Summaries

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ARCHITECTURAL STUDIES IN THE EUROPEAN HIGHER EDUCATION AREA: CRITERIA FOR STUDENT DEGREE MOBILITY

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Keywords: degree mobility, architectural studies, criteria, master's studies

The European Higher Education Area, implemented after the Bologna Process and with the assistance of the European Union, brought together 49 countries, both members and non-members of the EU, in an attempt to make the higher education system in these countries more compatible and facilitate the mobility of students and staff, while suggesting tools to facilitate it. The main points of the Bologna Declaration and the pillars of the European Higher Education Area are: comparable and understandable qualifications, the diploma supplement, two cycles of studies: 3 years for the bachelor and 2 years for the master degree, the Unified Workload Transfer System (ECTS), promoting the mobility of students and teachers, quality assurance with cooperation between institutions, and the promoting of the European dimension of higher education. Mobility, as various research reports showed, assists each participant in gaining experience and growing at a personal level, but most importantly, provides an easy tool for Higher Education Institutes to improve and take advantage of the experience that their staff and students gain while teaching or studying at other institutions. Mobility can be a way to support a common European identity and a strategic way to improve quality of higher education institutes, providing an opportunity for cooperation and creative comparison among them. Architecture, due to its special character as both an art and a science discipline, and also one of the regulated professions with specific characteristics regarding the duration and subjects to be taught, is chosen as the education area most suited for mapping degree mobility and highlighting the characteristics that differentiate each school in terms of attraction to international students. On what criteria do architectural students select the school to continue their studies? There were more than 350 schools of architecture (in 2018) in the European Higher Education Area. Do international architecture students choose them for second cycle studies in the same degree? What makes a difference between them, causing some of them to become schools of excellence selected by the majority of students while others are barely visible in international competition? The research was completed in 2 questionnaires, collecting data during the academic year 2018-19. The first questionnaire was sent to 351 schools of architecture. We have collected 103 answers which is quite a representative random sample of almost all the EHEA countries. The second questionnaire was addressed to master students from the 50 schools that returned the first questionnaire and declared incoming students, with 101 answers from master students from more than 20 countries. Our sample is random and statistically adequate, coming from an adequate random sample of schools. Pointing out the criteria students use to select the higher education institution for their second-level studies, and thereby the parameters the school can work with to achieve a better international recognition, is the question of this research. Combining the results of both questionnaires, one submitted to architectural schools and the other one to students,

regarding the reasons students select some schools over others, we see that both schools and students rank study programmes very high. As during the first cycle the basic knowledge of architecture is covered, at the master level deeper knowledge is gained and schools provide specialization to respond to today's requirements, allowing students to build their own curriculum according to personal inclination. Well-trained teachers, with international experience and great teaching methods, add to the school's value and attract students. From the viewpoint of location of the school, both students and schools mostly rank highly schools that are situated in capital cities, or cities with growing economies and cities with nationwide influence which is a parameter that schools cannot control. Regarding financial growth, schools in cities with stronger economies can co-operate with developed and well-known businesses, giving their students a chance to work. Students wish to experience living in a developed country and city, where they can work during or after their studies and can find opportunities to continue their studies to the third cycle. Students consider the cost of living and school fees, but do not define whether high or low is rated negatively or positively, having also in mind labour market needs. Students who participated in mobility at some stage of their studies, highly rate the teaching taking place in English, as a criterion to choose a specific master's study program abroad. The school's reputation, as is known by graduates, works in favour of the already known schools. Students are affected by word of mouth of former satisfied students and successful graduate architects add points to the known schools. Research, publications, and media reports can help to this effect. Schools failing to attract international students should keep in mind the criteria stated by the master students and make any necessary changes to cope with them. A well-built curriculum, supported by international staff with pedagogical education, international tuition languages – mainly English – and cooperation with businesses and industry, as well as other schools worldwide, can make them more visible across the country's borders.

