the organization constitutes the concept of Corporate Social Responsibility (CSR), which comprises many factors. The aim of this paper is to summarize the positive impact of corporate social responsibility for business activities using secondary data from global surveys and then confirm the importance and benefits of corporate social responsibility for enterprises in the Slovak Republic using primary data.

JEL Classification Numbers: M21

Keywords: corporate social responsibility, benefit, CSR implementation.

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TAXONOMIES OF PHYSICS PROBLEMS IN PHYSICS EDUCATION

Monika Hanáková¹, Daniel Kluvanec²

Abstract: Taxonomies of physics problems serve as useful tools to define and analyze the requirements of pupils and students in solving physics problems and tasks. The connection between taxonomies of educational objectives is important, and these were considered in selecting taxonomies of physics problems. Different approaches to classification are briefly described in this article, as well as the importance of a balance of physics problems in instruction, according to the selected taxonomy. Two taxonomies of physics problems were chosen according to our criteria and then analyzed and described in detail. A Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis was performed on the tools as well as an example of the use of the tools on a particular physics problem.

UDC Classification: 37.01/.02

Keywords: taxonomy, physics problem, physics task, physics education research.

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SCIENCE COMMUNICATION ROLE IN DEVELOPMENT OF COOPERATION BETWEEN UNIVERSITY AND INDUSTRY IN LATVIA

Justīne Vīķe

Abstract: Transfer of results of scientific research to society for discussion and consumption is nowadays one of scientists’ responsibilities. Along with the change of roles of scientific institutions, scientists have also become obliged to distribute results of scientific research, not only within their own community, but also to the part of society that does not consist of specialists in the respective field of research, and that consists of potential consumers of the results of scientific research, including industry as potential commercializers of the research result.

The objective of the research was the identification of factors affecting the transfer of results of scientific research to industry (commercialization of science) and the science communication process. Both secondary and primary data were used in the research. Primary data was acquired by semi-structured interviews with experts from industry, university and government.

Several factors affecting the commercialization of science have been identified in the situation of Latvia. There is no motivational system for scientists regarding the organization of science communication in Latvia, but the science communication role is essential for cooperation between university and industry.

UDC Classification: 316

Keywords: Science communication, commercialization, R&D, R&I, RRI, technology transfer.

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USER ADOPTION OF MANDATORY E-GOVERNMENT SYSTEMS: NOTARIAL SYSTEM IN ALBANIA, AN EMPIRICAL ANALYSE

Agim Kasaj1

Abstract: E-Government has high priority for governments worldwide, with much effort and money being invested into government digital initiatives. For such efforts to be worthy, a high rate of adoption of e-government is needed. Technology adoption is one of the most mature areas in information technology (IT) research and many adoption models have been developed for this purpose. Most studies in this field have been focused on voluntary use of systems and mainly from a business context, with minor emphasize on an e-government. A major distinction between technologies of e-government and other online technologies, is that the use of certain e-government technologies is mandatory, rather than voluntary. This paper provides a short introduction of e-government, followed by a review of the most well-known information technology (IT) adoption models at the individual level. Using previous research results, the study will identify the determinant constructs and their relationship for adoption of the digital notarial system of Albania. Finally, the paper proposes a theoretical framework for private professional adoption of mandatory e-government information systems.

UDC Classification: 658.3

Keywords: e-government, technology adoption, notarial system, Albania, mandatory use.

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THEORETICAL AND EMPIRICAL FOUNDATION FOR INTEGRATION OF LANGUAGE EDUCATION IN CLASSES OF OTHER DISCIPLINES

Daiva Jakavonytė-Staškuvienė1

Abstract: Recently, Lithuania and other European Union member states experienced a marked deterioration of pupils’ linguistic skills (especially reading and writing), according to data from the 2006 and 2011 Progress in International Reading Literacy Study. This article analyzes the possibilities of integrating the education of linguistic skills into classes of other disciplines, in terms of the planning and organization of integrated linguistic education, how to begin, and what to expect. To solve these issues, the experience of such matters in Switzerland was studied by analyzing the results of qualitative research.

UDC Classification: 37.02

Keywords: language, integration, discipline, didactics.

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EVALUATING BASIC EDUCATION CURRICULUM FROM A GENDER PERSPECTIVE: ADDRESSING GENDER STEREOTYPES IN ELEMENTARY SCHOOL TEXTBOOKS

Eriada Çela1

Abstract: Addressing gender-equality issues in education can foster enormous change in children’s lives. However, most textbooks in Albanian schools include gender stereotypes, which perpetuate gender inequality and unequal roles for men and women, both in public and private spheres. This research aims to identify and evaluate trends of gender stereotypes in textbooks, as well as the need for gender mainstreaming in basic education curriculum. The methodology is based on a desk review of textbooks from a gender perspective. The curriculum evaluation follows the context, input, process, and product (CIPP) model of evaluation, which mainly aims to assess the extent to which a certain education reform has generated positive change in schools.

UDC Classification: 305.3

Keywords: gender perspective, curriculum, evaluation, textbooks, stereotypes.

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WORK STRESS AND SUBJECTIVE/PSYCHOLOGICAL WELL-BEING OF EMPLOYEES OF STATE HOLDING COMPANY IN TIMES OF CHANGE

Solveiga Blumberga¹, Solvita Voronova²

Abstract: State Holding Company makes a number of improvements, followed by a process of changes each year. This study was conducted to understand how the changes in the company affect the employees working in it and how the employees deal with the stress caused by such changes. The purpose of the study was to investigate the links between personnel work stress, subjective and psychological well-being of employees during changes in State Holding Company. The research undertakes issues such as: the levels of employee stress and subjective well-being, the levels of employee psychological well-being, links, if any, between subjective and psychological well-being and work stress, and the methods used in the research study. The survey was created with reference to works of other authors such as “Professional Life Stress Scale”, “Life Satisfaction Scale” and “Psychological Well-being Survey”. It was concluded that the employees had medium levels of stress, medium levels of life satisfaction, and medium levels of overall psychological well-being. There are statistically significant links between subjective well-being, psychological well-being and work stress. Recommendations were prepared for the Human Resources Department to reduce stress levels of personnel working and successful management of changes.

UDC Classification: 159.9

Keywords: subjective, psychological well-being, work stress.

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THE CONCEPTUAL STRUCTURE OF PHYSICS TEXTBOOKS FOR SECONDARY SCHOOLS

Petra Králiková¹, Aba Teleki²

Abstract: Textbooks are an essential part of the learning process, therefore they need to be written in a way that is easy to understand. In real life, we often come across complex systems with scale invariant (power law) distributions, which display a surprising degree of tolerance against errors, i.e. degree of robustness. We are confident that knowledge organized in this manner is better for usage in textbooks and promotes easier learning as content would be more intelligible. Initially, we talk about the evolution of some networks, and then we deal with the differences between Poisson and scale invariant distribution in real networks. In conclusion, we are looking for connection between scale invariant distribution and Zipf’s law.

UDC Classification: 37.01.09

Keywords: textbooks of physics, net structure, scale invariant distribution.

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Abstract: Conflict as a social phenomenon has an important role in our lives, which is why it is so important to understand this phenomenon. That involves recognizing the mechanisms of emergence, development, methods of study and their resolution. The practice of social work and previous treatments with spouses shows that the marital relationship as an interpersonal relationship represents the specific basis for the emergence of conflicts. The obtained results are part of a study on the characteristics of marital relations and their influence on the choice of the spouses’ patterns of behavior during conflict situations. The results suggest that the choice of different strategies of behavior in a situation of conflict among our respondents mainly depends on: the degree of insistence in fulfillment of personal interests, and the level of cooperation in addressing the interests of others. As a dominant style in marital conflict resolution our respondents use the avoiding style. During the study, gender differences between spouses, how they perceive, understand, and resolve marriage conflicts were found. Women are more critical toward their abilities to resolve conflict. In such situations they often use negative behavior, compared to men who are more likely to deny or avoid situations of conflict. Marriages where violence involved are mainly based in destructive patterns of behavior in marital conflict resolution.

UDC Classification: 316.6

Keywords: marital conflicts, conflict resolution, gender, violence.

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A COMPARATIVE VIEW REGARDING THE TERRITORIAL-ADMINISTRATIVE REFORMS AND LOCAL GOVERNANCE IN POLAND AND CZECH REPUBLIC

Aurora Ndreu

Abstract: The purpose of this article is to file the administrative-territorial reforms, conducted by Poland and Czech Republic, in a comparative point of view. This study has been done conducted on unitary former communist countries such as Poland, Czech Republic and Croatia, which resemble Albania as a result of their past. Looking at the historical evolution of reforms in these countries with different local governance systems, and analysis of the latest developments will give us a deeper knowledge about the topic.

This comparison would address reforms of the political bodies of local government (such as those relating to political accountability and decision-making in local government), with regard to administrative structures, because only by looking at both sides of the currency of the local government can we get a complete picture of the changes and improvements to be made.

Comparison aims at providing knowledge about the terminology and concepts used in the comparison of countries and characteristics of each country in connection with the territorial administrative reforms carried out, followed by a reformation of the local government.

JEL Classification Numbers: K300

UDC Classification: 342’35

Keyword: territorial-administrative reform, local governance, Poland, Czech Republic, regionalization, recentralization.

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TEACHER’S ATTITUDE TOWARDS THE INCLUSION OF STUDENTS WITH DISABILITIES IN REGULAR SCHOOLS

Rovena Lika1

Abstract: The inclusion of children with disabilities in general schools depends on teachers and pupils. The aim of this study is to evaluate the teachers’ role in the inclusion of children with disabilities in general schools. Taking their role into consideration, we will be able to understand factors that influence the positive or negative attitude towards the inclusion of children with disabilities in general classrooms. 146 teachers participated in this study. The instrument used (created by Jeffrey Bailey) for data collection consisted on a self-reporting questionnaire divided into two sections. In the first section, demographic information from teachers is required. In the second section, teachers’ attitude towards the inclusion of children with disabilities in general schools is measured. According to the results: Teacher’s gender [t (144) = 0.503, P = 0.616] did not affect their attitudes towards the inclusion of children with disabilities in regular schools. Training on inclusive education [r = 0.75, n = 146 and p = 0.001] positively affected the attitudes of the teachers. It was concluded that development of trainings for teachers should be focused on because it creates professionals with knowledge of specific techniques.

UDC Classification: 377

Key words: teachers, attitude, role, children with disabilities.

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AN EFFECTIVE ENGLISH CLASS WITH APPROPRIATE TECHNIQUES AND STRATEGIES

Vahidije Kadiu¹, Tomi Treska²

Abstract: Teaching is considered to be one of the most important aspects for the future of the human beings. The fact that teaching is an art based on techniques and strategies is very important. The aim of this paper is to study the appropriate techniques and strategies for an effective English class. To achieve this, a survey was conducted at “Asim Vokshi secondary school. The main instrument used was a questionnaire. It was conducted on 70 students and 70 teachers. According to the results of the survey, many teachers believe that during an English class, different techniques and strategies should be included such as: cooperation, control of the class, and motivation. They also stressed the fact that four skills should be co-related for an effective class. The most important finding was related to the students. According to them, the best way to learn the English language was by writing.

UDC Classification: 373

Keywords: teacher’s role, activities, skills, strategies and techniques.

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MEDIA ARCHITECTURE AND INTERACTIVE ART INSTALLATIONS
STIMULATING HUMAN INVOLVEMENT AND ACTIVITIES IN PUBLIC SPACES
Katarzyna Urbanowicz¹, Lucyna Nyka²

Abstract: This paper examines the potential for media architecture and interactive art installations to stimulate human involvement and activities in public spaces. On the basis of theoretical approaches, case studies and interdisciplinary surveys, the paper provides insight into how screens projecting media and interactive installations in city spaces can inspire people to become active on many levels. The research is focused, both on temporary and permanent art installations, that support new technologies to encourage people to interact with art objects and become actors in an urban performance. Media and interactive art can positively contribute to the urban landscape, foster public involvement, increase intensity of public life, and effectively enhance the identity of urban communities. The paper shows that, despite this potential for media architecture and interactive art projects, specific pre-conditions are needed for their success in urban environments. The paper focuses on the convergence of scale between the intervention itself and the assumed urban strategy, as well as on the time allowed for individual perception and active participation of people in the particular urban art scenario. As the research shows, the promotion of art pieces, through guided tours of the city, tends to reduce the perception of the installations themselves and almost excludes social interactions. Thus, while not so spectacular in scale, image, or number of visits, modest interventions that involve locals and allow time for relationship building between people, could be most effective in reaching urban renewal objectives.

UDC Classification: 7.07

Keywords: interactive installations, media architecture, public space, social encounters.

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INTERACTION BETWEEN BIG DATA AND COMPETITION LAW IN DIGITAL SINGLE MARKET

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Abstract: Representatives of undertakings are familiar with the importance of carefully handling and protecting personal data. However, this does not lessen the importance of improving legislation regarding data management. Both the content and quantity of information have value and potentially determine the strength of the undertakings that can access such information. This influences the constant growth in demand to improve the legal framework. The consumers and institutions responsible for consumer protection are the main initiators and stakeholders of such demand. The constant growth in the amount of preserved data more sharply raises the questions about data protection. The potential risk raises proposals enabling a competition law in data protection. The article examines such possibility in the light of digital single market. This possibility is analyzed in the light of interaction between the data protection and competition law and covers trends on enabling competition law in data protection. To ensure proper data protection, cooperation among institutions should be encouraged.

