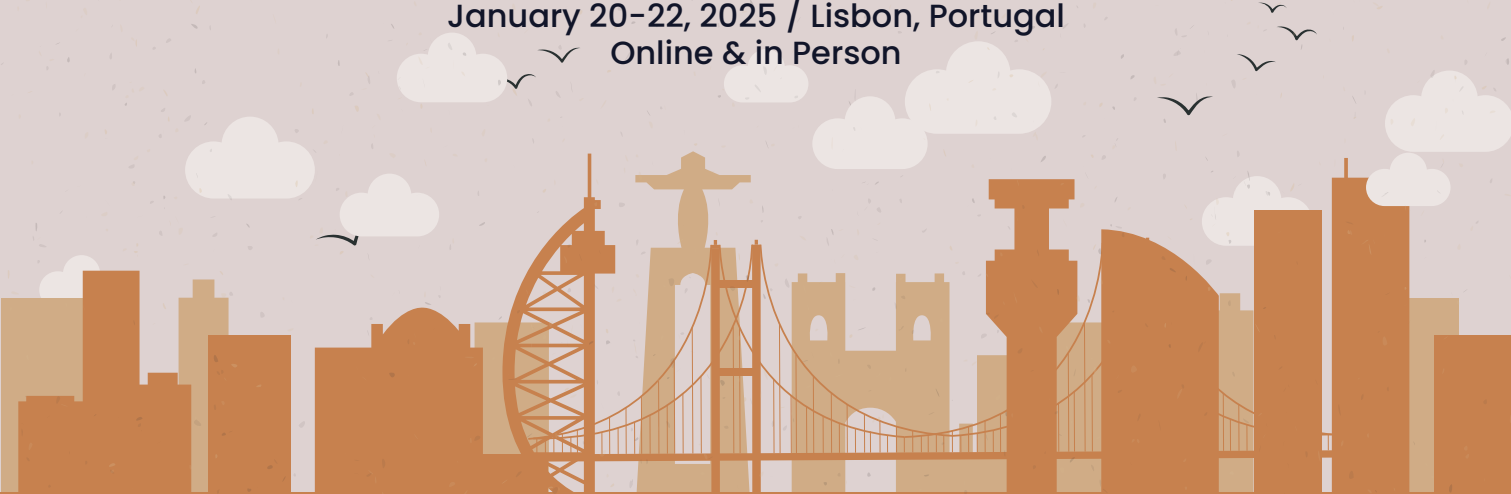


11th International EUROPEAN CONFERENCE on Interdisciplinary Scientific Research

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Online & in Person



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Editors

**Assoc. Prof. Dr. Mehmet Emin KALGI
Assist. Prof. Dr. Sinan ÖZYURT**

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CONTENT

CONFERENCE ID	I
PROGRAM	II
PHOTO GALLERY	III
CONTENT	IV

Author	Title	No
Raziye BOZKURT	EXAMINING THE LIQUEFACTION POTENTIAL OF A REGION WITH KNOWN SOIL PARAMETERS; AKSARAY, EREĞLİKAPI EXAMPLE	1
Raziye BOZKURT	INVESTIGATION OF SEISMICITY WITH EQUIVALENT LINEAR ANALYSIS METHOD FOR A REGION IN AKSARAY CITY OF TURKEY	10
Yusuf SOLMAZ Korkmaz BELLİTÜRK	EFFECT OF VERMICOMPOST APPLICATION ON SOIL HEALTH IN SUSTAINABLE AGRICULTURE	20
Chakan CHALİL Yusuf SOLMAZ Korkmaz BELLİTÜRK	DETERMINATION OF NUTRITION STATUS OF OLIVE (Olea europaea L.) ORCHARDS IN GÜMÜLCINE (GREECE) BY MEANS OF LEAF ANALYSIS	28
Esra ÇİÇEK (KÖKÜM)	THE SOCIOPOLITICAL EFFECT SOF THE SYRIAN MIGRATION IN TURKEY: CHALLENGES, POLICIES, AND FUTURE PERSPECTIVES	45
Osman BAYRAKTUTAN Mehmet Emin KALGI	ALI DURMUŞ, "AN AKHİSAR SCHOLAR IN THE OTTOMAN EMPIRE: AHMED-I RÛMÎ AND THE TREATISE OF CREED", IKSAD PUBLISHING, ANKARA: 2022, PP. 128.	55
Osman BAYRAKTUTAN Mehmet Emin KALGI	MEHMET ÖZMENLİ, STATE AND CIVIL ORGANIZATIONS AMONG THE TURKS, IKSAD PUBLISHING HOUSE, ANKARA: 2023, PP. 184	60
Eda YILDIZHAN Mazlum GÜNDÜZ Burak Veli ÜLGER Şehriban DURSUN DAĞ	ADENOMATOUS POLYPS IN THE LARGE INTESTINE: CASE REPORT	66
Eda YILDIZHAN Mazlum GÜNDÜZ Burak Veli ÜLGER Şehriban DURSUN DAĞ	THE IMPORTANCE OF BIOPSY IN GASTRIC POLYPS WITH ENDOSCOPIC IMAGING	75
Mehtiyeva Shahla Namig Qasimova Gulnara Nisan Heybatova Milana Faig Karimova Rena Jabbar	CLINIC, DIAGNOSIS AND TREATMEN OF MYASTHENIC SYNDROME	83
Guliyeva Tamara Sayad	CLICNICAL AND PATHOLOGICAL FEATURES OF SOFT TISSUE SARCOMAS	92