ON THE EDGE - FUTURE ADAPTATION CHALLENGES: THE ROLE OF FUTUROLOGY, SCENARIO PLANNING METHODOLOGY AND OFF GRID DESIGN IN ARCHITECTURAL AND URBAN TEACHING

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Keywords: adaptability, futurology, scenario planning, off grid, space architecture, moon base, architectural education

The article describes the role of creative thinking about the future and its importance in architectural and urban education, and suggests ways how it could be implemented into the design process. The first part of the article, 'Futurology', deals with the scientific discipline of futurology and the possibilities of its use in architectural and urban practice. It asks what our world, and our cities, will look like in 15, 20, or 50 years with the global urbanization process accelerating, together with the growth of the world's population, climate change, environmental pollution, and new technologies, which will bring many challenges for cities to face. Additionally, it covers topics that futurology makes available to architecture and their influence on the urbanized environment. It relates the creation of strategic visions for urban development to the UN 2030 Agenda for Sustainable Development and the UN Habitat III initiative and looks back at Agenda 21, a non-binding United Nations action plan with regard to sustainable development. It appreciates that the challenge for cities of the future could be to achieve the highest possible self-sufficiency in energy, water, or food systems as well as in waste management. Finally, it examines the role of architectural education and how architects should prepare for their profession so that their future work solves problems rather than but creating them. The second part, 'Scenario planning', is dedicated to introducing of the futurological method of scenario planning, and its origin and use. It mentions so-called megatrends as the driving forces of future scenarios, effecting future challenges, threats, and opportunities that cities will have to deal with. It refers to scenarios by the Millennium Project, Royal Dutch Shell, and the Slovak Academy of Science's Institute for Forecasting. Further, it provides insight into how this method can benefit architectural and urban work and represents the way it was used during architectural teaching. It reflects on the advantages of creating vision in the educational process. The subchapter 'On the edge' describes how futurology and scenario planning were used in addition to standard current urban and architectural

assignments as a part of the teaching process in the architectural studio at the Department of Urban Planning, Faculty of Arts and Architecture of the Technical University in Liberec, Czech Republic. It suggests that such assignments, freed from the binding stereotypes of everyday reality that incline to routine approaches, are an ideal way to train conceptual thinking that discourages the automatic adoption of safe, proven procedures and attitudes, and thus to practice independent critical thinking. Then it explains how visionary projects provide an opportunity to become familiar with futurology and give space for incorporating the futurological method of scenario planning into the architectural planning process. Finally, it shows how this approach seems to have been long valid in architectural education, as for example as Otto Wagner mentioned in his Inaugural address to the Academy of Fine Arts in 1894. In the last part, 'Off grid', it shows off grid design as a suitable simulator of structural and system thinking, leading to a better understanding of how complex architectural and urban systems function. It highlights the contribution of space architecture projects as a source of innovative thinking, and that these topics opening up many unknowns and fill gaps in the global knowledge is not a futile dream, but rather an important initiator of the emergence of new technologies, processes, materials, and knowledge that enrich our daily lives. It refers to the leading Japanese construction, architecture, and engineering companies Shimizu Corporation and Obayashi Corporation and such of their space architecture projects as Obayashi's Space Elevator Construction Concept, and the Shimizu Dream projects of Luna Ring – Solar Power Generator on the Moon, Lunar Base, or Space Hotel. Attention is also given to Moon base projects by national or private space agencies like NASA and ESA or Bigelow Aerospace and Moon Village. It anticipates that working on space projects where self-sufficiency is a necessity can also benefit thinking about ecology, self-sufficiency, and the sustainability of settlements on Earth. Finally, it explains the intention of work on space architecture and off grid projects in architectural education to enrich not only the creation of vision of terrestrial ideal cities, but also real assignments. Work on two of the author's off grid Moon Base designs is described at the end of the article, based on the aforementioned considerations and assumptions: MOONFLOWER BASE / 2090 - Experimental Agricultural Base with Hotel for Scientific Tourism, and MOONWORM - Nomadic Moon Base, a self-sufficient exploratory scientific kinetic base traveling in Mare Imbrium. Both designs are based on fictional future scenarios. In these future stages, Moon colonization has gone beyond the simple and confined modules of the pioneering research, service, and mining bases. The reason is that these modules were not compatible with long-term residence because of their minimized space, both in terms of the human psyche and as they provided only limited physical space, which could not sufficiently serve the increasing number of activities needed to ensure the Moon's independent sustainable development.