UDC Classification: 342.7

Keywords: big data, information, competition enforcement, privacy, reform.

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COLLABORATION MODEL FOR ASEAN UNIVERSITY NETWORK: A CASE STUDY OF PHRANAKHON RAJABHAT UNIVERSITY AND NETWORKING UNIVERSITIES IN ASEAN COUNTRIES

Suebwong Kalawong

Abstract: One prominent strategy of the university network of the Association of Southeast Asian Nations (ASEAN) is to promote collaboration between the ASEAN universities. Although there are Memorandum of Understandings (MOUs) among Asian Universities, the number of collaborative actions are considered extremely low. More than 10 years, PNRU implement on collaboration policy with other ASEAN’s universities. The processes and obstructions of the collaboration between universities in ASEAN were studied by the researcher. This study showed present situation of PNRU and other ASEAN’s universities collaboration. Therefore, the collaboration model between universities in ASEAN was established. The findings revealed that PNRU pursued collaborative activities covering only student and personnel exchange programs. The collaboration obstacles were: 1) policies and goals, 2) implementation plans, 3) university bureaucracy, and 4) language proficiency. A model for university collaboration comprised collaboration processes and principles. A collaboration model for the ASEAN university network involves clear goals, financial and resource support, implementation planning, and raising awareness of participants for collaboration.

UDC Classification: 35

Keywords: collaboration, governance, university network, ASEAN collaboration.
IMPORTANCE OF DETERMINATION IN JOB SEEKING AND HOLDING FOR UNEMPLOYED RIGA SOCIAL SERVICE CLIENTS

Anna Bickovska¹

Abstract: Many unemployed Riga Social Service clients have used provided facilities and obtained social benefits for several successive years without endeavoring to find a job or improve their social and financial situation. This study aims to establish how unemployed Riga Social Service clients understand the term “determination” in the context of job seeking and whether their seeking or retention of a job is purposeful. On the basis of the Ajzen planned behavior theory and Piaget cognitive theory, the author developed a questionnaire for a survey in which 54 unemployed Riga Social Service clients took part. The unemployed Riga Social Service clients described their job seeking as not purposeful. Statistically significant correlations between the level of education, age, and purposeful job-seeking behavior were found; older respondents with a higher level of education were seeking a job more purposefully and accepted help from professionals (career adviser and social worker). Respondents evaluated the social and economic system in the country as negative and unhelpful in the job-seeking process. Respondents mentioned that they often receive disapproval from relatives, professionals, and society because of their unemployed status. The most important positive career influences were skills, knowledge, interest, and ability to learn and communicate.

UDC Classification: 377

Keywords: Career guidance, unemployed, purposefulness, job seeking.

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COMMON STRATEGIES IN UNIVERSITY TEACHING
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Abstract: The study focuses on common teaching strategies, which have been practiced for several years by university professors, and involves a case study at the Latin American university. The research involves teachers at the Academic Unit of Social Sciences (UACS), Technical University of Machala (UTMACH) in Ecuador, and was conducted to identify the usual classroom strategies for teaching and learning at the university. The methodology was based on in-depth interviews, with 29 selected teachers exposing different teaching strategies, which were conceptualized through a rigorous literature review and documented reflection on the educational topic as well as student-centered learning. This work reveals the usual teaching practices of Ecuadorian higher education, within the demographic context of a border place, as is the case with El Oro province, where the Technical University of Machala is located. The study results indicated that the teaching practices need to undergo a process of reengineering, with the final goal of improving educational principles.

UDC Classification: 378
Keywords: higher education, professor, strategies, learning process.

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SCIENCE PROCESS SKILLS IN SCIENCE CURRICULUM IMPLEMENTING IN TURKEY

Güngör Keskinkılıç Yumuşak¹

Abstract: An important objective of education today is to provide pupils with science process skills. It is important to determine to what extent these qualifications, desired for the pupils to possess, are represented in the curricula. For this reason, this research aims to determine to what extent the science skills are represented in the science curricula applied in Turkey. The research is a case study based on analysis of the Turkish science curricula. In this study, the general objectives of the science curricula are depicted. The acquisitions are examined from the science skills perspective in each grade level, and their representation is compared between different grade levels. According to the results, science process skills in the general objectives and acquisitions are highly represented. Additionally, science process skills are expressed more so than other skills. However, another finding of the research showed that the curricular emphasizes basic science more so than integrated science process skills. It is thought that the research findings will provide data for comparative studies.

UDC Classification: 37.01/.09
Keywords: Science process skills, science curricula, science education.

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WOMEN IN POLITICS AND THEIR REPRESENTATION IN THE WRITTEN MEDIA DURING THE ELECTORAL CAMPAIGN

Isida Hoxha

Abstract: The role of media is studied in relation to the last national elections in Albania which were in 2013. The low representation of woman is the main problem under study in this research. Politics should respect the quota of 30% representation of women as an element of balance between the two genders in favor of woman. During the electoral campaign, political parties, leaders, candidates for deputy, and strategies of political forces dominate the media. The questions raised in this research are: Does the media fulfill its duties concerning the promotion of woman as part of political forces? Were women part of its agenda and in what way were they represented during the time period in which the electoral campaign was developed? Using discourse analysis as methodology, this study concludes that media doesn’t fulfill its role in promoting woman. Only 20% of the newspaper material includes woman, and in this 20%, only 7% represent women directly. Instead of an active political role, women seems to have a supportive role in politics, for example, the pictures or interviews of politician’s wives. Another important point is that women themselves do not speak about their role, they are more interested in other political issues, recreating the stereotype of passive woman.

UDC Classification: 305= (111)

Keywords: women, representation, electoral campaign, stereotype.

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CURRICULUM DEVELOPMENT AS A CONSEQUENCE OF TIMSS ASSESSMENT: INTEGRATING NEW GEOGRAPHICAL CONTENTS IN ROMANIA’S PRIMARY SCHOOL

Mihaela Verga¹, Mioara Clius², Gabriela Noveanu³, Andreea Andra-Toparceanu⁴

Abstract: In a global labor market it is necessary to ensure equal access to quality education for all students in Romania. This can be achieved through curriculum development, by promoting innovative teaching practices and focused on the learning needs of students.

Over time, TIMSS assessments provided meaningful information about learning mathematics and the sciences in Romania, which may constitute a solid basis for curricular reform and implementation. Comparative studies, lead on a statistical basis, using a methodology applied and validated internationally, showed deficient areas in terms of understanding the concepts and techniques used by students and revealed teaching routines that determine these deficiencies.

Our study based on the analysis of the Romanian students’ results at TIMSS tests in 1995, 1999, 2003, 2007 highlights two major issues regarding the way sciences are studied at school. The structural deficiencies reveal a mismatch of Romanian curriculum related to international tests and failure in detailing the contents essential for understanding geographical phenomena. The functional deficiencies lead to a series of conceptual and procedural mistakes, occurrence of routine/stereotypical teaching, and are perpetuated in educational process. This diagnostic analysis mentions some recommendations which can act as toolkits for teachers. The main aim is to improve the geographical curriculum.

As a result, since 2013 a general process of reforming school curricula initiated at all educational levels, and recommendations arising from the statistical analysis of TIMSS was used as benchmark in the composition of the curriculum for primary education, implemented already in school since 2013-2014.

UDC Classification: 37

Keywords: curriculum, TIMSS, TIMSS assessment, geographical, primary school, Romania.

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SELF-PRESENTATION OF LEFT-WING THROUGH THE SOCIAL NETWORK DURING THE ELECTIONS 2015; CASE OF ELECTION IN SHKODËR

Romira Muka

Abstract: The communist regime in Albania officially collapsed in March, 1991. The pluralism remained stable and unchanged, from the beginning of the new era until now. The city of Shkoder continued to vote for a majority ‘right-wing’ government and this result did not change with the elections of 2015. This research analyzes the political discourse of a ‘left-wing’ candidate using data from their online social network. The findings of this study show that although the candidate promised a strong collaboration with the government, the candidate did not rise above the antagonistic discourse. Because of this, the candidate could not dissolve the ‘GroupThink Syndrome’. The antagonistic discourse and self-representative strategies used by the candidate during the election are analyzed using critical discourse methodology. The gathered data is analyzed by critical discursive tools. This paper answers whether the models of self-presentation of a candidate produce antagonism, whether this antagonism is a symptom of group thinking, and whether a candidate informs or communicates using a social network platform. Regarding the data of the candidate gathered from Facebook, the most active social network used by them, the results show that about 70% of statuses and writing of the candidate were lined by antagonist discourse. There were two seemingly different attitudes: the inclusive attitude, which is found in discourse for self-presentation and the exclusive attitude, for influencing opinion. These two attitudes, as discursive entities, are largely similar to the left-wing party discourse, and thus, they raise the issue of the Groupthink Syndrome encompassing the two parties. The candidate focused on political influence, rather than on information. This strategy for self-presentation is the same for both political wings, and therefore, the candidate’s discourse was viewed as part of a vicious circle in the political discourse of Albania and afforded the candidate no extra votes.

UDC Classification: 304

Keywords; critical discourse analyze, group thinking syndrome, antagonistic discourse, self-presentation strategies.

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THE DIRECTOR IN THE COUCH: PSYCHOANALYSIS OF TARKOVSKY CINEMA

Uğur Kutay

Abstract: There are some fundamental concepts which give rise to Andrei Tarkovsky’s personality and art. The most important of these concepts, without doubt, is the Oedipus complex. Tarkovsky’s personality often displays the positive complex, and then sometimes the negative one. Another important concept of Andrei’s art is Lacan’s psychoanalytic “Mirror Theory”. In this article, these two theories are observed together through a dialectic logic. Considering Andrei’s biography of his family life and lifestyle, through psychoanalysis, the reason for the relationship between Andrei’s art and Oedipus and the Mirror Theory becomes evident. In conclusion, Andrei Tarkovsky’s bisexuality was an unknown reality, though his sexual inclination emanated from his childhood, from his unresolved, i.e., negatively resolved, Oedipus Complex. All are being reflected in his art and movies. His movies display the life of a mother or father character or the relationship of a character with his parents.

UDC Classification: 791

Keywords: Tarkovsky, psychoanalysis, oedipus complex, mirror theory.

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DO WE NEED NEW SKILLS FOR NEW JOBS BY 2030?

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Abstract: The job trends are changing in the world. New jobs are appearing, while the jobs that we know and are familiar with are disappearing. With the ongoing 4th industrial revolution, times are changing, however the drivers for change are multiple and global. These affect the nature of jobs, the requirements of the labour market and the chances of an individual to be competitive and successful in their career.

According to the World Economic Forum, there are estimated to be 470 million new jobs by the year 2030. Yet, there is a rise in unemployment and it is becoming increasingly difficult for many employers to find employees with the right skills. The World Economic Forum stresses the need for investing in skills and education.

With the aim of understanding the need for innovation in education, we discuss the current landscape of skills and specializations provided in Europe and review the key global trends that are shaping future jobs and skills. We also address questions regarding how prepared we are for the new jobs resulting new emerging industries, and how schools and training providers should prepare our children to increase their employability and earnings potential in fifteen years.

UDC Classification: 37

Keywords: jobs, skills, education, training, labour market.

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MEDICINE AND PHARMACY
IMPACT OF CAROTID ENDARTERECTOMY ON COGNITIVE PERFORMANCE AND DEPRESSIVE SYMPTOMS

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Abstract

OBJECTIVES: This study aims to evaluate the impact of carotid endarterectomy (CEA) on cognitive performance in patients with severe carotid disease and depressive symptoms, and to explore the possible associations between certain demographics, clinical characteristics, and cognitive function and depression.

MATERIALS AND METHODS: The study included 48 patients, who were referred for endarterectomy. Cognitive function was assessed using the Montreal Cognitive Assessment (MoCA) scale, while depressive symptoms were assessed using the patient health questionnaire (PHQ-9) scale. An assessment of cognitive and depressive symptoms was performed 1–3 days before surgery, and then six months after.

RESULTS: A paired sample t-test found that the difference in the mean MoCA score between the before ($\bar{x} = 23.37$; SD $\pm 3.27$) and the after ($\bar{x} = 24.69$; SD $\pm 3.68$) surgery results was 1.32 (95% CI = 0.48 – 2.16; $p = 0.003$; Cohen’s $d$ value = 0.95). A paired sample t-test showed that a decrease in mean PHQ-9 score of > 10 for patients six months after CEA (7.5 ± 4.6) was statistically significant ($p = 0.019$; Cohen’s $d$ value = 1.32) compared with the PHQ-9 scores at baseline (12.6 ± 2.8).

CONCLUSION: Carotid artery endarterectomy seems to have beneficial effects on the course of cognitive impairment and depressive symptoms in patients with severe carotid artery stenosis. Demographic, clinical characteristics (age, gender, comorbidities, previous stroke) did not have impact on course of cognitive and depressive symptoms. A limitation in our study was that the number of patients was relatively small, therefore we intend to perform further study with larger case volume to estimate the impact of carotid artery endarterectomy on cognitive functions and depressive symptoms.

UDC Classification: 616.8

 Keywords: carotid endarterectomy, cognitive impairment, depressive symptoms.

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Abstract

INTRODUCTION: Untreated non-valvular atrial fibrillation is one of major causes of stroke. The goal of the study was to evaluate the use of antithrombotic medication stroke prevention and assess long-term stroke outcome.