Uğur KAPLANKAYA Erhan ÖNALAN	THE ROLE OF SERUM TRIMETHYLAMINE N-OXIDE AND LIPOPOLYSACCHARIDE LEVELS IN THE PATHOGENESIS OF THE DISEASE IN PATIENTS WITH CHRONIC GASTRITIS INFECTED WITH H. PYLORI PROSPECTIVE STUDY ANALYSIS	99
Zeynep BIYIK	PROGNOSTIC NUTRITIONAL INDEX AND RELATED FACTORS IN PATIENTS WITH SEPSIS	110
Necibe Şeyda TUNALI Hamide AYĞÖR	EVALUATION OF THE PREGNANT WOMAN WITH GESTATIONAL DIABETES ACCORDING TO THE ROY ADAPTATION MODEL; CASE REPORT	116
Sunatrah Abdullahi Leong Kok Seng Azmi Ahmad	EXPLOITING BIOLOGICAL AGENTS AND SYSTEMIC DELIVERY MECHANISMS FOR ENHANCED AND SUSTAINABLE PEST MANAGEMENT IN AGRICULTURE	126
Leong Kok Seng Sunatrah Binti Abdullahi Azmi Bin Ahmad	A NOVEL PBI-BASED COMPOSITE MEMBRANE WITH SILICON DIOXIDE NANOPARTICLES FOR HIGH-TEMPERATURE PEMFC	133
Ilirjana Osmani Aurel Nuro Arben Haziri	EVALUATION OF WATER QUALITY OF BATLLAVA LAKE, KOSOVO	142
Gülçin Baysal	CONDUCTIVE COMPOSITE HYDROGELS FOR WEARABLE TEXTILE APPLICATIONS	148
Busra OZDENIZCI KOSE Ferhat ÜNLÜKAL Vedat COSKUN	AN INTEGRATED MOBILE SOLUTION FOR OPTIMIZING SME FINANCIAL MANAGEMENT AND TAX COMPLIANCE	157
Busra OZDENIZCI KOSE Selçuk YOLCU Vedat COSKUN	DESIGN OF A SELF-SERVICE FUEL DISPENSING SYSTEM FOR ENHANCING OPERATIONAL EFFICIENCY AND CUSTOMER EXPERIENCE	163
Ceyda KÖK	INVESTIGATION OF THE EFFECT OF DIFFERENT DRIVETRAIN TYPES ON VEHICLE PERFORMANCE IN FUEL CELL VEHICLES	169
Rabia BOVKIR	URBAN DYNAMICS AND CLIMATE NEUTRALITY: GIS INSIGHTS FOR SUSTAINABLE URBAN MANAGEMENT IN ISTANBUL	177
Adem YILMAZ	THE IMPACT OF CREATIVE ARTIFICIAL INTELLIGENCE APPLICATIONS ON PRE-SERVICE TEACHERS' PROJECT WRITING SKILLS	185
Adem YILMAZ	THE ROLE OF LEARNING ENGINEERING IN SCIENCE EDUCATION AND CONSTRUCTING NEXT-GENERATION LEARNING	194
Taha YILMAZ Mehmet Emin KALGI	RELIGIOUS TEXTS BASED ON DAMAL ALEVIS IN THEIR RELIGIOUS RITUALS	210
Taha YILMAZ Mehmet Emin KALGI	ADAP-ERKAN APPLIED IN RELIGIOUS RITUALS IN DAMAL ALEVIS	216
Muhittin ELİAÇIK	POEMS ABOUT COFFEE IN DIVAN POETRY	222
Muhittin ELİAÇIK	A BETTING ABOUT THE POETRY SUBJECT TO THE FATWA	228
Hilal AKÇİL	ANALYSIS OF IMPLEMENTATION RATES OF	232