LINKING VIRTUAL REALITY, ARCHITECTURE, AND CRIME PREVENTION FOR EDUCATIONAL PURPOSES

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Technology is one component of larger social, economic, and business revolutions that will continue to have a substantial impact on the markets in which architects deliver services. Virtual reality (VR), the popular term for what is generally referred to in the technical field as virtual environment, is a methodology that originated in informatics, optics, and robotics. It has its foundations in computer graphics. The term was used for the first time (in the context) by the CEO of California-based VPL Research Inc., Jaron Lanier, in the 1980s. The term cyberspace, which is frequently used as a synonym for VR in American technical literature, often defined as a space which spreads in another world existing in a computer, appeared for the first time in 1984 in Neuromancer, a science-fiction novel by William Gibson. However, some VR techniques had already been explored in the 1960s. Technological progress now enables blurring the boundaries between reality and the virtual world. VR is an alternate computer-generated world that responds to human interaction and the virtual world is a digital representation of the real world. The user is immersed in the scene through special glasses and normally also headphones and is perceptually isolated from reality in a

360° view. Some interaction is needed. This paper presents selected links between the complex fields of architecture, use of virtual reality (as a part of computer science), and their potential in helping tackle crime. The presented information sets a general background for the development of a put forward prototype of new immersive learning experience to provide deeper understanding of CPTED concepts to enhance the traditional curriculum and the overall retention of knowledge. The theory of education is also influenced by new technologies. There are scientific studies suggesting VR learning may be more efficient than learning in the real world. Educational programs and virtual workspaces are one of the possibilities of using mixed reality in the near future. Current VR systems provide new capabilities for perceptual expansion, for creative construction, and for unique social interactivity. VR seems to be the most humanistic approach to information, and it enables its users to change the world into a place where it is easier to learn. The potential of VR and AR in education can be seen also in mastering core skills in various settings, learning abstract concepts in complex fields (like architecture), or experiential child learning. There are now hundreds of university architecture programmes with VR and AR labs all over the world. VR focuses its users more on the content and stimulation of their senses. It is a good tool to experience phenomena that are impossible or difficult to experience in the real world. Learning can be more effective if it is experiential, which includes strategic problem-solving skills and critical thinking – tasks that virtual reality is perfectly suited for. The greatest effectiveness in learning is usually achieved with different learning styles combined, involving hearing, seeing, and doing at once. VR incorporates all of them. Urban planning and architecture show significant potential for crime prevention. There is a direct relation between crime and architecture of an environment – its layout, quality, maintenance, and management. The main role of architects is to create artificial environment that provides a safe place to live – protected from climate conditions, weather, and from an enemy or intruder. We have also changed the way of designing of and thinking about our cities, including safety. The global nature of crime necessitates international co-operation in the field of prevention. An example is a CPTED (Crime Prevention Through Environmental Design) security concept. Alternative terms may include Designing out Crime (DOC), Defensible Space, or Crime Prevention Through Urban Development (CPT-UD). The CPTED movement officially emerged in the 1970s as an innovation aimed at the reduction of crime with mainly architecture, urban design (urban planning), psychology, criminology, and facility management coming together. There is potential for the use of 'new' visual stimuli in broadening our understanding of housing design, burglary risk and CPTED. These now commonly used technologies can improve our understanding of the links. Both VR and BIM can arguably be used to explore all types of crime and enhance the use of CPTED to prevent such crimes. VR technology is considered to be highly useful for simulating real-life situations that are otherwise too costly or risky to experience. Potential benefits of VR in CPTED can go far beyond a high-quality visualization tool: it can be used in the design, evaluation, and training process. There are not many practical studies on the use of VR for CPTED purposes, which points at a niche for more research to be conducted. VR has also immense pedagogical promise, with the potential to not only assess hypothetical environments, but also to track, shape and inform subjects' thinking towards them. In sum, VR offers a considerable opportunity to gain insights into the general perception of and emotional responses to proposed designs, reduce prototyping costs and design faults, evaluate different scenarios against specific criminogenic variables and identify built environment variables associated with different types of crime.