METHODS: This study involved 531 cardio embolic stroke patients of the Paul’s Stradins Clinical University Hospital, Riga, Latvia, in 2014. After discharge the patients or their relatives were interviewed by phone after 30, 90, 180, and 365 days. Standardized questions were asked about the patients’ abilities and use of prescribed secondary prevention medication. The results were compared between patient groups, assigned according to prescribed medications.

RESULTS: Of all the patients included in the study, 8.9% were using oral anticoagulants before stroke onset. One year after discharge, 1.44% of patients were not using any preventive medication, 23.56% were using antiplatelet agents, 43.27% warfarin, and 31.73% target-specific oral anticoagulants. The one-year mortality rate was 40.7%. The mortality rate was significantly higher in the patient group using no secondary preventive medication or antiplatelet agents compared to the patient group that used oral anticoagulants.

CONCLUSION: Cardio embolic stroke primary and secondary prevention in Latvia is lacking. The study outcomes suggest that action is needed to increase the use of oral anticoagulants in primary stroke prevention in patients with atrial fibrillation. Poor function outcomes, dementia, and patients’ incompliance limits the use of oral anticoagulants in secondary prevention.

UDC Classification: 616.8

Keywords: Atrial fibrillation, cardio embolic stroke, stroke mortality, primary stroke prevention, secondary stroke prevention.

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HEALTH BEHAVIORS OF UNDERGRADUATE STUDENTS: A COMPARISON OF PHYSICAL EDUCATION AND TECHNICAL FACULTIES

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Abstract: INTRODUCTION: A healthy lifestyle is related to healthy practices, such as healthy diet, avoidance of psychoactive stimulants, appropriate level of physical activity, preventive behaviors, coping with stress, positive social relationships, and adjustments. University students do not usually engage in a healthy lifestyle. Moreover, excessive alcohol drinking among students is truly a health problem.

OBJECTIVES: The primary objective of this study was to examine the association between alcohol drinking and healthy behaviors in undergraduate students from a large public technical university in the south of Poland (Europe).

METHODS: A cross-sectional study was used with participants of 283 second year undergraduate students, aged 22 years (SD = 2.92), including 88 (31%) students of Physical Education and 195 (69%) students of the Technical Faculty. The study used self-administered questionnaires of the Alcohol Drinking Scale (ADS) and the Health Behavior Inventory (HBI), which includes the following subscales: healthy habits nutrition (HHN), preventive behavior (PB), positive adjustments (PA), and healthy practices (HP).

RESULTS: Alcohol drinking was negatively correlated with the total HBI and also with two subscales: HHN and PPB. The female students drank significantly less alcohol than the male students and presented with a higher level of health behavior, both in the total HBI and in the individual HBI subscales, except for PA. Students of Physical Education drank more alcohol, and scored higher in preventive behaviors, than the students of Technical Faculties.

CONCLUSION: It seems necessary to conduct general health education as part of prevention programs at the university, especially for male undergraduate students in the Physical Education faculty.

UDC Classification: 614, 796.01/.09

Keywords: alcohol drinking, healthy lifestyle, healthy behavior, undergraduates.

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A CASE REPORT: PKP2 GENE C.1592T>G VARIATION IN HOMOZYGOUS FORM IDENTIFIED IN ARRHYTHMOGENIC RIGHT VENTRICULAR DYSPLASIA PATIENT

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Abstract: Arrhythmogenic right ventricular dysplasia (ARVD) is an inherited cardiomyopathy. Early recognition and follow up of this disease can reduce sudden cardiac death burden. Arrhythmogenic right ventricular dysplasia is usually inherited as an autosomal dominant trait. We report a case of a young woman aged 26 years with a past history of chest pain and palpitations. During examination, abnormalities were found in results of an electrocardiogram and echocardiography. Genetic testing of the plakophilin 2 (PKP2) gene was done by direct sequencing and genetic variation “NG_009000.1: c.1592T>G” was found in a homozygote form. In family member screening in patients, parents’ variation is found in a heterozygote form, where both are healthy. In all reports, “c.1592T>G” is reported only in a heterozygous state, with no known pathogenicity. We consider that this is possibly a pathogenic mutation, inherited as an autosomal recessive trait.

UDC Classification: 612.1

Keywords: ARVD, PKP2, cardiovascular genetics.

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ESTABLISHING IMMUNIZATION SAFETY SURVEILLANCE SYSTEM IN ALBANIA

Irsida Mehmeti¹, Silva Bino²

Abstract

INTRODUCTION: While vaccine use increases, adverse events following immunization are becoming a public concern with the rate of adverse events following immunization (AEFI) increasing with the number of administered doses of vaccines. The safety of vaccines is ensured during clinical studies before the licensure of the vaccine. However, clinical trials have limitations, such as, rare events that cannot be detected and events occurring in specific groups of people. The consequences of AEFI influence public health policies and the incidence of vaccine-preventable diseases, although these might not be related directly to vaccines themselves.

OBJECTIVES: The objective of this article is to examine the evolution of vaccine safety issues in Albania by mapping stakeholders involved in vaccine safety control and analyzing the different periods when changes in the vaccine safety system has taken place.

METHODS: A grey literature review, by searching the archive of IPH, provided a list of different stakeholders involved in vaccine safety in Albania. By reviewing all documents of the various organizations included in vaccine safety, we differentiated and characterized the roles of each in this area.

RESULTS: The main stakeholders involved in AEFI and vaccine safety in Albania are; the Institute of Public Health (IPH), which manages the National Immunization Program (NIP), the Directorate of Public Health (DPH) at the Ministry of Health (MoH), the 36 District Public Health Directories each with a microbiological laboratory for the assessment of AEFI, the pharmacovigilance center and National Regulatory Authority in the National Agency for Medicines and Medical Devices (NAMMD), National Immunization Safety Expert Committee in MoH and the Secretariat that supports the national AEFI committee.

CONCLUSIONS: Despite huge progress over the last decade in Albania regarding vaccine safety, much remains to be achieved. The changes in the vaccine safety system have enforced and increased public trust on vaccination, leading to a strengthened National Immunization Program.

UDC Classification: 614.4, 614.3, 614.39

Keywords: Vaccine safety, immunization, surveillance, adverse events.

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FALLS’ RISK ANALYSIS OF OLDER PATIENTS IN NURSING DEPARTMENTS:
ONE MONTH STUDY

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Abstract

BACKGROUND: Falls are a major public health problem, especially in the elderly. Of people who suffer falls, 20-30% experience mild to severe injuries. Timely assessment of risk factors can prevent some of these falls occurring.

PURPOSE OF STUDY: To assess the falls risks factors of patients in nursing departments.

METHODS: The study was conducted January to September, 2015 in a Lithuanian long-term care and treatment hospital. The Morse Fall Scale was used for assessment of falls risk, which were evaluated within 48 hours and then after one month of admission to the hospital.

RESULTS: The study involved 177 respondents. After one month of admission to the hospital, 129 participants took part in the survey. During the first stage of the study, the difference in falls between the age groups and falls risk was statistically significant (p = 0.019). In addition, statistically significant differences (p = 0.004 and p = 0.000) were found between the patients’ cognitive impairment, falls within the past 1-year period, and the risk of falls during 48 hours after hospitalization. After one month of admission to the hospital, it was found that differences in falls risk was not statistically significant among age groups (p = 0.360) or the patients’ cognitive impairment (p = 0.200).

CONCLUSION: An assessment of patients within 48 hours of hospitalisation revealed a statistically significant difference between the patients having suffered a fall within the past year and the current risk of falls.

UDC Classification: 616.89; 616-001

Keywords: falls, elderly, risk, factors, nursing.

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MEASURING THE DIELECTRIC PROPERTIES OF TUMOR AND BREAST PHANTOMS USED IN THE MICROWAVE FREQUENCY RANGE

Eva Maniakova¹, Dagmar Faktorova²

Abstract

INTRODUCTION: This article deals with measurement of dielectric properties (relative permittivity and conductivity) of phantoms, specifically a tumor phantom and a breast phantom. We focused on the waveguide and resonance methods for the measurement of dielectric properties. The article describes the principle of these methods, and also the production process of a breast phantom and a tumor phantom. These phantoms can be used for measurements in the microwave frequency range, 8–12 GHz.

OBJECTIVE: The study’s objective was to design a tumor phantom and a breast phantom, and to measure their dielectric properties. These properties must simulate human tissue.

METHODS: To measure dielectric properties of human tissue, phantoms were designed using the waveguide Hippel’s method and the resonance method with a cavity resonator.

RESULTS: The aim of this work was to create the phantoms that would have properties comparable to those of real tissues. Results of measurement are shown as frequency dependence of relative permittivity and conductivity for breast, breast phantom, tumor, and tumor phantom.

UDC Classification: 601

Keywords: dielectric properties, breast phantom, tumor phantom, permittivity, conductivity.

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Abstract

INTRODUCTION: During the years 1970s and 1980s, IPH (Institute of Public Health) in Albania, achieved remarkable improvements in the biotechnology of the components production of D (diphtheria), T (tetanus) and P (pertussis) for the trivalent vaccine DTP, vaccine DT and the Td one, which together with vaccine TT, consequently led to the increasing of their effectiveness and efficiency. In the year 2000, Rubella component was added to Measles vaccine, and in the year 2005, Mumps component was added too (now MMR vaccine).

OBJECTIVE: The primary objective of this study was to identify protective immunoglobulin G (IgG) levels for each antigen (diphtheria, tetanus, and pertussis) according to different age groups and residence (rural and urban).

METHODS: Two samples, each involving 120 healthy children were selected from urban and rural populations of three central regions of Albania. The children were aged between 1 and 15 years. IgG specific levels for diphtheria, tetanus, and pertussis were measured using enzyme-linked immunosorbent assay tests (ELISA). Levels of IgG were classified into the following categories: unprotected, insufficient, and fair/good or full/sure protection, using specific thresholds for each, diphtheria, tetanus, and pertussis.

RESULTS: Of the same population, 75.7% was found to have IgG protective levels for diphtheria. For tetanus, 81.4% of the total sample had protective levels of IgG, and for pertussis this proportion was 69.0%. Levels of protection for diphtheria and tetanus increased up until 3 years of age (diphtheria: 25.0% at 1 year and then 95.0% at 3 years of age; tetanus: 65.0% at 1 year and 90.0% at 3 years of age). From then on the trend stabilized. The same trend was not observed for pertussis, which presented protective IgG levels of 73.0% from the first year of life. When IgG protective levels were compared between rural and urban samples, differences were only found with diphtheria specific IgG, which was significantly higher in the rural population. Furthermore, a correlation in IgG levels was found among diphtheria and tetanus.

CONCLUSIONS: IgG specific levels for diphtheria, tetanus and pertussis referring to our sample are are considered acceptable for providing protection in the general population. Nevertheless, these levels seem to have been achieved only after booster doses until the third year of life, especially for diphtheria.

UDC Classification: 616-097

Keywords: Protection, IgG levels, vaccination, comparison, correlation, DTP.
MICROWAVE PROPAGATION IN TOOTH AND DENTAL DEFECT

Maria Papezova¹, Dagmar Faktorova²

Abstract

INTRODUCTION: The most common method of conventional dental diagnosis involves X-rays, such as Radio Tomography (RT) or Computer Tomography (CT). Such methods are used for diagnosing pores in dental material that can lead to premature failure of dental material. Diagnosis by X-ray provides an objective analysis. However, repeated radiation from X-rays can cause biological damage to human tissues. From this point of view, there is a significant need to progress to quantitative non-invasive and non-destructive testing (NDT) methods to measure dental material and improve treatment options. This article focuses on applying microwave technology to characterize teeth and teeth replacements. Knowledge of microwave propagation in biomaterial with no defects, using a defined microwave frequency range, and subsequently comparing the result with defective material could provide a means of dental diagnosis without the risk of radiation for the patient, i.e. without X-ray.

OBJECTIVES: The primary objective of this study was to examine microwave technology in the field of dental medical diagnosis as a new NDT method.

METHODS: The basic concept of applying microwave technology to characterize teeth in dental diagnosis was examined using a basic algorithm designed in the MATLAB programming language. Tests used dielectric properties of tooth and tooth decay and propagated electromagnetic (EM) waves to show different characteristics of chosen materials.

RESULTS: The analyses of frequency dependent reflection and transmission coefficients of the chosen material, specifically teeth, at frequency range 0 GHz to 30 GHz, computed differences between healthy and defective dental material.

CONCLUSION: Thus, this could be used in providing a dental diagnosis without exposing patients to radiation, i.e. without X-ray. The next stage will involve creating a complete model of a jaw with teeth, and designing a sensor for crack detection for comparisons using this basic algorithm.

UDC Classification: 601

Keywords: Dental diagnoses, microwave frequencies, transmission coefficients, reflection coefficients, tooth.