Gökhan Rifat KOÇYİĞİT	ARCHITECTURAL PROJECT COMPETITIONS IN TURKEY BETWEEN 1930 AND 2024	
Fatma BEBEKLİ Fatma Seda ÇARDAK	AN EXAMINATION OF THE CULTURAL AND URBAN TRANSFORMATION PROCESS OF INDUSTRIAL AREAS IN HISTORICAL ENVIRONMENTS: THE ZECHE ZOLLVEREIN INDUSTRIAL COMPLEX	242
Fatma Zeynep KIZILTAŞ Rifat Gökhan KOÇYİĞİT	THE PROBLEM OF POLYSEMY IN THE CONCEPT OF IN-BETWEEN SPACE	258
Can KALINSAZLIOĞLU Gökhan Rifat KOÇYİĞİT	ANALYZING THE CONDITIONS OF SPATIAL PRODUCTION IN TURKEY THROUGH PIERRE BOURDIEU'S FIELD THEORY	272
Murat AYDIN	AN OVERVIEW OF THE ISO 50001 (ENERGY MANAGEMENT) AND ITS INTEGRATION INTO ARCHITECTURE, ENGINEERING, AND CONSTRUCTION PROJECTS	284
Murat AYDIN	AN OVERVIEW OF THE ISO 31000 (RISK MANAGEMENT) AND ITS INTEGRATION INTO ARCHITECTURE, ENGINEERING, AND CONSTRUCTION PROJECTS	301
Erion SUKAJ	ZINC OXIDE NANOPARTICLES - ERYTHROCYTE INTERACTION: CONCENTRATION-DEPENDENT ZNONPS TOXICITY IN HUMAN ERYTHROCYTES	318
Ping Yu	THE WEAKNESSES OF SALEM AL.'S AUTHENTICATION AND KEY AGREEMENT SCHEME FOR SECURING MULTI-SERVER	326
Albina BASHOLLI Teuta BUDLLA (MYFTIU)	GEOGEBRA'S ABILITY TO INTEGRATE ALGEBRA WITH GEOMETRY	335
Kadriye Filiz BALBAL	CUSTOMER SATISFACTION CLASSIFICATION USING ENSEMBLE LEARNING ALGORITHMS BASED ON RECURSIVE FEATURE ELIMINATION	341
Ayşenur SERT	CONSUMER BEHAVIOR FROM A BEHAVIORAL ECONOMICS PERSPECTIVE	348
Buket SEZER B. Dilek ÖZBEZEK Mohamad ALSAYED	PERCEPTUAL DIFFERENCES IN THE CONTEXT OF TOXIC LEADERSHIP AND DEMOGRAPHIC CHARACTERISTICS: A CASE STUDY OF NGO EMPLOYEES IN GAZIANTEP	357
Zeynep SARIKAYA ÇALIŞKAN Kamil Arif KIRKIÇ Hümevra KALAFAT	EXPLORING QUALITY IN HIGHER EDUCATION: AREAS FOR IMPROVEMENT IN UNIVERSITIES WITH CONDITIONAL ACCREDITATION	370
Bilge Özel	EXAMINING THE SECONDARY SCHOOL MUSIC COURSE CURRICULUM IN TERMS OF LIFELONG LEARNING BASIC COMPETENCIES	382
Zekiye Tuğçe BULUT SARIKAYA Mehmet Emin USTA	EXAMINATION OF PRESCHOOL TEACHERS' SELF-EFFICACY PERCEPTIONS TOWARDS THE INCLUSIVE INTEGRATION OF CHILDREN WITH SPECIAL NEEDS ACCORDING TO VARIOUS VARIABLES	390
Murat HEVEDANLI	INVESTIGATION OF COOPERATIVE LEARNING	413

	METHOD IN TERMS OF SOFT SKILLS	
Murat HEVEDANLI	INVESTIGATION OF TURKEY CENTURY EDUCATION MODEL SECONDARY EDUCATION BIOLOGY CURRICULUM IN TERMS OF INFORMATION LITERACY	427
Sabina Bollano Klea Biqiku Altea Bollano	GENTRIFICATION AND SOCIAL COHESION IN URBAN COMMUNITIES: NAVIGATING THE COMPLEXITIES OF URBAN TRANSFORMATION	438
Tran Quoc NHAN Nguyen Van NAY	RELATIONSHIP BETWEEN INTERNET USE AND FARM PROFITABILITY: EVIDENCE FROM RICE FARMERS IN VIETNAM	459
Marcela Mele	FUNCTIONAL URBAN AREAS IN ALBANIA: NEW TERRITORIAL REALITIES AND CHALLENGES	467
Anabela P Massano Joao Matias Pedro G Martinho Geoffrey R Mitchell	DIGITALISATION OF LEGACY POLYMER PROCESSING TECHNOLOGY AS PART OF THE DIGITAL TRSNAFORMATION	474
Edison IKONOMI Redon ZOTAJ Entela IKONOMI	EDUCATIONAL IMPACT ON HEALTH OF PUPILS	483
Edison IKONOMI Redon ZOTAJ Lorenc KAPXHIU	MOTOR SKILLS HELP CHILDREN IN PERFORMANCE MOVEMENT	492
Arbana Zhapaj Adriana Qafa	DEVELOPMENTAL THERAPIST STRATEGIES FOR EFFECTIVE SUPPORT AND PARENTING OF CHILDREN WITH SPECIAL NEEDS	500
Adriana Qafa Arbana Zhapaj	STRENGTHENING EDUCATIONAL LEADERSHIP IN ALBANIA: CHALLENGES, STRATEGIES, AND FUTURE DIRECTIONS	508
Rogério Schilahta de MAGALHÃES Vania Malagutti FIALHO	BETWEEN STAGES AND CLASSROOMS: THE CONSTRUCTION OF PROFESSIONAL IDENTITY AMONG MUSIC TEACHERS	520
Esmeralda KAJA	SOCIAL CORPORATE RESPONSIBILITY GOVERNANCE AND THE DYNAMICS OF LEGAL CONCERNS IN ALBANIA: A SCOPING REVIEW	528
Hilal ERTÜRK YAŞAR Emrah ATAY	EMOTIONAL NUTRITION AND SOCIAL PHYSICAL ANXIETY IN PROSPECTIVE TEACHERS	547
Hilal ERTÜRK YAŞAR Didem Gülçin KAYA	PRE-SERVICE TEACHERS' ATTITUDES TOWARDS TECHNOLOGY AND THEIR ACADEMIC SELF- EFFICACY	559
Mustafa Önder ŞEKEROĞLU	SUPERSTITIONS AND RITUALS IN SPORT	572
Özgür AGDOĞAN Gülşel AYAŞ	RELATIONSHIP BETWEEN BREAST REDUCTION- MASTOPEXY AND PLATELET MPV VALUES IN STAGE 3 GYNECOMASTIA	578
Sinan ÖZYURT Mehmet Emin KALGI	THE ROLE OF ENGLISH AS A LINGUA FRANCA IN SHAPING SOCIAL PSYCHOLOGY WITHIN THE GLOBAL ECONOMY	586
Tuğçe ARAPOĞLU	CLASS ACTIVITIES WITH GAME EXAMPLES SUITABLE	592