THE POSITIVE IMPACT OF WOODEN MATERIAL ON EDUCATIONAL PROCESSES IN THE ENVIRONMENT OF SLOVENIAN WOODEN KINDERGARTENS

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Keywords: well-being, influence of wood, kindergarten, new European Bauhaus, Slovenia

The environment in which children grow up and spend their time constitutes a fundamental aspect of their knowledge, and social and personality development. As in the case of adults, children today spend most of their time in man-made environments. Kindergartens and school playrooms or classrooms are places that significantly influence children. Therefore, such an environment should respect not only their physical

but also the psychological needs. The stay of children in preschool educational institutions such as kindergartens significantly affects their physical, social, emotional, but especially mental development, thus playing a significant role in their development and integration into the society. The feeling of well-being during the child's stay in preschool institutions also depends on the physical conditions of the environment, which has an impact on the children's daily activities and their mental and physical health. Recent research indicates that by applying natural materials and the principles of biophilic design or restorative environmental design, it is possible to reduce the absence of children from schools, improve the health, psychological well-being, increase work performance, and improve the results of not only adults but also children. Several scientific studies confirm that the colors, structures, or materials used in the physical environment of interiors affect the human psyche. Wood as a material applied in the interior spaces of buildings is an attractor that, in addition to its static and structural properties with high environmental responsibility, also brings other benefits to users, and thus has a great impact on the society. The topic of applying sustainable materials and transforming them into newly-built, valuable, and cultural architecture is currently also popular in connection with the new initiative of the New European Bauhaus. The initiative, which has ambitions to use the currently valid national and international legislative frameworks to link efforts to set sustainability rules with an interest in aesthetics and involvement of communities in the creation of new living spaces, is an ideal tool for the popularization of natural materials that can improve the quality of the physical environment in the premises of kindergartens. The contact with natural elements undoubtedly has an impact on the emotional and physiological well-being of children. The theoretical starting points and previous research, which partially touch on this topic, have offered other stimulating questions with which we would like to expand our research. The biophilic and restorative environment of kindergarten interiors should meet the needs of today's children in terms of their progress and development. And not only because contact with nature is gradually disappearing from the traditional and existing interiors of kindergartens, but also because such an environment can teach children, make them responsible and prepare them for life with respect for both nature and for themselves. The presented article is a partial result of doctoral research aimed at studying the positive influence of wood on the psyche of children and educational processes in general. The paper aims to expand the current scientific knowledge about the positive influence of wood material and its impact on educational processes in the architectural environment of kindergartens. Selected analyses and comparisons made it possible to clarify whether the presence of wood material can positively influence the well-being of children in the physical environment of kindergartens, improve their sensory perception, create a sense of safety, a peaceful atmosphere, and, in general, assist in improving the quality of teaching and in promoting social interaction and playful learning. The study examines, analyzes, and compares selected interiors of kindergartens in Slovenia designed by the Kontra studio headed by Mojca Gregorski, who also focuses on the topic of educational facilities at the scientific-research level. In the presented author's research, the wood material is characterized as an interior, visual, massive substance, in an authentic design, with or without a fine surface treatment, which does not degrade its visual-haptic-olfactory qualities. The partial research presented in this paper focuses on the results from the locations of Loče, Poljčane, Šoštanj, Polzela, and Škofja Loka. One of the goals of this research is to identify and summarize the opinions of teachers and educators, to present information about the educational potential of these institutions, to assess their atmosphere as perceived by the respondents, and to find out to what extent wood as a material has an impact on the educational process. Based on the field research abroad, we have found that the questionnaire respondents are convinced of the benefits of using wooden material in the interiors of their kindergartens. They perceive wood as a far better choice than using conventional materials. More than half of the respondents are convinced that wood as a material increases children's concentration during educational activities because the presence of wood creates a sense of calm in children, and this is one of the basic prerequisites for their concentration during the educational process.