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HEALTH PROTECTION OF PRISONERS IN THE REPUBLIC OF MACEDONIA
Tanja Jovanovska1, Biljana Kocić2, Viktorija Proanovska-Stojčevska3, Domnika Rajchanovska4, Izabela Filov5, Biljana Bogdanova6

Abstract
INTRODUCTION: Prisoners’ health is one of the major challenges of public health systems because of prisoners’ greater care needs due to the poor economic conditions connected to the numerous risks and higher morbidity and mortality related to incarceration. Malnutrition, infectious diseases, overcrowding, strict custodial physical infrastructure, and limited access to basic health services, among other factors, contribute to a worsening of the physical and mental health of prisoners.
OBJECTIVES: This study aimed to ascertain leading health problems, care needs, and the degree of health protection used in the prison population of the Republic of Macedonia.
METHODS: The research is a cross-sectional study of the prison population, composed of 550 prisoners, with 100 situated in Bitola’s prison, 100 in the prison of Prilep, 50 women imprisoned in the women’s section of the correctional institution, Idrizovo, and another 300 prisoners from Idrizovo.
RESULTS: The most important reasons for causing illness amount examinees were the conditions in prison (as considered by 73.0% of respondents), drug use (by 50.4% of respondents), stress (by 45.6% of respondents), and improper nutrition (by 43.6% of respondents).
CONCLUSION: Findings suggest a poor health status for prisoners due to specific problems and care needs.

UDC Classification: 614.4
Keywords: prisoners; health care; health services; infectious diseases; chronic diseases.

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Abstract

INTRODUCTION: Several epidemiological studies have shown that intensive computer work and other factors of work organization, involving physical and psychosocial exposure to computer work, are associated with increased risk of neck and upper extremity disorders.

OBJECTIVES: The aim of this study is to present psychosocial work factors and their relationship to musculoskeletal symptoms among computer workers.

MATERIAL AND METHODS: The Copenhagen Psychosocial Questionnaire (COPSOQ) for assessing psychosocial factors at work was used to assess 800 computer workers.

RESULTS: The results showed that most respondents often worked at a high pace; sometimes received support from superiors, and were little satisfied with work. There was a positive correlation (r = 0.3) between quantitative demands at work and neck symptoms.

CONCLUSION: Particular attention should be paid to psychosocial factors of the work environment, especially those with a significant high risk of workers acquiring musculoskeletal symptoms, in relation to assistance in the work environment, management, workload, and increasing autonomy at work.

UDC Classification: 614.8

Keywords: computer workers, psychosocial factors, musculoskeletal symptoms.
PROBLEMS OF FAMILIES WITH A CHILD WITH AN INCURABLE DISEASE IN THE CONTEXT OF SPECIAL EDUCATION

Kristína Nagyová¹, Terézia Harčaríková²

Abstract: The issue of incurable diseases, today, represents a relatively current and urgent topic because, despite the development of medicine and comprehensive care for individuals with an incurable disease, there is a continual increase in the number of such diseases associated with secondary problems that have a crucial bearing on the quality of life for the individuals and their family in both a broader and narrower context. An important role in the comprehensive care of individuals with an incurable disease is special education, because in addition to education it deals with the stigma attached to the care and education of families with a child with an incurable disease. The paper presents the partial results of research focused on the problems of individuals with oncological disease in the context of special education. Research data were obtained by a variety of methods, where the most crucial were the semi-structured interview method and the method of narration. These methods were applied on individuals with oncological disease who had been diagnosed with cancer during the time of schooling. The obtained data were processed by qualitative analysis. The results indicate that this issue requires greater consideration.

JEL Classification Numbers: I2, I20

UDC Classification: 376

Keywords: oncological disease, family, incurable disease, individuals with an incurable disease.

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PROMOTION HEALTH – EVALUATION OF THE LOCUS OF CONTROL OVER HEALTH

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Abstract: Health is a basic prerequisite for the existence and operation of values. Health care enables people to protect or restore health throughout their lives, from birth to death, in accordance with applicable legislation.

This paper aims to identify the importance of assessing a locus of control over health using the scale measuring tool, Multidimensional Health Locus of Control (MHCL). In total, 100 respondents participated in the survey, with an average age of 42 years. Statistical analyses were performed using Statistica, version 2007, with significance level of 0.05.

Correlations of MHLC and attitudes toward preventive actions showed statistically significant results with readiness to quit smoking. People with high IHLC scores were more willing to stop smoking, change their diet, and reduce body weight. Our assumption in this research was that individuals who believed in internal control of health had a more positive effect regarding preventive actions.

UDC Classification: 159.9, 316.6, 316.4

Keywords: health promotion, health behavior, smoking, obesity, disease.

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ISSUE OF YOGA ON PHYSICAL AND MENTAL HEALTH
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Abstract: The effect of yoga on human health has long term interest. In this regard, we view the effect on physical health, not only mental, in terms of the sensory input. This paper attempts to present a position on whether yoga affects human health status and limits an increase in lifestyle diseases. In this work, we collect data and use inductive reasoning methods with the aim of generalizing conclusions. Our findings indicate the effect of yoga, not only on mental health, but also in terms of physical health, in particular in reducing obesity. It is concluded that to find a completely healthy person is rare, but with various relaxation techniques of yoga, one can eliminate a variety of ailments and benefit overall in health.

UDC Classification: 613.7

Key words: health, harmony, body, benefits, obesity.

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THE HIDDEN PICTURE: UNHEALTHY EATING ATTITUDES AND BEHAVIORS IN A NON-CLINICAL POPULATION FROM BULGARIA

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Abstract

INTRODUCTION: Eating disorders have been intensively researched over recent decades. However, there has been insufficient research into the early assessments for detecting the risk of developing disordered eating. We report preliminary results from a project aiming to assess the prevalence of eating attitudes and behaviors that heighten the risk of eating disorders. The study examines a non-clinical sample of adolescents and adults from two cities of South Bulgaria.

METHODS: In this cross-sectional epidemiological study, a total of 1285 volunteers of 828 females and 453 males, aged 14 to 59 years, were surveyed to assess disordered eating attitudes and behaviors. For this purpose, the study used the ‘SCOFF’ questionnaire, the Eating Disorder Diagnostic Scale (EDDS), and the Eating Attitudes and Behaviors Questionnaire (EABQ), which was developed for this study.

RESULTS: The proportion of these volunteers underweight (body mass index below 17.5) was 9.8%. Of the total subject, 34.7% provided two or more positive answers for the SCOFF questionnaire (two being the upper threshold for indicating 100% sensitivity to anorexia and bulimia). The results differed between males and females: 21.6% and 42.1%, respectively, in this regard. A factor analysis (oblimin rotation) of EABQ items revealed four main factors: body shape and weight concerns, personal control over eating and calorie intake, dieting, and preoccupation with food and binge eating. A Spearman’s correlation analysis showed moderately significant correlations (p < 0.001) between the total scores of the SCOFF questionnaire, EABQ, and the scores for three groups of items in the EDDS for assessing eating attitudes and behaviors.

CONCLUSION: We found a greater ED risk in adolescents compared with the older groups and in females compared with males. One fifth of males studied were at high risk of ED and ages between 19 and 39 years also appeared at risk. The EABQ was validated as a sensitive and reliable self-report instrument that can be used for early detection for the risk of ED. Our results could form a basis for developing programs in disordered eating prevention.

UDC Classification: 159.97

Keywords: eating attitudes and behaviors, risk of disordered eating, non-clinical sample.

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STUDY OF KINETIC PARAMETERS AND POSSIBLE INHIBITORY EFFECT ON THE TYROSINASE OF THE HALOGENATED BOROXINE DIPOTASSIUM TRIOXOHYDROXYTETRAFLUOROTRIBORATE K₂[B₃O₃F₄OH]

Maja Marasović¹, Zrinka Čorić², Mladen Miloš³, Borivoj Galić⁴

Abstract

INTRODUCTION: A number of biochemical and medical researchers have detected increased activity of tyrosinase in skin tumor cells. The most famous and available inhibitor, kojic acid, has several side effects and is not completely safe for use.

OBJECTIVES: This paper describes the study of inhibitory influence of halogen boroxine K₂[B₃O₃F₄OH] on tyrosinase. The research was prompted by the ability of this compound to inhibit enzymes through metal ion chelation as well as its synthesis and application in cosmetic skin products that produce no serious side-effects.

METHOD: Tyrosinase activity was measured by spectrophotometric analysis for the appearance of dopachrome pigment at a wavelength of 475 nm. Tyrosinase exhibited typical Michaelis-Menten kinetics.

RESULTS: Tests of the proposed inhibition of the enzyme tyrosinase showed that K₂[B₃O₃F₄OH] had weak inhibitory properties.

CONCLUSION: It will be necessary to search for new ways of antitumor mechanisms that differ from those of previous results.

UDC Classification: 615.1

Keywords: tyrosinase inhibitors, kojic acid, boronic acids, halogenated boroxine dipotassium-trioxohydroxytetrafluorotriborate.

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THE METHOD OF SPECTRALLY SELECTIVE LASER MUELLER MATRIX POLARIMETRY FOR VERIFICATION OF ACUTE CORONARY INSUFFICIENCY

Oleh Vanchuliak¹, Victor Bachinskiy², Alexander Ushenko³

Abstract

INTRODUCTION: As the existing methods of evaluation of acute coronary insufficiency currently held is to some extent subjective. However, the specificity of forensic medicine requires objective methods. Thus, there is a necessity for objective methods of diagnosis for acute coronary insufficiency (ACI).

OBJECTIVES: The objective of this study is to establish the diagnostic possibilities of the laser method, Mueller matrix polarimetry, on wavelength 450 nm of autofluorescence, with the method of statistical analysis of native heart slices to provide an after-death diagnosis of acute coronary insufficiency.

METHODS: In our primary investigation we explored 69 human hearts with ACI, 69 with chronic ischemic heart disease, and 20 from corpses after violent deaths with short agonal period. The samples were studied with a Stokes polarimeter, which was modified to study laser induced autofluorescence. For comparison, histopathological studies were conducted by staining with hematoxylin, basic fuchsin, and picric acid. Data were analyzed statistically.

RESULTS: Coordinate and probabilistic distributions of Mueller matrix invariant r₁₄ and r₄₁ laser polarization autofluorescence samples of myocardium were established. A visual determination of ACI, using coordinate distributions or probabilistic distributions, is difficult and hence, we conducted a statistical analysis between pixels of the image. For optically active fluorophores of the myocardium we found a growth (1.5 times) kurtosis of r₄₁ value. Distribution of r₄₁ decreased 1.6 times in the case of ACI. After definition of balanced accuracy, we noted definition of asymmetry and kurtosis of invariant r₄₁ with 89 % and 95% accuracy allowed a diagnosis of ACI.

CONCLUSION: Using the spectrally selective laser method, Mueller-matrix polarimetry, on wavelength 450 nm of autofluorescence with method of statistical analysis of native heart slices allows for diagnosis of ACI with high accuracy.

UDC Classification: 616-001/-009

Keywords: diagnostic, ischemia, myocardium, autopsy.

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POST-MORTEM INTERVAL ESTIMATION BY CEREBRO-SPINAL FLUID FILMS POLARIZATION IMAGES OPTICAL STRUCTURE CHANGING

Marta Garazdiuk¹, Viktor Bachynskiy², Oleg Wanchuliak³, Oleksandr Garazdiuk⁴, Aleksandr Ushenko⁵

Abstract

INTRODUCTION: Post-mortem interval (PMI) estimation has been and remains one of the main issues of forensic medicine. Complex photometric, polarization, and correlation techniques of biological tissue (BT) structure are crucial in this area.

OBJECTIVES: The purpose of this study is to develop and test two-dimensional Stokes-polarimetric mapping of biological layers to evaluate the accuracy of PMI assessments using statistical analysis of post-mortem changes and dynamics of the coordinate distributions for the polarization ellipticity (PE) images of polycrystalline films of liquor (PFL). Coordinate distributions of polarization ellipticity (PE) image values were estimated for each sample of PFL in the optical arrangement of the Stokes polarimeter using the method of two-dimensional distributions of Stokes-parameters.

RESULTS: The most sensitive statistics to the post-mortem manifestations in terms of changes to liquor polycrystalline optical networks were those for the 3rd and 4th order. They characterized asymmetry and kurtosis (peak sharpness) of coordinate distributions for polarization ellipticity images of polycrystalline films of liquor. The optimal interval was 32 hours, with accuracy of 60 min, from the method of two-dimensional Stokes-polarimetric mapping used.

JEL Classification Numbers: I19

UDC Classification: 616-091

Keywords: post-mortem, interval, cerebrospinal, polarization, ellipticity.
INFLUENCE OF AGE AND GENDER ON THE STRENGTH OF BLOOD VESSELS

Zyta Kuzborska¹

Abstract: This article examines the effects of cardiovascular diseases that alter the diameter, wall thickness, and length of blood vessels. Depending on form and size of the damage, blood flow velocity, blood pressure, and stresses are affected in areas of diseased blood vessels. Through stimulating the deviations in the geometric shape of a blood-vessel wall, local blood pressure and stresses can arise from flow variation of blood vessels. This rise affects the blood-vessel wall and causes critical stresses likely to produce fissures in the blood vessels. It was found, that blood vessel pathology could cause blood flow velocity to increase up to 2.2 times and local blood pressure up to 3.4 times, and that human aging may have a significant influence on blood-vessel strength.

UDC Classification: 616.1, 612.1, 531, 532, 62

Keywords: blood vessel, flow, local blood pressure, stress.