Nevzat Bakır	FOR THE ACQUISITIONS IN THE NETZWERK NEU A1 BOOK USED IN GERMAN TEACHING	
Aykut EKİYOR Ayhan ERENER	DIFFERENCE BETWEEN CONSUMER BEHAVIOR AND DEMOGRAPHIC CHARACTERISTICS IN HEALTH INSURANCE PURCHASE	605
Aykut EKİYOR Ayhan ERENER	THE EFFECT OF SOCIAL MEDIA MARKETING ON HEALTH INSURANCE CONSUMERS' PURCHASE DECISIONS	617
Andia Dani Elira Dani	INTANGIBLE HERITAGE AS A CULTURAL BRIDGE BETWEEN ALBANIA AND SPAIN: IMPORTANCE AND LEGAL FRAMEWORK IN ALBANIA	629
Edvin STEFANI	THE IMPACT OF SUSTAINABLE FINANCE MARKETS ON THE CORPORATE CONDUCT. A STATE-OF-THE-ART RESEARCH	641
Irisi BELERAJ	BUSINESS INNOVATION AND ORGANIZATIONAL SUSTAINABILITY: A CROSS-SECTIONAL STUDY OF ENTREPRENEURIAL BUSINESS IN ALBANIA	658
Sady MAZZIONI Ilse Maria BEUREN	INFORMATION SHARING, INTER-ORGANIZATIONAL KNOWLEDGE AND GREEN INNOVATION	672
Ana GORENCA	EU NEXT GENERATION AND GREEN DEAL IN NON - MEMBER STATES: AN ARGUMENTATIVE LITERATURE REVIEW	687
Isabelle Margareta OPREA Livia Gelu DRAGHICI Sorin Alin OPREA	TRANSFORMING TRANSACTIONS: THE INFLUENCE OF BANK DIGITALIZATION ON E-PAYMENTS IN ROMANIA	703
Elvis PONARI Resina PLLAHA	PENSIONS IN ALBANIA: BALANCING PUBLIC RESPONSIBILITY AND PRIVATE PARTICIPATION	710
Durdane Şefika COŞKUN Fatma Seda ÇARDAK	STUDY ON URBAN MEMORY WITHIN THE SCOPE OF REFUNCTIONALITY OF HISTORICAL HEALTH BUILDINGS	715
Arin YILMAZ Eylül Deniz ACAR Alperen KAMAN	INVESTIGATION OF THE MECHANICAL AND DURABILITY PERFORMANCE OF CALCIUM ALUMINA CEMENT AND WHITE CEMENT BASED MORTARS WITH DIFFERENT PROPORTIONS OF PLASTICIZERS ADDED	731
Emine Filiz KOLMEK	VISUAL LANGUAGE OF ISLAMIC ARTS: AN EXPLORATION OF ISLAMIC DECORATIVE ARTS AND RELIGIOUS SYMBOLISM	742
Zahidova Flora Ramiz gizi	APPLICATION OF RESEARCH AND MODELING TRAINING IN MUSIC LESSONS	753
Aliyeva Maralkhanim Tofiq gizi	ABOUT THE CONCEPT OF CREATIVITY AND THE SCIENCE OF HEURISTICS	761
Öznur IŞIR	ARTIFICIAL INTELLIGENCE APPLICATIONS IN DESIGN: A COURSE PROPOSAL	768
Buse AĞAÇDALI Sibel Kılıç	LAND ART: REFLECTION IN JEWELRY DESIGNS	781
Harika KOYUNCU Sibel KILIÇ	ANALYSIS OF THE NOUVEAUX REALISTES MOVEMENT, MANIFESTO AND ARTISTS	804

