

Summaries

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SAIDPUR VILLAGE THROUGH ARCHITECTURAL LENS: DECIPHERING URBAN PATTERN AND ARCHITECTURAL HERITAGE

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Keywords: architecture, heritage, vernacular, history, urban growth, architectural analysis, architecture drawings

This research is based on the case study of Saidpur village, one of the oldest villages in Pakistan and the old subcontinent. Saidpur village has a scenic landscape and centuries-old historic importance. From the Mughal dynasty to subcontinent partitioning, this village has witnessed evolution of diverse eras. As people started to inhabit Saidpur, they brought culture, arts, folklore, architecture, traditions, customs, and their beliefs with them. The place first known only for being a garden resort with streams, mountains, gardens, and cattle farming, also became famous for temples and religious centres, folklore, and pottery work. Vernacular local materials from nearby areas such as stone and lime were mainly used to build constructions in the area. Brick was also used but was rare and more expensive than the local materials. The Saidpur village's architectural art and heritage embraces three cultures; Sikhism, Hinduism, and Islam, concentrated on one node in this place. Saidpur currently has a total population of 8,437 where 58% of the population are permanent residents who have inherited this place from their ancestors. Emphasis of this study was on the urban pattern and growth of the village through past historic eras. It further analysed individual architectural case studies of each heritage building present on site. Since there were no proper or substantial records, data, drawings, maps, or any other information found on Saidpur, it was important to generate a study that would focus on Saidpur's urban spread, history, architectural heritage, current situation, and future scope. This study has dissected and analysed the context, history, culture, vernacular construction materials and style, heritage, urban spread, and architectural elements of Saidpur. The Saidpur village has a formation of an urban pattern that started from a concentrated node at the centre of the village in 1500s. A Hindu temple was built that gave it a prestigious status of a pilgrim centre. This was further followed by building a Sikh temple with a Dharamsala, and a Mosque. In Saidpur, one used to hear the prayer calls from the Mosque, and bells and melodies from the Hindu and Sikh temples at the same time. With these religious and cultural centres, civilization in Saidpur also grew and has reached its maximum limits today. From a clutter of a few houses, Saidpur grew into a packed, walled to walled, and cluster-phobic village. Saidpur's streets started to resemble other streets of old historic cities of the subcontinent such as inner (andsoon) Rawalpindi. This research has investigated and analysed this evolution and urban growth and presented a case study on the old and current urban and architectural characteristics of Saidpur village. It has presented a study of Saidpur's population spread, timeline of construction and building spread, characteristics and ambiance of streets, as well as architectural features and elements and their transformation over the time, and construction styles or materials including their evolution. The centre of Saidpur serves as a main node in which all the temples and heritage buildings lie. This

serves as the main hub and focal point of Saidpur today. This aspect of Saidpur where multi architectural and cultural heritage exists in one node, is unique and has gained Saidpur popularity. It is also a main focus of tourist attraction today, displaying the art of the past. In one perspective, one could see old domes and minarets emerging from the Mosque and temples lying here. This node mainly includes the heritage Hindu temple, Sikh temple with Dharamsala, mosque, an old gate to access the temples and Haveli. For some of the heritage buildings, even courtyards or landscapes are shared, yet people used to make their offerings peacefully in their respective temples. Our research has analysed this node of Saidpur and focused on analysing Saidpur's heritage buildings in detail. It has presented a case on its historic architectural features that are decaying on site. The old and current construction methods and styles of the village were analysed and discussed. Heritage buildings on site were documented, analysed, sketched, and reviewed in detail to generate and preserve its historical background, architectural details, and construction style. This study has evaluated and recorded all the architectural information related to the heritage buildings on site to formulate records on the old and present Saidpur. In addition, the case presented on the current condition of decaying heritage on site intends to create awareness on the necessitated protection and promotion of this ancient village. This study included multiple site visits, where data was collected through onsite observations. By visiting each building in Saidpur, data like demography, heritage buildings' analysis, Saidpur's architectural timeline, urban crawl, and pattern of the village was collected, studied, and analysed. The process also involved various interviews and surveys to collect authentic information on Saidpur. This research aims to bring a detailed case study on the account of Saidpur's urban and architectural heritage and hopes for global recognition and heritage preservation activities for the village.