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INNOVATION AND SIMULATION-BASED TEACHING TECHNIQUE IN PATHOLOGICAL PHYSIOLOGY

Lea Kováčiková¹, Ferdinand Varga², Eva Kvaltínyová³, Jana Plevková⁴, Tomáš Buday⁵

Abstract Simulation-based learning in medicine has gained substantial importance. It is complementary to often limited clinical practice, and helps interconnect theoretical knowledge with practical training. Simulations are implicated in clinical subjects, but based on recent understanding, simulation can also be used in preclinical subjects, where it can support presented tasks. Simulation technology was used for elective practical sessions in a pathophysiology course, with both measurable outcomes and students’ feedback evaluated. This study was conducted in Slovakia with volunteers (n = 22), who were 3rd-year students of General Medicine (simulation group), paired with classmates in traditional seminars (control group; n = 22) with the same achievement grades. The control group had completed traditional seminars, whereas the simulation group had completed simulation-based seminars in cardiovascular pathophysiology. A standardized student feedback survey, visual analogue scale, and credit tests for regular pathophysiology were used to perform the analysis. Subjective feedback suggested positive outcomes in approximately 80% of students. An objective assessment showed that simulation-based seminars did not increase the theoretical knowledge as documented by 1st credit test (simulation vs control; 42 ± 6 vs 41 ± 4; p > 0.05), but rather their approach to clinical application of obtained information and motivation to study.

UDC Classification: 616.1

Keywords: simulation-based learning, education, pathophysiology, innovative learning.

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HIGHER CTX-M, TEM, AND SHV EXTENDED-SPECTRUM BETA-LACTAMASE PLASMID GENE COMBINATION FREQUENCY IN ESBL PRODUCING KLEBSIELLA PNEUMONIAE COMPARED WITH ESBL PRODUCING ESCHERICHIA COLI

Vita Skuja¹, Katrīna Pekarska², Aleksejs Derovs³, Ludmila Vīksna⁴, Linda Piekuse⁵, Inga Kempa⁶, Una Caune⁷, Dace Rudzīte⁸, Aivars Lejnieks⁹, Angelika Krūmiņa¹⁰

Abstract

Introduction: Extended-spectrum beta-lactamase (ESBL) producing Enterobacteriaceae confer antibiotic resistance to broad-spectrum penicillins, cephalosporins, using ESBL genes CTX-M, TEM, SHV, which are encoded in bacterial plasmid genome.

Methods: We compared plasmid CTX-M, TEM, and SHV ESBL gene combinations in ESBL producing Escherichia coli and Klebsiella pneumoniae. Altogether, 136 ESBL producing Enterobacteriaceae isolation cases were analyzed.

Results: The ESBL producing Enterobacteriaceae, mostly K. pneumoniae (n = 66; 48.53%), E. coli (n = 36; 26.47%), were isolated from 52 (38.2%) female and 84 (61.8%) male patients from Riga East Clinical University Hospital. Overall, 132 isolates (97.06%) registered positive for the plasmid CTX-M gene, 97 isolates (71.32%) for the plasmid TEM gene, and 87 isolates (63.97%) for the plasmid SHV gene. Patients with the three ESBL plasmid gene (CTX-M+ TEM+ SHV+) combination were significantly older (67.11 ± 14.16 years; p = 0.047). Plasmid SHV gene frequency was higher in K. pneumoniae (p < 0.001). The K. pneumoniae mostly presented with the three plasmid ESBL gene (CTX-M+ TEM+ SHV+) combination, whereas E. coli presented with other gene combinations (p = 0.014).

Conclusions: Klebsiella Pneumoniae, more often, presented with the plasmid SHV ESBL gene and the three ESBL gene (CTX-M+ TEM+ SHV+) combination, compared to E. coli. Older patients with ESBL producing Enterobacteriaceae infection, more often, presented with the three ESBL gene (CTX-M+ TEM+ SHV+) combination, compared to younger patients with the infection.

UDC Classification: 615

Keywords: Extended-spectrum beta-lactamase, CTX-M, TEM, SHV, Klebsiella pneumonia, Escherichia coli.
NEW COMPOUND N1,N1′-(2′′-BROMO-2′′-CHLOROETHENYL)-BIS-(5-FLUOROURACIL) AS THE ACTIVE ANTITUMOR AGENT FOR SARCOMA 180

Elena Welchinska¹, Valeriia Vilchynska²

Abstract: The problem of how to treat malignant tumors and the search for effective low-toxic anticancer drugs are among the most important in modern medicine and other chemical and biological sciences, including pharmaceutical chemistry. The arsenal of anticancer drugs occupies a prominent position as medications related to heterocyclic systems (cancer of the digestive system and other areas). In this regard, further development towards new derivatives of purine and pyrimidine series are of significant scientific interest and justify the relevance, novelty, and scientific practical significance of this study. Synthesis of 5-fluorouracil bis-derivative was performed with a halogen-containing pharmacophore group to compose a molecule that was studied for its physical, chemical, and biological properties. Synthesis of 5-fluorouracil bis-derivative is a typical example of substitution reactions with a heteroatom of the uracil molecule (N1) as the second component in the reaction involving halothane, a known inhaled anesthetic. The reaction was carried out in a solvent system of benzene-dimethylformamide-diethyl ether, under conditions of phase transfer catalysis with dibenzo-18-crown-6 (DB 18C6) complex (alkaline medium), by heating (14 h), followed by purification, and drying of the products. The structure of the synthesized compound was confirmed by elemental analysis, infrared, and proton nuclear magnetic resonance (¹H NMR) spectroscopy. By varying the reaction conditions, a synthesized compound of high purity was obtained with increased practical output of up to 50%. The toxicity and antitumor activity of the synthesized compound were investigated. The new substance, 5-fluorouracil bis-derivative, was found to have high antitumor activity, reducing the Sarcoma 180 tumor by 51.7% (activity criterion ≥ 50%). This suggests the synthesized compound is suitable as a physiologically active treatment and its further study as a potential vehicle for anti-tumor treatment in patients is recommended.

UDC Classification: 547.431.4 - 547.854.4; 547.96

Keywords: 5-fluorouracil, halothane, sarcoma, toxicity, bis-derivative.

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CARBON (II) MONOXIDE AS A SUBJECT FOR POISONS STUDYING OF STUDY ON DISCIPLINE TOXICOLOGICAL CHEMISTRY (CRIMINAL ANALYSIS) AT THE PHARMACEUTICAL DEPARTMENT OF THE NATIONAL MEDICAL UNIVERSITY IN UKRAINE

Yaroslav Tsekhmister¹, Elena Welchinska²

Abstract: Toxicological Chemistry (or Analytical Toxicology) is a field among other pharmaceutical disciplines that investigates the characteristics of toxic substances and poisons, their actions in the human body and in the cadaver material, and the ways of segregating, qualitatively detecting, and quantitatively defining poisons and their metabolites. The aim of this article is to explain the importance of studying common chemical substances, such as carbon (II) monoxide (or charcoal gas), which is a strong poison, in this chemistry field, i.e., Toxicological Chemistry, throughout the whole educational period at the Faculty of Pharmacy of the National Medical University in Ukraine.

UDC Classification: 54.01:615 (075)

Keywords: toxicological chemistry, carbon (II) monoxide, toxicity, poison.

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WORK ABILITY AND PSYCHOLOGICAL WELL-BEING IN HOSPITAL STAFF
Gergana Sandeva¹, Krasimira Koleva²

Abstract
Healthcare is an economic sector characterized by unfavorable working conditions, such as psychosocial stress, shift work, and manual handling of loads. It is important to opportune assess the work ability and psychological well-being of hospital staff to evaluate workers’ functional capacity and plan appropriate preventive measures.

Objectives: To assess the work ability and psychological well-being in hospital staff and to determine factors that might influence them.

Methods: Work Ability Index Questionnaire, Psychological Well-being Questionnaire, and statistical analyses.

Results: The mean Work Ability Index (WAI) score was 40.8 ±4.8, which corresponded to suitable work ability. The lowest mean WAI score was registered for the physical therapists (38 ±3.8), and was significantly lower than the WAI score for nurses (41.6 ±4.8). The mean Psychological Well-being score for all subjects was 187.6 ±18.4. The youngest workers (200.8 ±14.7), and those with shortest length of service (196.7 ±18.4) had significantly higher mean Psychological Well-being scores than older (180.8 ±19.9) and more experienced workers (180.3 ±18.3). A positive correlation was found between WAI and Psychological Well-being scores (r = 0.37, p = 0.003).

Conclusion: Hospital managers should consider implementing strategies focused on the work ability of hospital staff, as well as on their psychological well-being, to keep workers fit and healthy for longer.

UDC Classification: 613.6

Keywords: work ability, psychological well-being, nurse, orderly, physical therapist.

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AN ARTIFICIAL NEURAL NETWORK DESIGN FOR DETERMINATION OF HASHIMOTO’S THYROIDITIS SUB-GROUPS
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Abstract: In this study, an artificial neural network was developed for estimating Hashimoto’s Thyroiditis sub-groups. Medical analysis and measurements from 75 patients were used to determine the parameters most effective on disease sub-groups. The study used statistical analyses and an artificial neural network that was trained by the determined parameters. The neural network had four inputs: thyroid stimulating hormone, free thyroxine (fT4), right lobe size (RLS), and RLS² – fT4⁴, and two outputs for three groups: euthyroid, subclinical, and clinical. After training, the network was tested with data collected from 30 patients. Results show that, overall, the neural network estimated the sub-groups with 90% accuracy. Hence, the study showed that determination of Hashimoto’s Thyroiditis sub-groups can be made via designed artificial neural network.

UDC Classification: 004.8
Keywords: artificial neural networks, hashimoto, thyroiditis, statistical analyze, diagnosis.

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PRESENT KNOWLEDGE AND EXPERIENCE ON THE STRATEGIES EMPLOYED BY MYCOPLASMA CONTAMINATION OF THE HUMAN CELL CULTURES

Nevenka Velickova¹, Misko Milev², Gorgi Sumanov³, Biljana Petrova⁴

Abstract

Introduction: Mycoplasma species often contaminate cell cultures and other cell-derived biological substances, leading to detrimental effects on the host that include changes in growth, morphology, metabolism and protein synthesis. In cell cultures, mycoplasma are extracellular parasites, usually attached to the external surface of a cell membrane. Many researchers use a mixture of penicillin and streptomycin in the cell culture to prevent contamination.

Material and methods: We prepared cell cultures of lymphocytes from peripheral blood of 12 subjects and used micronuclei, assay which is the standard method, for detection of micronuclei in binuclear lymphocytes.

Results: Use of standard antibiotics does not protect cell cultures against mycoplasma contamination. Penicillin has no effect on mycoplasma since mycoplasma lack cell wall. Streptomycin inhibits about half the mycoplasma strains but is ineffective against others. In fact, mycoplasma is generally resistant to most antibiotic mixtures commonly used in cell culture. We didn’t find any mycoplasma contamination in the cell culture where penicillin-streptomycin mixture was absent, but confirmed infection in the culture containing mixture of antibiotics.

Conclusion: Antibiotics and mixture of antibiotics like penicillin-streptomycin mixture does not protect the cell culture against mycoplasma contamination. Hence, contamination can spread rapidly to other cell lines through aerosol droplet dispersion.

UDC Classification: 611/612; 577

Keywords: mycoplasma, contamination, antibiotics, human cell cultures, lymphocytes.

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THE ROLE OF PATIENTS AND MEDICAL SPECIALISTS IN ACHIEVING HIGHER LEVEL OF THERAPY COMPLIANCE- AN EXAMPLE WITH WILLINGNESS TO PARTICIPATE IN CLINICAL TRIALS

Svetoslav Stoev¹, Vladimir Atanasov², Ilko Getov³

Abstract

BACKGROUND: Patients’ compliance is a leading factor in achieving determined endpoints of a treatment process. Low patient compliance with prescribed therapeutic plan is very common in both ambulatory practice and clinical trials. Non-adherence of subjects in clinical studies can seriously jeopardize validity of results obtained during randomized clinical trials (RCTs).

METHODS: Both systematic literature review and cross-sectional survey were conducted among physicians and patients to determine evaluation of therapy adherence by both groups.

RESULTS: According to the analytical reviews in published articles, the most common definition of therapy adherence or compliance is “the ability and willingness of patients to abide to a prescribed therapeutic regimen”. There is a strong correlation between patient adherence to the therapeutic regimen determined by the study protocol of RCTs, and the validity of efficacy and safety evaluation of the investigated medicinal product. Analysis of the results from the conducted survey lead to the conclusion that 35% of physician’s state that the results of ongoing therapy are highly dependent on patient compliance. As far as patients are concerned, almost half of the respondents have answered they comply with the prescribed therapy and would evaluate the treatment process as successful. Both patients and medical professionals declare their willingness to participate in clinical trials and strictly stick to the requirements of the study protocol.

CONCLUSION: These results decisively confirmed that the control of a disease is a bilateral process between the patient and the doctor. Patient satisfaction with their current therapy directly correlates with the results of treatment. Majority of patients evaluate their possible participation in a clinical trial as an opportunity to get an access to a better medical service. Both medical professionals and patients declare their strong motivation to comply with the therapeutic plan if it is a part of a clinical study protocol.

UDC Classification: 615.4

Keywords: therapeutic compliance, PASS, PAES, therapy adherence, clinical trials.

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Abstract

INTRODUCTION: The development and improvement of medical and social services for people with disabilities is one of the indicators for providing life quality to elderly people. Training of geriatric specialists is one of the ways to overcome the deficiency of professionals possessing specific knowledge and skills to take care of elderly and aged people, with or without disabilities. During their training, the students, majoring in Geriatric Care acquire professional competencies for work with elderly and aged people with or without disabilities (visual disabilities, hearing disabilities, etc). Formation of communication competence in students is an important part of the professiogram. The curriculum envisages diverse training methods, facilitating the formation of skills required for communication with patients, in conformity with their individual characteristics and system of values.