Priscilla Rebecca Rodrigues Geeta Shrivastava	THE ROLE OF SOCIO-LEGAL INTERVENTIONS IN CONTROLLING WATER POLLUTION FROM INDUSTRIAL SOURCES	829
Nadia Rusi (Peto) Evis QAJA	STRENGTHENING INSTITUTIONAL RESILIENCE AND DEMOCRATIC GOVERNANCE: ADVANCING EUROPEAN INTEGRATION AT THE LOCAL LEVEL IN ALBANIA	840
Sonila KAMAMI	HARMONIZING CONTRACT LAW IN THE EUROPEAN UNION: A CRITICAL ANALYSIS OF CHALLENGES AND PROGRESS	850
Sadjola XHELILI	THE POLITICS OF IDENTITY IN THE DIGITAL AGE: A CRITICAL REVIEW OF THE PERSONALIZATION PARADIGM IN POLITICAL PR AND SOCIAL MEDIA	858
Dritan Idrizi	THE ROLE OF ICT IN MODERN PEDAGOGY: ALBANIAN CASE STUDY	873
Besian Zogaj	ELECTORAL SYSTEMS AND GENDER REPRESENTATION IN ALBANIA: AN INSTITUTIONAL ANALYSIS (1991–2021)	882
Ophelia Ivanova Kaneva	UNIVERSAL DESIGN AND DIGITAL TECHNOLOGIES IN EDUCATION – A BULGARIAN PERSPECTIVE	900
Nikolay KOKODII Anastasia NATAROVA	ANALYSIS OF THE DEVELOPMENT OF ANTAGONISTIC POPULATIONS	909
Brunilda LUFI Valentina SINAJ	THE USE OF DIGITAL TECHNOLOGIES IN TEACHING MATHEMATICS AT ALBANIAN UNIVERSITIES	917
Chau HO MINH Duy NGUYEN NGOC Ngoc NGUYEN VAN	THE IMPACT OF ECONOMIC BENEFITS, SOCIAL RESPONSIBILITY, AND ENVIRONMENTAL RESPONSIBILITY ON INFORMATION SHARING IN THE ADOBE BRICK SUPPLY CHAIN: THE MEDIATING ROLE OF COMMITMENT	927
Mustafa Abdalwahid Noori NOORI Murat OLGUN	INVESTIGATION OF PERFORMANCE CHARACTERISTICS OF ADDITIVE DEEP MIXING COLUMNS USING OPTIMIZATION ALGORITHMS AND MODEL EXPERIMENTS	942
Gözde BOZKURT Volkan ÖNGEL	PHILLIPS-OKUN MODEL APPROACH ACCORDING TO AGE GROUPS IN TURKEY	957
Marian AMBROZY	DIALECTICS IN THE WORD OF PHYSICS	967
Emine Öğsüz Ahmad Abu Arra Mehmet Emin Birpınar Şükrü Ayhan Gazioğlu Eyüp Şişman	EVALUATING OPTIMAL TEMPORAL PERIODS FOR CITY-BASED DROUGHT ANALYSIS: VALIDATING WMO'S YEAR PERIOD AND EXPLORING ACCEPTABLE TIME PERIOD	978
Hoang Thi My NHI Nguyen Thi Thu DUNG	INDONESIAN ISLAMIC CONSUMER CULTURE FROM THE PERSPECTIVE OF CONTEMPORARY CONSUMERISM	984
Valter HOXHA	HISTORICAL MANAGEMENT OF THE AROMATIC AND MEDICINAL PLANTS SECTOR IN ALBANIA: LACK OF INFORMATION AS A CONTINUOUS PROBLEM FOR	993

	RATIONAL DECISION-MAKING	
Yassine ELJAOUHARY Abdelghani QADEM Sebastien LEBAUT	CHARACTERIZATION OF CLIMATIC DROUGHT IN A SEMI-ARID MOUNTAINOUS REGION: THE CASE OF THE OUED MOULOYA BASIN	999
Ümit M. KOÇYİĞİT	EFFECT OF AESCULUS HIPPOCASTANUM PLANT EXTRACT ON ACETYLCHOLINESTERASE ENZYME	1009
Najat ITOBI Abdelghani QADEM	SPATIO-TEMPORAL ANALYSIS OF VEGETATION COVER DYNAMICS IN THE BOUREGREG WATERSHED (MOROCCO)	1014

UNIVERSAL DESIGN AND DIGITAL TECHNOLOGIES IN EDUCATION – A BULGARIAN PERSPECTIVE

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ABSTRACT

In the context of contemporary Bulgarian education, the integration of universal design and digital technologies is becoming increasingly relevant and necessary. These two concepts not only improve the quality of education but also support greater inclusiveness and equality for all students. Together with that, the significant progress that universal design concept is achieving globally allows to focus on and analyze Bulgarian perspective especially in the educational area.