AUGMENTED REALITY AND TANGIBLE USER INTERFACES AS AN EXTENSION OF COMPUTATIONAL DESIGN TOOLS

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Keywords: mixed reality, tangible landscape, augmented reality, virtual reality, computational design, modularity

The paper envisions the use of Augmented Reality (AR) as an interactive and communication tool used in architectural design research, education, and practice. It summarises the current information and various applications of this immersive technology in both the theoretical and practical field and focuses on a specific type of AR implementation – Tangible User Interface (TUI) in the computational design context. In 2022, Philipp A. Rauschnabel's research pointed out the ongoing confusion in the terminology. In his most recent paper on the topic of Mixed Realities, theoretical definitions are confronted with current industry practices. Rauschnabel acknowledges the ideas of Milgram and Kishino, resp. Schnabel and Seichter, along with various other viewpoints, labels their approach as "MR-centred view" and brings up its potential problems. He argues that AR and VR have opposing designer goals and user experiences, therefore cannot be united under one term. In his article, he introduces the term xRealities (XR) as an umbrella term for AR and VR. Despite the long history behind the idea of XR, the concept itself was not feasible until recently, mainly because of the unavailability of underlying technologies, including necessary processing power and sensors and because of the high cost of licensing of existing toolsets. Widespread adoption of handheld mobile devices such as smartphones and tablets possessing some of the necessary features including orientation sensors, high-quality cameras and microphones and location-based technologies has led to increased availability and affordability of XR-based tools. The article explores existing AR and VR technologies and toolkits with varying degrees of availability, affordability and skillsets needed for their usage. It covers multiple types of AR and VR technologies, including tracker-based optical AR using ArUco or QR markers, usage of a multitude of sensors in current smartphones and tablets and MR devices such as Microsoft HoloLens. Several degrees of interaction between physical and virtual environment using the aforementioned tools are presented. The authors explore possibilities and ways of encouraging students and the public to use and create their own AR experiences using freely available tools. Multiple libraries, SDKs and tools are available with a varying degree of

usability, adoption, availability, and cost. Currently, multiple tools for creating XR experiences with varying degrees of creative freedom and learning curves are freely available. Multiple toolkits, such as Vuforia, AR Toolkit, or various software development kits (SDKs), including those of Oculus Rift or HoloLens, enable the highest level of modification and integration, with the main drawback being the need for highly advanced programming skills. A recently popular and widely used special type of tool combining AR and TUI in the collaborative modelling is tangible landscape. Tangible landscape allows users to model the scaled landscape by hand physically, 3D-scan it and virtualise it in a computer. The virtualised model can be used for various analyses or computation, which may be processed and then visualised back on the physical model, giving the users instant feedback. The tool is mainly used for landscape and geospatial modelling, and it is assembled with a mass for physical modelling – mainly kinetic sand, a projector, 3D scanner and a computer. The research in this article explores the possibilities of extending the utilisation of the tangible landscape beyond the large-scale planning into the architectural and urban planning domain. The use of different, more suitable software for architectural profession was a key factor in the adaptation of the tool for architectural use, as the originally-used GRASS GIS software was developed mainly for large scale geo-modelling. From the wide range of architectural software tools, the program Rhinoceros with plugin Grasshopper was chosen, as it is widely used by architects, and it is capable of the algorithmic modelling. The setup of the first constructed prototype of Tangible Landscape at the Faculty of Architecture and Design of the Slovak University of Technology in Bratislava, Slovakia, uses a projector, which allows simplification of the stand holding it and a 3D scanner, mounted directly on the projector in contrast to the tool's predecessors from around the world. The use of the prototype has already shown that it improves communication during the collaboration as it blends the physical 3D and digital layers. The design is thus more legible and design decisions are more intuitive. Another aspect of the tool is its educational potential. Interactive engaging of the touch and visual senses has led to better understanding and remembering of the concept. Making the computational tools more accessible and intuitive for everyone is a way to use different approaches to design more widely. The plan for follow-up research is to pursue its utilisation in modular and discrete architectural projects using components and designing from inside out, with possible implementation of Monoceros tool.