AIM: The purpose of this survey is to present the training of geriatric specialists from the Medical College at Trakia University, Stara Zagora, with regards to the formation of communication skills necessary to work with elderly people with disabilities.

MATERIALS AND METHODOLOGY: Examination and analysis of training documentation is done.

RESULTS: The analysis of the training documentation shows that the training of the geriatric specialists at the Medical College of Trakia University, Stara Zagora is entirely conformed to the special, individual characteristics of elderly people with disabilities. The syllabus includes the elements, necessary to build professional competencies for communication with the mentioned target group within the frame of the approved curriculum.

UDC Classification: 614.1

Keywords: training, geriatric specialists, communication, people disabilities.
IMMUNOHISTOCHEMICAL DETECTION OF TETRASPANINS CD81 AND CD9 DISTRIBUTION IN BULL TESTIS AND EPIDIDYMIS

Denisa Lipcseyová¹, Jana Antalíková², Jana Jankovičová³, Petra Cupperová⁴, L’ubica Horovská⁵, Katarína Michalková⁶, Michal Simon⁷

Abstract: Mammalian spermatozoa, produced by the testes, must undergo maturation in the epididymis to gain the ability to fertilize an ovum. This process includes structural modifications, such as changes in the lipid and protein composition of the plasma membrane. The CD81 and CD9 proteins, which are members of tetraspanin superfamily, have been found to be involved in the fertilization process. Our study examined the presence of CD81 in the bull testis and epididymis, and then compared CD81’s distribution profile with that of the molecule CD9. We detected CD81 in the basement membrane along the whole epididymis. In comparison, an abundant expression of CD9 molecule was found in the testis as well as in all three segments of the epididymis. Both molecules are part of the tetraspanin web, and are considered key elements in the sperm-egg interaction.

UDC Classification: 577

Keywords: CD molecules, immunohistochemistry, tissue.

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THE EFFECT OF THE TYPE AND CONCENTRATION OF COSOLVENTS ON THE
RHEOLOGICAL PROPERTIES OF SOME CHITOSAN-BASED HYDROGELS

Ana Maria Muţ1, Lavinia Vlaia2, Ioana Olariu3, Georgeta Coneac4, Zoltan Szabadai5,
Dan Dragoş6, Dumitru Lupuleasa7

Abstract

INTRODUCTION: Due to its excellent properties (biocompatibility, biodegradability, mucoadhesion, and
nontoxicity), chitosan, a hydrophilic biopolymer, has attracted increased interest as a gelling agent. Chitosan-
based hydrogels for topical application have been extensively studied as drug delivery systems for hydro-soluble
and poorly water-soluble drugs.

OBJECTIVES: This study investigated the effect of the type and concentration of certain cosolvents (glycerol,
propyleneglycol, polyethyleneglycol 400, and tetraglycol) on rheological properties of several chitosan based
hydrogels, as potential vehicles for topical application of various poorly water-soluble drugs.

METHODS: Using the gelling agent and the cosolvents in various concentrations, ranging from 3-4% and 10-
50% respectively, and a 1% acetic acid as a vehicle, 22 formulations were developed and evaluated.

RESULTS: A rheological analysis, conducted through steady-state, penetration, and spreadability
measurements, revealed a thixotropic-pseudoplastic behavior, with appropriate viscosity, consistency, and
spreadability, specific to semisolid systems. However, increases in the gelling agent and cosolvent
concentration, coincided with increases in the values of the rheological parameters, including the degree of
thixotropy. In addition, the cosolvent type induced differences between the rheological properties of the studied
hydrogels, with glycerol and propyleneglycol having the most pronounced effect.

CONCLUSION: Based on the study results, it is concluded that all studied chitosan-based hydrogels can be
used as vehicles for poorly water-soluble drugs intended for topical application.

UDC Classification: 615.4

Keywords: chitosan, hydrogels, cosolvent, rheological.

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PERCUTANEOUS PENETRATION ENHANCEMENT OF TENOXICAM FROM HPMC-BASED HYDROETHANOLIC GELS CONTAINING TERPENES
Georgeta Coneac1, Ioana Olariu2, Ana Maria Muţ3, Lavinia Vlaia4, Călin Popoiu5, Corina Stănciulescu6, Dumitru Lupuleasa7, Vicenţiu Vlaia8

Abstract
INTRODUCTION: Tenoxicam (TNX) is a poorly water-soluble non-steroidal anti-inflammatory drug that is widely used in the treatment of rheumatic diseases. It has favorable characteristics for cutaneous application and is considered as an alternative administration route to prevent the well-known severe gastrointestinal side effects.

OBJECTIVES: The aim of the present study was to investigate the enhancing effect of five terpenes (menthol, camphor, eucalyptol, thymol, and α-bisabolol) at 5% wet weight (w/w) concentration on the in vitro percutaneous penetration of TNX from hydroethanolic gels.

METHODS: Tenoxicam at 1% concentration (w/w) was formulated as a 2.5% hydroxypropyl methylcellulose (HPMC) based hydrogel containing 40 to 50% ethanol and propylene glycol of 20% w/w as cosolvents. In vitro permeation experiments were performed on excised pig ear skin. Permeation and release parameters of TNX from the gels with and without terpene enhancers were calculated.

RESULTS: The results showed that each of the studied terpenes significantly increased the percutaneous permeation of TNX through pig ear skin in comparison to the control. Eucalyptol was the most effective penetration enhancer, producing the highest values of cumulative amount of the released drug, steady-state flux, and release rate. Camphor showed moderate enhancing activity; while α-bisabolol and menthol led to lower TNX flux values.

CONCLUSION: The results suggest the potential use of HPMC-based hydroethanolic gels containing 5% eucalyptol as vehicles for topical delivery of TNX.

UDC Classification: 615.4

Keywords: tenoxicam, percutaneous penetration, terpene, gel.

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DEVELOPMENT AND CHARACTERIZATION OF NEW MELOXICAM ORGANOGELS FOR CUTANEOUS APPLICATION

Ioana Olariu¹, Georgeta Coneac², Ana Maria Muţ³, Dan Dragoş⁴, Zoltan Szabadai⁵, Cristina Dehelean⁶, Lavinia Vlaia⁷

Abstract

INTRODUCTION: Meloxicam (MLX) is a potent non-steroidal anti-inflammatory agent that, apart from having limited skin permeation, is a proven candidate for topical administration due to it having a relatively low molecular weight, high lipophilicity, and excellent tissue tolerability.

OBJECTIVES: The aims of this study were to develop a new topical organogel, containing 0.4% MLX, and to evaluate the effect of the type and composition of this vehicle on the availability of the drug, in vitro.

METHODS: Meloxicam was dissolved in a macrogol-based gel as six formulation variants (the variables being the type and concentration of the used penetration enhancers, Lansurf OA 14 (LOA), N-methyl-2-pyrolidone and oleic acid at 5% concentration, and glyceryl monostearate at 10% concentration) and in a gel, based on a nonionic surfactant (LOA) and glyceryl monostearate. Gels were assessed in vitro for appearance, homogeneity, pH, rheological properties, and MLX release through a synthetic membrane.

RESULTS: The results of the in vitro drug-release study revealed the differences between formulations were probably attributed to the combined effects of the type of the ointment base, the type and concentration of the penetration enhancer, and the viscosity or consistency of the systems.

CONCLUSION: The macrogol-based gels containing 2% LOA and 5% N-methyl-2-pyrolidone produced the highest values of steady-state flux and release rate through the synthetic membrane, and thus they are recommended as potential vehicles for MLX topical delivery.

UDC Classification: 615.4

Keywords: meloxicam, penetration enhancer, gel, cutaneous.

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EFFECT OF SOME PENETRATION ENHANCERS ON IN VITRO PERMEATION OF METOPROLOL TARTRATE FROM TOPICAL HYDROGELS THROUGH PIG EAR SKIN

Lavinia Vlaia¹, Vicenţiu Vlaia², Ioana Olariu³, Ana Maria Muţ⁴, Corina Stănciulescu⁵, Călin Popoiu⁶, Cristina Dehelean⁷, Georgeta Coneac⁸

Abstract

INTRODUCTION: Recently, it has been demonstrated that propranolol hydrochloride and metoprolol tartrate (MT) exert antiproliferative effect on infantile hemangioma. The pharmacokinetic properties of MT (significant hepatic first pass metabolism, short half-life) and its potential adverse effects after oral administration make this drug a suitable candidate for topical delivery. However, MT has a poor percutaneous penetration.

OBJECTIVES: The present study investigated and compared the effect of various penetration enhancers on dermal in vitro drug permeation across excised pig ear skin from 3% wet weight (w/w) MT hydrogels based on 2.5% w/w hydroxypropyl methylcellulose.

METHODS: The studied penetration enhancers include ethanol at 50% w/w concentration, propylene glycol at 30% and 60% w/w concentration, Labrasol, oleic acid, and N-metil-2-pyrrolidone at 5% w/w concentration. The MT hydrogels were evaluated for physical appearance, drug content, pH, rheological properties; also, in vitro drug release through porcine skin was determined and permeation and release parameters were calculated.

RESULTS: Ethanol at 50% w/w concentration, alone or in combination with 5% oleic acid, and propylene glycol at 30 to 60% w/w concentration, conducted the highest values of steady-state flux and release rate of MT through pig ear skin.

CONCLUSION: Considering the results, ethanol alone or combined with oleic acid and also propylene glycol can be used as penetration enhancers for MT from topical hydrogels through skin.

UDC Classification: 615.4

Keywords: metoprolol tartrate, penetration enhancer, in vitro permeation, hydrogel.
DIFFERENCE OF ANATOMY TEACHING FOR MEDICAL AND DENTAL STUDENTS

Darina Kluchová¹, Květuše Lovásová²

Abstract

INTRODUCTION: In the past, the amount of anatomical knowledge required of both medical and dental students was the same. From the viewpoint of stomatologists, there was a need to learn more precisely about regions of the head and neck regions of the human body.

METHODS: Two groups of students underwent the study of head and neck structures, one involved medical students and the other dental students. The group of dental students was taught structures of head and neck regions in more detail with the emphasis on regional anatomy.

FINDINGS AND RESULTS: The results of the evaluation of students’ knowledge relating to human anatomy differed for each group. Because the time allocated for anatomy teaching remained unchanged, i.e., it was the same for both groups, dental students had less time to study the human body outside the head and neck region. Compared to the group of medical students, the dental students displayed results from testing of their knowledge that were better in relation to the head and neck region, but worse in terms of other human body regions.

CONCLUSIONS: It is concluded that the subject of anatomy for dental students needs more time devoted to understanding the head and neck region than the rest of the body, which medical students need to understand to a greater extent.

UDC Classification: 378

Keywords: education, anatomy, knowledge, medical and dental students, evaluation.

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EVIDENCE-BASED MANAGEMENT OF LIPID DISORDERS

Stephanie Schaffer¹

Abstract

BACKGROUND AND AIMS: Dyslipidemia is increasing worldwide. Dyslipidemia is linked to obesity, a sedentary lifestyle and dietary habits with a high intake in saturated fats and processed foods. It carries a high risk of cardiovascular disease (CVD). Statins are the first line of treatment, but are not always well tolerated. The aims of this thesis are to evaluate risks and benefits of statin therapy in low risk patients and to compare this data with that from trials of alternative treatments for primary prevention of CVD.

METHODS: A systematic review of clinical trials evaluates the efficacy of statins, Ezetimibe, diet, exercise, Omega-3 fatty acids, Policosanol, and artichoke extracts for the treatment of dyslipidemia that were published between 1995 and today and used by patients without known CVD and aged from 18 to 75 years.

RESULTS: A PubMed search using the mentioned treatments, “dyslipidemia” and “trial” as search terms resulted in 541 hits. Finally, after screening and checking 45 studies, that were available as full text, fulfilled the inclusion and exclusion criteria and will be used for the systematic review that will form the basis of this dissertation.

CONCLUSIONS: While for some alternative treatments there might to be enough studies available to draw final conclusions about efficacy, others have been studied more extensively and there should be enough data for a meaningful systematic review.

UDC Classification: 614.4

Keywords: statins, ezetimibe, dyslipidemia, tolerability, alternative treatments.

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SIMULATION-BASED LEARNING IN MIDWIFERY EDUCATION IN TALLINN HEALTH CARE COLLEGE

Urve Kaasik-Aaslav1, Ene Kotkas2

Abstract
INTRODUCTION: Education in the simulation environment is widely used worldwide to provide students manual training to help them cope with situations in practical situations.

OBJECTIVE: The study aimed to identify the importance of students receiving simulation-based learning in midwifery education before their training in practical placement.

METHODS: A qualitative research was performed with data collected through a group interview process of students and mentors after students gained experience in an actual work environment. The focus-group involved 16 second-year midwifery students as well as their four mentors. All students had passed their simulation-based learning prior to practical placement in a health care institution.

RESULTS: Feedback from students and mentors revealed that simulation-based solving of the professional problems before the practical placement allowed students to better adapt to the work environment. Simulation-based learning develops students’ self-confidence in manual procedures and teamwork skills, preventing in practice the mistakes made in the simulation environment. It also develops communication skills and provides confidence in using technical equipment when observing patients and interpreting investigation results.