Keywords: universal design, educational management, horizontal support for professionals

INTRODUCTION

With contemporary education in Bulgaria, the integration of universal design and digital technologies is becoming increasingly relevant and necessary. These two concepts not only enhance the quality of education but also support greater inclusiveness and equality for all students. On the other hand, universal design contributes to the development of better support conditions for educational professionals horizontally, influencing the environment and the processes within it. Additionally, universal design can serve as a modern tool for the effective management of not only individual schools but also the educational system as a whole – whenever it is well understood, embraced, and adequately applied.

The topic is significant for both the academic and practical realms, being contemporary, already recognized, and desired. It is gradually gaining influence as a perspective for addressing the challenges of fast-paced times, in which education often struggles to keep up with modern developments. This is primarily because universal design offers solutions that leverage the strengths of all participants in a given environment and situation, while minimizing existing and potential barriers to interaction and progress.

The present material focuses on the Bulgarian educational situation, thereby creating an opportunity to shape a Bulgarian model for universal design in education. Additionally, it opens a discussion on adequately interacting with foreign models within the context of the global educational landscape.

THEORETICAL SCOPE

For many theorists in Bulgaria, universal design in education is associated with inclusive education. For instance, Evgeniya Topolska considers inclusive education to be successful when it provides academic and social inclusion in a good quality for all learners (Topolska, E., 2020). She emphasizes the need to address children and students who have dropped out of the educational system and presents Universal Design for learning as a potential educational framework for inclusive education that allows for the personalization of learning according to the individual educational needs and learning styles of the learners.

For some researchers, universal design is entirely subordinate to the digitization of education, aiming to create a learning environment that is accessible and suitable for all students, regardless of their individual differences. For instance, Georgi Totkov presents assistive and information technologies as a key tool in contemporary education (Totkov, G., 2021). In Bulgaria, various online platforms and applications are being developed and used to provide educational materials and resources for students, such as the platforms Ucha.se and Khan Academy in Bulgarian. There is also an online platform for horizontal support of educational professionals, known as INEDU. Together with the online platforms, the introduction of virtual classrooms and distance learning becomes increasingly popular. These technologies enable students to participate in the learning process from any location and at any time. And in parallel, applying multimedia and interactive materials such as videos, animations, and simulations makes the learning process more engaging and accessible for students with different learning styles and needs.

Many authors analyze the Rules of Implementation on Inclusive Education from 2017, which is part of the Law on Pre-school and School Education, examining the possibilities for implementing universal design through the provisions of the legal act. For example, Natalia Georgieva highlights the positive impact on children and students from the changes, which are primarily based on emphasizing the diversity of differences and individual educational characteristics and needs (Georgieva, N., 2019).

In the analyzed publications, reflections are more focused on the compensatory power of universal design to conventional education. It is expected to play a catch-up role and provide meaningful support. A more liberal perspective can be found in the works of Meyer, Rose, and Gordon from 2014, where the researchers determine that information should be provided in various ways to be accessible to all students, including audio, text, and visual materials (Meyer, Rose, & Gordon, 2014). In 2002, Rose and Meyer describe multiple means of engagement as a principle of universal design in education—by providing various opportunities for students to actively participate in the learning process, considering their interests and motivations (Rose & Meyer, 2002). In the same year, Chuck Hitchcock publishes "Teaching Exceptional Children" provoking a new perspective on the general curriculum of the mainstream educational system.

Some researchers view universal design in education as allowing students to demonstrate their knowledge and skills in various ways, such as written work, oral presentations, projects, and

others. It is concluded that schools in Bulgaria that apply the principles of universal design succeed in creating a more inclusive and supportive learning environment.

Provoked by the variety of researchers' views, students of Plovdiv University initiated universal design descriptions, stepping on different scientific scopes. Introducing universal design in education through the biological terminology, they define it as follows: "The design is adapted to various conditions and functions. This means that many structures and mechanisms are optimized for successful operation in diverse environments and situations". When they base the definition on mathematics, it sounds: "Aiming to create methods and structures that are applicable in the widest possible range of contexts; seeking common patterns and structures is key. This contributes to unity". As architects, they describe it like: "Design for all represents a broad spectrum of ideas accessible to everyone without being specialized". As linguists: "Designing systems and communication tools that can be understood by many and used by different people and speakers of various languages". As chemists: "Developing connections that can have a wide range of applications. Creating utility by providing functionality and efficiency for everyone in different contexts. With potential for resource utilization and enhancing sustainability in processes and products".

The theoretical overview, even presenting universal design as a compensatory approach rather than a preemptive solution in education, is positive regarding opportunities for social and educational inclusion, the application of digital technologies, and facilitating access to resources for all involved parties. Nevertheless, the necessity to deepen research activities regarding several key challenges and perspectives cannot be overlooked, including:

1. Unequal access to technology for involved parties.
2. The need for teacher training in implementing universal design principles.
3. Supporting teachers in the process of applying universal design principles.
4. Developing clear policies and strategies for full implementation of universal design.
5. Creating mechanisms for actively promoting universal design in Bulgarian education.
6. Initiating supporting tools for sustainable implementation of universal design in schools.
7. Engaging the local community in the principles of universal design.