IN THE PIXEL ZONE: PERCEPTION OF DIGITAL DESIGN

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Keywords: digital design, web design, postdigital, digital natives, communication design

The quality of content perception is often conditioned by visual presentation, which corresponds to the perception patterns of the youngest generations, where there are only a few seconds of time for immersion in memory. One of the most emblematic platforms of today – the web – offers the potential to address this shift in perception, making use of the principles of user interactivity. New rules and new ways of communicating content emerge on this transformative platform, exploring contemporary cognitive processes. The purpose of this paper is to provide insights into the currently forming discipline entitled digital design and its perception through the perspectives of postdigitality. Since the beginning of the millennium, the internet has undeniably influenced everyday life as well as the creative sphere, in countless ways that have already been exhaustively discussed. In this paper, we discuss the term postdigital, which is relevant to anchoring the perception of digital design. There are a number of theoretical works dealing with the terminology of postdigital, with different conceptualisations differing from one another. Postdigitality offers a set of speculative strategies with the intention of building a complex architecture for thinking and creating under contemporary conditions: how to critically consider, contextualize, and shift the perception of new technologies as part of existing culture. The postdigital condition must then be seen not only through the prism of theory. The essential takes place at the level of creative practice. The notion of postdigitality is thoroughly explored on the online platform Post Digital Culture, which has been collecting articles and publications dealing with the phenomenon of postdigitality in a broad art-society context since 2013. Digital design has become an integral part of everyday reality: websites, mobile devices, tablets, but also products and services that use digital interfaces as interactive communication channels between a human and a machine. These interfaces require a specific approach to their design. The term digital design entails the design of the entire range of digital products and services and is understood as a complex set of many disciplines: user interface, interaction design, information architecture, user experience design, visual design, web design, app design, or game design. The boundaries between the different areas of design are very blurred and permeable, thus creating the necessary need to define strict boundaries between graphic and digital design. Digital grows out of the principles of graphic (visual) design and adds to it additional knowledge and very specific principles based on the nature of the digital medium. One of the most emblematic platforms of today, the web, is highly nonlinear by its nature. It opens up the issue of contextual reading of content and raises the question of the degree of surface perception of content. This is very closely related to the interactive nature of the web, which is undeniably an elementary property of digital media. No previous media has managed to offer such a degree of interaction between itself and the recipient. Due to this shift in the standardized perception of composition, it is one of the significant features to be considered. Another distinctive feature that differentiates the web from the previous media also occurs in the question of time and mutability: information and modules or additional elements can be modified, appended (edited) on the web in response to the users' current needs. This raises the question of the limited lifespan caused by the outdatedness or obsolescence of a website, which is often solved in practice by redesigning the existing website. The original design can no longer be found (only in the 'inanimate' designs of the designer), as opposed to that of a book or tangible design product. Therefore, the launched website is not a definitive (immutable) medium – on the contrary, it functions as a living organism. Marc Prensky introduced the concept of "digital natives" by defining generational differences in the perception of digital media. These are young people who have been surrounded by the world of digital technology since birth. Computers and the internet have been a natural part of their lives, they have no direct comparison with analogue experience, and this creates new patterns of thinking and perception. Digital design offers little limitation from the perspective of affordability and accessibility. Simultaneously, these are in fact also endangering: because of these factors, it can easily be misused for spreading of disinformation and for deception e.g. by misusing principles of cognitive ergonomics. Meaningless replication and copying of design principles without understanding them leads to degradation of presentation quality of the content. If we do not improve the awareness of the power of this media

and do not educate the new generations – those digital natives (but also the generations of "digital immigrants") – about the need to critically filter information and regulate one's immersion into the digital world, it can have a negative effect on the development of the society. The digital world we have created (and will continue to create and form) might get too tempting for its lightness and carelessness in comparison to the reality of the physical world we are evolutionary destined for.