CONCLUSIONS: Simulation-based learning before practice in work environments provides students with support to achieve learning outcomes in their practical placement. Research in this field is a continuing process.

UDC Classification: 618
Keywords: simulation-based learning, simulation instructor training, training simulation environment.

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NATURAL SCIENCES AND ICT
OPEN SOURCE TECHNOLOGY AS AN OPTION FOR AN ALBANIAN UNIVERSITY WITH NO ONLINE PLATFORM: CAN IT BE USED TO IMPROVE LEARNING?

Gerda Sula

Abstract: Online platforms are a worthy opportunity for extended learning, peer collaboration, and joint efforts outside the university classroom. However, in order to offer such a pedagogical tool, the online environment needs to be designed for teachers and students alike. The University of Tirana does not offer such platforms and hence, this study explores whether other open source platforms could be used to fulfill the aims and objectives of the subjects offered at this university. The results of this research, comparing two groups of students’ performance of the Curriculum Design class, one with no online platform access, and the other with platform access, showed that students’ understanding was heightened significantly in the group with online access. In this paper, the benefits of such opportunities in developing countries with no technological platform are discussed. Furthermore, recommendations for the researcher or teacher are shared regarding the planning and management of resources, such as time, discussion, and conclusions for others interested in embarking on the same path.

UDC Classification: 378

Keywords: developing countries, higher education, open source.
ASSESSMENT OF TOXIC METALS IN SEDIMENTS OF MERİÇ, TUNCA AND ERGENE RIVERS BY USING BIOLOGICAL AND ECOLOGICAL RISK INDICES

Cem Tokatli¹, Yasin Baştatlı²

Abstract: The Meriç River, the longest river of the Balkans, is the most important aquatic ecosystem within the Thrace Region of Turkey, along with its main tributaries, the Tunca and Ergene Rivers. In this study, the sediment quality of Meriç, Tunca, and Ergene Rivers was evaluated by using the Potential Ecological Risk Index (RI) and the Biological Risk Index (mERM-Q), both widely used methods in sediment quality assessment studies, to assess the ecological and biological risks of heavy metals within the river ecosystems. According to the results of the Biological Risk Index, nickel and chromium displayed the highest risk factors, and in terms of the Potential Ecological Risk Index, cadmium yielded the highest risk factor across all the investigated lotic ecosystems.

UDC Classification: 556.5

Keywords: Meriç river, Tunca river, Ergene river, sediment quality, bio-ecological risk indices.

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EXPLORATION OF STYLIZED FACTS IN THE ARTIFICIAL LIFE SYSTEM AVIDA

Shinta Koyano¹, Lukáš Pichl²

Abstract: Population dynamics in the evolution, extinction, and re-evolution of various logic-function performing organisms is studied in the artificial life system, Avida. Following the work of Yedid (2009), we design an experiment involving two extinction regimes, pulse-extinction (corresponding to a random-kill event) and press-extinction (corresponding to a prolonged episode of rare resources). In addition, we study the effect of environmental topology (toroidal grid and clique graph). In the study of population dynamics, logarithmic returns are generally applied. The resulting distributions display a fat tail form of the power law: the more complex the logic function (in terms of NAND components), the broader the full width at half a maximum of the histogram. The power law exponents were in sound agreement with those of “real-life” populations and distributions. The distributions of evolutionary times, as well as post-extinction recovery periods, were very broad, and presumably had no standard deviations. Using 100 runs of 200,000 updates for each of the four cases (about 1 month of central processing unit time), we established the dynamics of the average population, with the effect of world topology.

UDC Classification: 004.8

Keywords: artificial life, evolution, extinction, re-evolution, power law distribution.

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CARBOHYDRATE CONTENT IN BULGARIAN AND TURKISH CAROB PODS AND THEIR PRODUCTS

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Abstract: Carob, Ceratonia siliqua, is cultivated for ornamental and industrial purposes in many Mediterranean countries. This study assessed carob pulp and syrup, a rich source of carbohydrates and sugars, by evaluating content of reducing sugars and total sugars in carob pulp before extraction of syrups. We identified the sugar content before and after treatment by using thin-layer (TLC) and high performance liquid chromatography with refractive index detection (HPLC-RID). It was established that total sugars increased with extraction and heat treatment. Sucrose (34.2 g/100 g dry weight; dw), glucose (11.1 g/100 g dw) and fructose (6.5 g/100 g dw) were the major sugars identified and quantified in pulp of the Turkish carob. Ceratonia siliqua pods of Turkish origin produced higher levels of total and of reducing sugars (fructose and sucrose) than did the pods from Bulgaria. The carbohydrate content in the syrup prepared from Turkish carob pods was highest, with the sucrose content especially reaching up to 45 g/100 g dw. The data are discussed in terms of nutritional and energy value of the carob pod. The carob and obtained products (flour or syrup) are identified as highly caloric and as a prospective energy source alternative to cocoa and its products.

UDC Classification: 543.6

Keywords: Ceratonia siliqua, carob syrup, sugar content, TLC, HPLC-RID.

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PARAMETRIC DESIGN OF DELTA ROBOT
Mert Gürgen¹, Cenk Eryılmaz², Vasfi Emre Ömürlü³

Abstract: This article describes a sophisticated determination and presentation of a workspace volume for a delta robot, with consideration of its kinematic behavior. With the help of theoretical equations, optimization is performed with the aid of the stiffness and dexterity analysis. Theoretical substructure is coded in Matlab and three-dimensional (3D) data for delta robot are developed in computer-aided design (CAD) environment. In later stages of the project, both 3D and theoretical data are linked together and thus, with the changing design parameter of the robot itself, the Solidworks CAD output adapts and regenerates output with a new set of parameters. To achieve an optimum workspace volume with predefined parameters, a different set of robot parameters are iterated through design optimization in Matlab, and the delta robot design is finalized and illustrated in the 3D CAD environment, Solidworks. This study provides a technical solution to accomplish a generic delta robot with optimized workspace volume.

UDC Classification: 62-1/-9

Keywords: parallel robot, workspace, dynamic analysis, kinematic analysis, matlab, delta robot.

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WIENER’S BLACK BOX IN THE DYNAMIC IDENTIFICATION OF METALLURGICAL PROCESS WHICH IS BEING AUTOMATED

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Abstract: The use of physical and chemical models in metallurgic automatic control algorithms is rather complex. The reasons include a high rank of the multiple correlation, which requires sufficient aprioristic information; and the static character of most coefficients and variables. The result is a complex mathematical apparatus, and a development timeline that becomes so long that the project may not be useful. Schematically, the same processes may have different technological conditions and this lowers the unification ratio of solutions. Rather than focusing on the definition of the observed variable dependencies on each perturbation, the suggested method in this article involves the study of the behavior of the output variable, conditionally accepting that the system is affected by some common parameter (factor) that is the resultant action of perturbations. In keeping with this approach, we plot a series of ramps, form a system of mathematical models, calculate automatic regulator parameters, and create an adaptive control algorithm. An example of the method and results is presented in the article. Based on the adequacy of models using the initial data, this study found that the greatest value of divergence from the results of five experiments was 0.18%.

UDC Classification: 681.5

Keywords: identification, ramp, mathematical model, adaptive regulator.

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CAR-SHARING: THE IMPACT ON METROPOLITAN SPATIAL STRUCTURES

Piotr Marek Smolnicki¹, Jacek Soltys²

Abstract: Many examples from the past show how new technologies, designed to solve particular problems, can create new problems as a side-effect. Some unforeseen or unwanted results may influence the use of space and spatial structures, for example. Car-sharing is an invention that competes with car ownership and which can drastically rise the efficiency of car use and reduce the number of vehicles per users. Diffusion of car-sharing will accelerate in the near future. The spatial consequences of a car-ownership-oriented-century are already known. However, the complications of all travelers using shared automobiles is yet to be understood. It is therefore appropriate to anticipate and prepare for potential side effects of this innovation’s diffusion and thus avoid possible negative consequences. This reasoning has led to our research into the relationship between modern mobility innovations and metropolitan spatial structures. The earliest implementations of new transport technologies appeared in metropolises, which also have the highest level of general mobility. This article presents the assumptions and principles from scenario-based research. The example shows how diffusion of this innovation determine possible scenarios relating to future impacts of car-sharing on spatial structures.

UDC Classification: 656.1

Keywords: automobile ownership, car-sharing, metropolitan spatial structures, urban planning.

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EXPERIMENTAL AND ANALYTICAL INVESTIGATION ON EFFECT OF STATOR WINDING TYPE TO EQUIVALENT CIRCUIT PARAMETERS OF INDUCTION MOTORS
Fevzi Kentli¹, Aykut Kentli²

Abstract: Because of development in technology, the design of electrical machinery is changing. Induction motors, mostly used as electrical equipment, have developed over the years. One analytically studied area is the stator winding. Generally, each manufacturer uses techniques that directly affect the power of motors and thus, motor efficiency. In this study, the effects of three different stator winding types on motor parameters are investigated. Experiments are performed under no-load, load, and locked rotor conditions. Terminal voltage, power per phase, and phase current values are measured. Power and certain parameters are calculated using an equivalent circuit model. Lastly, a comparison of the results is provided.

UDC Classification: 621.3

Keywords: stator winding, power, equivalent circuit parameters.

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THERMODYNAMIC PROPERTIES OF PARTIALLY IONIZED HYDROGEN PLASMA

Maratbek Gabdullin¹, Tlekkabul Ramazanov², Tomiris Ismagambetova³, Ainur Karimova⁴

Abstract: This paper considers dense partially ionized hydrogen plasma. The model of interaction between particles was used to study properties of plasma. Interaction potentials were obtained through the dielectric response function method. Effective potentials, taking into account the screening effects at large distances and the quantum-mechanical diffraction effect at small distances, were used to model the interaction between particles. Another effective screening potential was chosen to describe the charge interaction with neutral atoms. This potential takes into account the interaction between free charge and atomic nucleus with centrally symmetric distribution of the electron density. The degree of ionization was calculated through solving the system of Saha equations. Pair correlation functions were studied in the exponential approximation. Thermodynamic properties for hydrogen plasma were calculated using the effective potentials and obtained on their base pair correlation functions. Internal energy and equation of state of partially ionized hydrogen plasma were compared with the results from previous research. The results indicated that the difference observed with high values of parameters was due to increase in the concentration of atoms.

UDC Classification: 533.9

Keywords: plasma, potential, structural, thermodynamic.

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MODELING AND ANALYSIS OF ABSORBING BOUNDARY CONDITION IN ANTENNA DESIGN

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Abstract: In this study, the absorbing boundary condition is modelled and analyzed by particle swarm optimization for antenna designs. Two pieces of circular and rectangular microstrip patch antennas are designed for results by means of High Frequency Structure Simulator (HFSS) simulation program. These antennas are implemented by printed circuit board technologies. The results of measurements and simulation performed for the antenna determined the optimal absorbing boundary distance. In order to be closer with simulation and measurement results, data set is generated by varying in absorbing boundary size. Average square error between simulation and measurement data is necessary to be optimized as an objective function. For this reason, optimization algorithm based on swarm intelligence is preferred to be minimized the error function. Thanks to the results of measurements and simulation performed with the antenna, optimal absorbing boundary distance is determined by Particle Swarm Optimization.

UDC Classification: 621.3

Keywords: microstrip patch antenna, absorbing boundary condition, HFSS, particle swarm optimization

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A TOOL FOR EMOTIONAL USER EXPERIENCE ASSESSMENT OF WEB-BASED MEDICAL SERVICES

Alexander Nikov¹, Tramaine Gumaia²

Abstract: Emotional User Experience Design (eUXD) has become increasingly important for web-based services. The primary objective of this study is to enable users to use websites that are easy to understand and operate and pleasing to use. A checklist tool for an emotional user experience (eUX) assessment that supports web-based medical services is proposed. This tool measures user moods while using medical services’ websites. The tool allocates emotive design-oriented problems and thus defines relevant website design recommendations. A case study was performed illustrating the proposed tool on a website offering medical services. Five variants of this website with different design element categories were created. These variants were assessed, analyzed, and proposed for further redesign in applying the tool. The results reveal the variant and website design elements that best influenced eUX. Significant improvement in eUX is expected with implementation of design recommendations of this study. The advantages of the tool are: (1) measuring emotional responses of medical website users, (2) allocating emotive problems, (3) defining of recommendations for eUX design of web-based medical services, and (4) creation of suitable practices for eUX design of web-based medical services.

UDC Classification: 617.7

Keywords: user experience, user emotions, assessment, tool, checklist, web-based medical services.

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COMPARATIVE ANALYSIS OF NON-CONTACT ULTRASONIC METHODS FOR DEFECT ESTIMATION OF COMPOSITES IN REMOTE AREAS

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Abstract: There are various ultrasonic systems, developed for the effective testing and estimation of defect parameters in composite materials. Non-contact ultrasonic testing has already achieved significance over traditional contact methods that require coupling of media and are not well suited for the transmission of surface acoustic waves (SAW), which can cover a large area of structure under investigation. This paper compares approaches of air-coupled transmission/reception, laser ultrasonic, and electromagnetic acoustic transducer (EMAT), for testing and verification of composites and defect estimation in remote areas. It reviews the various practical applications. The study found the hybrid solution, consisting of the laser system as a transmitter and the air-coupled method as a detector, is the best among all.