Regarding the latter point (No. 7), Milena Yakimova raises the question "Whose child is this?" focusing on the responsibilities of the family and the extended family circle, as well as the small community, regarding the generation of social inequalities (Yakimova, M., 2019). However, the theoretical overview could expand further to include the multi-institutional framework at the local community level, involving social institutions, cultural institutions, and other entities.

What can be generalized as a common omission in researchers' developments regarding universal design in education up to this point can be encapsulated in the thought of Mohandas Karamchand Gandhi: "Three-quarters of all the miseries and misunderstandings in the world would disappear if we put ourselves in the place of our adversary and understood his viewpoint". Broadly speaking, universal design in education should provide a sufficient number of perspectives on a given case, phenomenon, process, or situation to ensure the universality of

the solution, maximize applicability, and minimize potential and real barriers for all involved parties.

UNIVERSAL DESIGN IN EDUCATION FROM BULGARIA

In the context of Bulgarian education, the question of implementing universal design becomes critically important, aiming for inclusive and quality education for all. It allows finding benefits and supporting opportunities for the students, for the teachers, for the system in general, for the community and society. It also justifies the perspective of the strengths where each stakeholder is acting with enhanced capabilities and reduced barriers, fostering an environment of equal opportunity and participation.

1. for the students

Universal design opens the door to equal access to education for all students. This approach not only enhances the learning process but also creates an educational environment that adapts to the diversity of the student population. Providing appropriate educational resources and methods supports the development of every student, regardless of their individual needs.

In academic discourse, universal design is recognized as a pivotal strategy in promoting inclusive education, ensuring that educational environments are accessible and accommodating to all learners, regardless of their diverse abilities or backgrounds. This approach emphasizes proactive design considerations that anticipate and address varying needs from the outset, thereby fostering an inclusive learning environment that promotes equity and opportunity for all students.

Bulgarian legislative framework still needs improvement towards universal design, however partly adequate stipulations could be found in the Regulation from 2017 on Inclusive Education.

2. for the teachers

The question of implementing universal design underscores the need for professional development of teachers. Educating educators involves developing strategies for creating lesson plans and materials that accommodate different learning styles and individual student needs. It also enhances the need of horizontal support, adequate monitoring and analyses. Teachers play a crucial role in the successful implementation of universal design by engaging with students and supporting their active learning processes.

In academic discourse, the integration of universal design in education highlights the pivotal role of teacher training and ongoing professional development. Teachers are recognized as fundamental agents in shaping inclusive educational environments by tailoring instructional methods and materials to meet the diverse needs of students. This approach emphasizes the proactive adaptation of teaching practices to ensure accessibility and engagement for all learners, thereby fostering equitable educational opportunities and enhancing overall learning outcomes.

Recognizing the critical role of the Bulgarian teacher, their impact, and the clear need for support and development, the Bulgarian government initiated in 2016 Regulation No. 12 on the status and professional development of teachers, principals, and other pedagogical specialists.

3. for the system

The application of universal design requires a high degree of precision to minimize the margin of error. Its key characteristic of seeking increasingly better solutions makes it a dynamic tool that reflects the need for continuously exploring new means to minimize constraints. By minimizing limitations, universal design maximizes well-being in the modern school.

An additional burden for school management is the constant search for and achievement of efficiency and added value from the conducted pedagogical activities to improve the quality of education, not only for Bulgarian perspective. Such challenges might include:

- A) Lowering the criteria and requirements in the educational process;
- B) Undeservedly inflating students' grades;
- C) Compromising in relationships with parents and students;
- D) Treating students primarily as financial entities rather than as individuals with personal identities;
- E) Establishing harmful practices of accepting more students than the school's facilities can accommodate,
- F) and many others.

As previously defined, universal design in education provides sufficient number of perspectives on a given case, phenomenon, process, or situation to ensure the universality of the solution, maximize applicability, and minimize potential and real barriers for all involved parties. And all these reflect on the expectations for increasing efficiency and better quality to all involved people and processes. However to make them true in a daily schedule, a sufficient flexibility is necessary about the system, the managers and the application of the legislative framework.

One of the legal opportunities to answer such request on instant versatility is the public-private partnership, as permitted under the Concession Act.

4. for the community

Over the past decades, universal design has become an integral part of public discussions on innovation and development. The concept has evolved through various stages, from the initial aim of compensating for disabilities to the broader idea of creating an environment that is accessible and convenient for everyone. This approach emphasizes the importance of diversity in society. However, the legislative framework is still a step behind being unbalanced and not enough coordinated between the regulations to step efficiently on the strengths of the stakeholders in a potential partnership. This necessitates the development and implementation

of various coordination mechanisms for interaction between institutions and organizations, and they act in deed.

With the introduction of the principles of universal design, the community will benefit from:

1. Improved access to education
2. Enhanced quality of education
3. Inclusive learning environment
4. Motivation and support for teachers
5. Collaboration between institutions and organizations
6. Tracking and measurement of results.