REDEFINING THE LEARNING EXPERIENCE WITHIN THE DESIGN EDUCATION AT SLOVAK UNIVERSITY OF TECHNOLOGY IN BRATISLAVA

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Keywords: design education, project-based learning, soft skills, design graduates, creative thinking, interdisciplinarity, learning experience design, teamwork, product design, vertical studio

Digital and communication technologies have accelerated the flow of information and its transition to knowledge. Interaction, speed and open-source platforms that emerged with the rise of the internet, access to vast scientific data resources, or even peer learning force the world to re-evaluate and redefine not only the old conservative model of institutional education but also the meaning of fundamental terms like “education” and “knowledge” as such. Formal education in the field of design and information technologies, due to the rapid development in the practice of these disciplines, is certainly one in which traditional research practices combined with the length of standard funding and publication cycles cause knowledge delays and its rapid obsolescence. Traditionally, art and design education has inherited a strong focus on individual work and manual craftsmanship. Industrial design as a discipline has been focused on physical products ever since. The complexity of societal and scientific problems requires a change in this approach. The need for both inter-personal and intra-personal qualities – soft skills – has emerged. Furthermore, interdisciplinary and transdisciplinary cooperation has been called for by the business sector and policy-makers. The importance of soft skills is increasing both globally and in design education. The Future of Jobs Report 2020 released by the World Economic Forum indicates that half of today's working population will be required to re-skill in a five years' time. The COVID-19 pandemic has brought double disruption of the economic impacts and

the ongoing demand for automation. The paper aims to present the specific data gathered in an extensive survey on the future of design education investigating the key skills, knowledge and abilities of design students and recent graduates. The survey was conducted among alumni of the Institute of Design at the Faculty of Architecture and Design at the Slovak University of Technology (FAD STU) in Bratislava, current students, followed by deep interviews with the teaching staff, company representatives and HR managers. The results indicate a deficit in the soft skills in design education. As much as 45% of the alumni stated that their perseverance and self-motivation was insufficient, whereas 36% of them lacked both development of critical thinking and creativity. Only 21% declared the ability of effective cooperation in teams. The second survey, conducted among students in the design study programme (full-time) at FAD STU in 2019, led to similar outcomes. Students asked for more extracurricular workshops, competitions and internships. On the other hand, they self-reflexively declared that they are weak in time management and therefore are rarely able to participate in design contests. They named the need to focus on improving presentation skills, encouraging foreign language interaction, developing design thinking and including more lectures about design philosophy to support argumentation about the meaning and purpose of creative concepts and the impact of design in society. Students also suggested focusing on practising professional communication in order to advocate for their creative concepts and learning how to make quick decisions in a dynamic world, followed by more opportunities to experience teamwork. The data regarding the future of design education and the inevitable need to support soft skills cultivation not only in the Slovak labour market have been complemented with the statistics of Profesia.sk, the biggest job portal in Slovakia with overlaps to V4, as it expanded to Hungary (2006) and the Czech Republic (2007). Despite the fact that the position of a “designer” is still mainly hard-skill oriented, the advertised positions increasingly demand good communication skills, independence and responsibility, as well as analytical or logical thinking or resistance to stress from applicants. This could be due to the fact that product or interior designers in Slovakia mostly start their own business and tend to work alone or in small teams, without the need to hire staff, while the majority of positions at Profesia.sk is advertised mostly by small and medium enterprises that can afford to hire drawers of technical documentation, 3D modellers, web designers or often DTP or graphic designers. The third survey was conducted in May 2020 and targeted university teaching staff in design study programmes in the V4 countries. The survey, among other questions, investigated the essential, key knowledge and capabilities of a well-prepared and competent design graduate of the future. The outcomes have fostered identification of an essential soft skill set for a young design graduate who is about to enter the labour market. The natural need to develop creativity, critical thinking, complex problem-solving and active learning in contemporary design education requires new approaches to the learning process. Through the introduction of three new approaches to design education, represented by the nonlinear learning, the student as a critical agent and new roles of the design tutor, a selection of emerging educational strategies will be described and compared. The follow-up strategies resonate in contemporary discourse and reflect the cultivation of skills, confirmed as lacking in the curriculum by the surveys.