UDC Classification: 620

Keywords: ultrasonic, defects, non-contact, composite materials, laser.

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LATHE SELECTION USING ANALYTIC HIERARCHY PROCESS AND INFORMATION AXIOM

Aykut Kentli¹, Serhat Akbaş²

Abstract: Selection of appropriate equipment, place, or employee is a problem that needs consideration by industry, as capacities develop and efficiencies become more valued over the recent decades. Several decision-making techniques have been developed and applied to many different areas to evaluate their reliability. This study focuses on the application of a hybrid decision-making technique of Analytic Hierarchy Process and Information Axiom to solve the problem of lathe selection. Results show that appropriate machine tools can easily be selected within a short time using this approach.

UDC Classification: 621.7

Keywords: analytic hierarchy process, information axiom, lathe selection.

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DESIGN OF HYDROKINETIC ENERGY GENERATION SYSTEM

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Abstract: Along with technological developments and increasing population, people are in need of more energy sources. This need has led researchers to go towards new energy generation methods. One of these methods is hydrokinetic energy generation, which has been studied intensively in recent years. In this study, complete design of a hydrokinetic turbine that converts kinetic energy into mechanical and electrical energy with the most efficiency using tidal water is proposed. Moreover, an undershot water wheel system is designed to gain the least dissipationless conversion of kinetic energy. The design of the hydrokinetic energy generation system is developed considering the environmental and maintenance factors, maximum efficiency and buoyancy. Calculation for the velocity of the turbine is made by using Betz’s law, usually used for wind energy conversion systems. Conversion of obtained mechanical energy from the turbine to electrical energy is supplied by using a proper alternator system.

UDC Classification: 621.22

Keywords: hydrokinetic turbine, water wheel, Betz’s law, energy generation.

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AUTOMATING THE CONSTRUCTION OF SELECTED-RESPONSE ITEMS WITH A TEXT-TO-ITEMS CONVERTER

Wojciech Malec

Abstract: This paper focuses on the role of technology in facilitating the process of language test development in online settings. In particular, it takes an in-depth look at one specific step in the entire testing cycle: the construction of (selected-response) test items with the aid of the text-to-items converter on WebClass, the author’s own online learning management system (webclass.co). The text converter can be used to edit an entire set of questions in a single editor pane (similar to a word processor) and then submit them to a parsing script which converts them into test items proper. The main advantage of using the converter is time efficiency: instead of moving step-by-step from one item to the next (which may be time-consuming), a large number of test items can be created in one go.

UDC Classification: 37

Keywords: language testing, web-based test construction, selected-response items, text-to-items converter, WebClass.

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EMG ONSET DETECTION - A HIDDEN FACTOR
Mateusz Magda

Abstract: Electromyographic (EMG) examination has gained popularity and was deployed in both practical and research fields. This technology enables one to observe the voltage generated by a neuromuscular system and to interpret body movements. Over time, it has been proved highly difficult to precisely determine the beginning of a muscle contraction. A relatively low signal to noise ratio, which is even smaller in case of a surface electromyography (sEMG), complicates this task, and more advanced onset detection algorithms were proposed. Despite the existence of statistically advanced algorithms, proposed in recent years, in many cases a manual onset detection performed by an EMG specialist remains in use, mainly due to lack of reliable solutions. This paper presents a hidden factor, not found in the literature until now, which directly relates subsequent voltage values with muscle activity. Observation of this parameter helps detect muscle onset precisely. Combined with other statistical factors, it can shed light on a totally new, enhanced branch of muscle onset estimators. This study conducts a numerical comparison to follow the hypothesis that the examined factor is correlated with a muscle contraction state.

UDC Classification: 612

Keywords: EMG, muscle, onset, detection, factor.

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SYNTHESIS EVALUATION AND QUANTUM MECHANICAL CHARACTERIZATION OF CYCLOHEXYLAMINE CONTAINING DERIVATIVES OF METHYLXANTHINE

Maya Georgieva¹, Javor Mitkov², Lily Peikova³, Plamen Peikov⁴, Alexander Zlatkov⁵

Abstract: The synthesis of methylxanthine derivatives could provide a sound approach to developing new analogues with similar or novel pharmacological profiles. The synthesis of six new compounds: two derivatives of 8-substituted-1,3,7-trimethylxanthine and four derivatives of 1-propyl-3,7-dimethylxanthine containing a cyclohexyl fragment, are presented. The structures were confirmed by elemental analyses using Furrier Transform Infrared Spectroscopy (FTIR) and Nuclear Magnetic Resonance (NMR) spectral data. The chemical reactivity of the new molecules was assessed, based on computed values for their electrophilicity index, molecular hardness, and chemical potential. The structures were identified as hard molecules, relatively inert to electrophilic attack, whereas Compound 10d was outlined as the most prominent for accepting electrons.

UDC Classification: 615.3

Keywords: 1 or 8-substituted methylxanthines, structural analysis, spectral analysis.

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MICROSCOPIC MODEL OF KNOWLEDGE INCREASE AND ITS VERIFICATION
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Abstract: Knowledge growth models, based on primary principles, play a fundamental role in the cognitive sciences. The authors submit an extension of their model (ENKI) from 2005, with the results of the practical testing, which was performed using the method developed for the purpose of model ENKI of solving tasks with immediate feedback. This was applied to the curriculum of parallel configuration of resistors in electrical circuits. There were 73 pupils from six elementary schools in attendance for testing. Analysis based on ENKI indicates that three autonomous units (scopes) were evaluated simultaneously during the assessment. Results showed that 25% of pupils knew the curriculum, 9% of pupils showed no improvement, while 66% of pupils showed an increased success in accordance with the ENKI model (significance level \( \alpha = 0.05 \)). Solving 7.2 typical tasks on average, by a method of immediate feedback resulted in 90% of the pupils mastering the curriculum.

UDC Classification: 37.01/.09

Keywords: cognitive science, electrical circuit, testing elementary students.

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THE RESEARCH OF DRIVER’S GAZE AT THE TRAFFIC SIGNS

Martin Hudák¹, Radovan Madleňák²

Abstract: Traffic signs provide drivers with appropriate warnings and information and signal legal requirements and directions. The aim of this article is to research the frequency and duration of a driver’s gaze at traffic signs. The selected stretch of road in the Slovak Republic has been subjected to a high number of traffic accidents with the most common causes reported as incorrect driver behavior and distracted driving. Therefore, the study’s objective is to measure the time drivers spend looking at billboards. To achieve this outcome, the study uses eye tracking glasses, which are designed to record a person’s natural gaze behavior in real-time. Previous research has shown that the average time gazing at a billboard is 0.543 seconds. The article also contains a comparison of driver’s gaze at different traffic signs and billboards. The economic quantification of traffic accidents on the selected road is also included in the article.

UDC Classification: 656.1

Keywords: traffic, signs, driver, billboards, accidents.

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RP-HPLC METHOD FOR SIMULTANEOUS DETERMINATION OF METRONIDAZOLE AND OFLOXACIN IN SYNTHETIC MIXTURE

Vania Maslarska¹, Boyka Tsvetkova², Lily Peikova³, Stanislav Bozhanov⁴

Abstract: Development and validation of a high-performance liquid chromatographic analytical procedure for simultaneously determining metronidazole and ofloxacin in a synthetic mixture is described in this paper. The separation was made with a LiChrosorb® RP-18 (250 × 4.6 mm) column, at 30 °C temperature, with isocratic mode and mobile phase, containing triethylamine, acetonitrile, and 0.3% o-phosphoric acid solution (0.02:20:80 v/v/v). Eluent was monitored at 290 nm and the flow rate was 1.0 ml/min. Metronidazole and ofloxacin were effectively separated with retention time (t_r) of 3.42 min and 6.15 min, respectively, within the selected chromatographic conditions. The method was validated for analytical parameters: specificity, linearity, precision, accuracy, and limits of detection and quantitation. The calibration curves were linear in the concentration range of 12.5 to 100.0 µg/ml for metronidazole and ofloxacin, and the regression coefficients were more than 0.999. For metronidazole and ofloxacin the recovery was 100.01% and 100.04%, respectively. This analytical procedure is applicable for the quality control of drug formulations.

UDC Classification: 543.6

Keywords: metronidazole, ofloxacin, RP-HPLC, validation, drugs, quality control.

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AUTOMATIC GENERATION OF ENGLISH LANGUAGE TEST QUESTIONS USING MATHEMATICA

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Abstract: This paper describes a computer algebra-aided generation of two types of English language tests, which further develops our recent work in this domain. The computer algebra system Wolfram Mathematica significantly advances the process of English language testing and assessment. The automatic generation of questions allows us to create a large set of equivalent questions of a certain topic based on a small amount of input values. This reduces authoring time during test creation, avails application of equal criteria and a fair assessment, and decreases the influence of subjective factors. In our previous work, we proposed methods for automatic generation of English language test questions. These were aimed at evaluating the students’ knowledge of lexical and grammatical structures found in the text using test questions that involved matching words and their meaning, matching parts of the whole, and finding synonyms, antonyms, and generalizations or specializations of words. This paper provides new methods for the automatic generation of English language test questions. This includes generating questions for testing the students’ knowledge of adverbs and adjectives, as well as word formation, especially with negative forms of adjectives.

UDC Classification: 004.42

Keywords: e-testing, parameterization, dynamic questions, automatic generation, mathematica, programming.

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A METHODOLOGICAL APPROACH FOR IMPLEMENTATION OF ADAPTIVE E-LEARNING

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Abstract: The purpose of adaptive e-Learning is to ensure effective teaching by providing an opportunity for students to connect with an environment that suits their needs, behavior, and knowledge. The reason adaptive e-Learning is important is that, for a learning process to be successful, it is necessary to consider teaching materials that address specific characteristics of the student, such as their particular goals, preferences, knowledge, and style of studying, to provide an appropriate teaching strategy.

In this article we present a methodological approach for implementing the adaptive e-Learning in the course “Computer information systems in tourism”, offered to students in the program “Tourism” through the Smolyan affiliate of the Plovdiv University “Paisii Hilendarski”, using the Distributed Platform for e-Learning (DisPeL). The platform DisPeL enables a user to report on different aspects of the learning process, for example, the time each student takes to learn a specific topic from the curriculum, and the number of incorrect and correct answers from individuals as well as the entire group of students who were trained over a given period of time.

UDC Classification: 004.9

Keywords: e-learning, adaptive e-learning, adaptability in training, effective teaching.

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GEOELECTRICAL RESISTIVITY VARIATIONS OF SEDIMENTARY GROUND INDUCED BY METEOROLOGICAL AND GEOMORPHOLOGICAL CONDITIONS (ROMANIA)

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Abstract: Several Vertical Electrical Soundings (VES) were conducted repetitively in five different locations in sedimentary shallow ground. After a careful analysis of the collected data we came to the conclusion that even in the absence of rainfalls, the resistivity values at shallow depths varies along with the other meteorological parameters such as: air humidity, temperature, air pressure and evaporation. The variation curves obtained by subtracting the resistivity values for each repeated sounding revealed three inflexion points at relatively similar depths, regardless of the geotechnical features of the ground. These inflexion points are related with the depths at which several phenomena or processes occur, such as: freezing, influence of both the atmospheric pressure and humidity, capillarity and soil compaction by evaporation. Below these threshold depths, the variation curves tend to flatten, emphasizing the diminution of the influence of meteorological factors, while the geomorphological processes tend to extend the impact of the meteorological parameters to higher depths, preserving the shape of the variation curves.

The aim of the study is to emphasize the variation of the resistivity values at shallow depths in correlation with the variation of the meteorological parameters, in order to reduce the interpretation errors as much as possible and increase the geomorphological interpretation accuracy of the geophysical data.

UDC Classification: 552

Keywords: geological resistivity variations, sedimentary ground, meteorological, geological, Romania.

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THE POTENTIAL OF AROMA PROFILES/CHEMICAL BIOMARKERS IN UNIFLORAL HONEY CHARACTERISATION: THE CASE OF SATUREJA SPP. HONEY TYPES

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Abstract: Croatia, due to different climatic zones (Mediterranean, continental, or mountain), exhibits a variety of conditions for the production of different honey types due to large biodiversity of plants. Our research (the project HRZZ-IP-11-2013-8547) has been focused on the honey chemical characterization using advanced chemical methods and hyphenated techniques in order to supplement basic pollen analyses. Different honey types have been investigated and typical chemical profiles have been found, including specific or non-specific chemical biomarkers of botanical origin. The honey aroma is of great interest for its characterization, particularly of monoterpenes, norisoprenoids, and benzene derivatives. The genus, Satureja, is comprised of approximately 200 species, and in Croatian flora, four species are distributed in the Mediterranean region: S. montana L., S. cuneifolia Ten., S. subspicata Vis., and S. visianii Šilić. The focus of this research is on S. montana L. and S. subspicata Vis. honey types. The honey ultrasonic solvent extracts were analyzed by gas chromatography and mass spectrometry. All Satureja spp. honeys can be characterized by a predominant abundance of prephenate derivatives, particularly methyl syringate that could be used as a non-specific chemical biomarker. Higher amounts of methyl syringate can be identified for distinguishing S. subspicata Vis. honey from other Satureja honeys. In conclusion, methyl syringate can be used for distinguishing Satureja ssp. honeys from other unifloral or multifloral honey types.

UDC Classification: 547.1

Keywords: Satureja spp. honey aroma, prephenate derivatives, methyl syringate.

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