These aspects, combined with economical rationality and application of educational standards, should provide the methods for measuring educational and developmental outcomes, addressing the unique needs of individual students, reflecting the traditions and attitudes of the local community, motivating educational professionals, ensuring real-time tracking of deadlines, responding to the dynamic and growing needs and increased societal expectations. The implementation of educational standards that align with the steps of educational development within both the national and international systems is connected particularly with the global context of contemporary society.

DISCUSSION

Despite the benefits, implementing universal design may encounter challenges. Issues such as funding, staff training, and infrastructure improvements need to be addressed. At the same time, attention must be paid to the individual needs of students and how they can quickly integrate into the educational system. It is advisable to actively involve collaboration between educational institutions, society, and parents to successfully implement universal design.

Universal design in education refers to creating learning environments that are accessible to all students, including those with disabilities or special needs. Barriers and obstacles in Bulgarian education may include lack of accessibility in school buildings, inadequate learning materials, or lack of support for students with disabilities. It is important to work towards removing these barriers to ensure equal access and opportunities for all students.

Challenges faced by schools, teachers, and students in implementing universal design include also prejudices and stereotypes about students with disabilities, which can hinder the application of universal design.

Recognizing quality in universal design involves assessing how effectively the learning environment or instructional materials cater to all students, regardless of their specific needs or disabilities. Improving access to education and training requires addressing several key areas:

1. Access to Education and Training for Disadvantaged Groups: Ensuring equitable access to education and training for groups facing inequality.

2. Children and Youth in Education and Society, Linked to Expanding Extracurricular and Out-of-School Learning Forms: Enhancing opportunities for children and youth through expanding extracurricular and out-of-school learning activities.
3. Development of Lifelong Learning Systems: Fostering the development of lifelong learning systems to support continuous education throughout one's life.

Specialists and teachers working in Bulgaria's educational system need to acquire new competencies to enhance their sensitivity towards applying universal design in their professional daily routines.

Parental involvement in their children's education, the impact on their motivation and the connection to academic achievement are linked to the acceptance that their children should be educated in an environment designed to anticipate daily challenges. This environment should prepare learners for a fast-paced future and for careers that have yet to be defined.

And not least, the exceptional importance and decisive role in the process of implementing the principles of universal design in education lie with school principals. It is up to them to create the necessary conditions for the existence of universal design.

Together with governance, the process will need an adequate curriculum in student training to provide a structured, effective, and responsive educational experience that meets the needs of all stakeholders alike. Such curriculum should involve (not limited to):

1. Introduction to the Concept of Universal Design: Historical Overview
2. Policies for Universal Design
3. Universal Design in Education - Goals and Practices
4. Legal Framework for Universal Design - Architectural, Pedagogical, Social, and International Perspectives
5. Objects and Subjects of Universal Design
6. Positioning of Students in the Concept of Universal Design in Education: Participation in Decision-Making Processes. Representation, Influence, Perspectives
7. Universal Design as a Professional and Managerial Challenge
8. Problem areas, analysis, assessment, possible solutions
9. Digital technologies and universal design in education
10. Development of universal design - perspectives and obstacles
11. Universal design as a design for the future or compensatory societal mechanism
12. The game in education - a tool for universal design, for managing people, success, happiness, and career
13. Inclusive education and the approach of universal design
14. Universal design as a networked approach in society encompasses pedagogical, social, and administrative dimensions.
15. Designing accompanying educational services
16. Simulation for advancing forward in time
17. Artificial Intelligence (AI) as a tool for success in education

18. Universal Design in Bulgarian Education

Successfully completing training in this academic discipline should/will know

- A) The application of terminology in universal design;
- B) Policies in universal design;
- C) Approaches to implementing universal design in education;
- D) Recognizing and applying innovations through the method of universal design in education.

They will be able to

- E) Analyze opportunities for optimizing environments and processes aligned with the principles of universal design;
- F) Apply the principles of universal design in the educational process;
- G) Adapt educational elements through the principles of universal design.

They will possess competencies in (1) Interaction in a multi-differential environment; (2) Positive attitude towards innovations in education; (3) Continuous improvement of skills; (4) Responsibility towards achieving humane goals and tasks; (5) Respect for the right to freedom of choice and expression.

CONCLUSION

Universal design and digital technologies have the potential to transform education in Bulgaria by creating a more accessible, inclusive, and effective learning environment. Despite the challenges, integrating these approaches is crucial for achieving quality education for all students, regardless of their individual differences and needs.

In public schools, there should exist mechanisms ensuring sufficient democracy and integrated freedom for directly interested parties, enabling adequate assessments and real-time responses that impact the quality of education for both teachers and students, thereby contributing to the benefits and advancements of the system as a whole. Universal design offers a fundamental approach to education that reflects principles of equality and inclusion.

In the context of Bulgarian education, implementing Universal design approach can strengthen the educational system and ensure that every student has the opportunity to develop and succeed in own education.

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