POTENTIAL CONTRIBUTION OF DESIGN IN STRENGTHENING OF REGIONAL IDENTITY IN SOUTHERN SLOVAKIA

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Keywords: region, cultural identity, traditional and folk crafts, Slovak regional design

The article deals with the phenomenon of the region’s cultural identity loss and efforts to save it through design. Region is a geographically separated area of the state which has been shaped into its current form by various geological, geopolitical and socio-cultural factors. As a result of these influences, a unique regional culture with a specific tangible and intangible heritage was created. The country thus has a unique cultural identity that defines the character of its material culture. Nowadays, we are witnessing the gradual loss of cultural identity. It is an undesirable but common reality in many regions of Slovakia. The researched Hont and Novohrad regions are no exception. However, Slovakia has a great cultural wealth that deserves recognition and celebration. Considering the geographical location of Slovakia, there could arguably

more easily emerge colourful and internally diversified cultural regions. However, the identity of the tangible and intangible cultures of Central Europe is not clear-cut and thus, in many cases the identities are largely polarised. Due to the cultural diversity of the investigated regions, regional awareness is low. Cultural overlaps occur and the society loses a sense of regional identity and belonging. Furthermore, today's society is advancing too fast across new technologies, generating new habits. The authenticity of the original culture is thus suppressed at the expense of current development. The overall process of extinction is also accelerated by the current way of life, inappropriate approach, absence of creative processes and low initiative from the society's side. Regional development and its maintenance consist in systematic and creative creation which is often absent. This situation creates space for designers who, through extensive informative research, creative activity and modern technologies, can identify systematic steps oriented to maintaining culture. Therefore, it is necessary to incorporate design into the regionalisation process. Design plays a fundamental role in the creation of new products, services and systems. It is a way of solving problems and finding the best solutions aimed at a wide range of users. Design can positively influence the quality of public space and services, increase innovation in the region and respond to societal expectations. An ideal example of the positive influence of design and creative activity in favour of regional development is the globally recognized association *Werkraum Bregenzerwald*. It is an association made up of several members representing various trades and crafts. The primary mandate of the association is to support the economic and cultural development of the region. This organisation strives for the sustainable development of crafts and trade through the preservation of and creation of new jobs, local production of sustainable products and their subsequent distribution, the preservation of quality crafts and the creation of intimate relationships through cooperation between craftsmen and designers. Similar foreign projects include The Polish platform *Design Silensia* and The *Sploty na fal* project. Ways of maintaining traditions in Slovakia is mainly through the Centre for Folk Art Production (*ÚLUV*). In the initial phase of the research, we prioritised creation, production from locally available materials and distribution of regional products in the studied region as well as beyond its borders, for the purpose of economic and cultural development. The partial goal was to design and create a product or a collection of products inspired by the local folk culture. However, this approach turned out to be inappropriate considering the fact that creation of a product is in the hands of a designer, while the participation of the population in the creation process is limited to the form of processing materials and production. This result is the product of an individual who tries to implement design as an element of regional development, regardless of the needs of the local population. Due to the failure of the first research method, the final part of the article is devoted to a new research method which focuses on participatory design. Participatory or cooperative design is a valuable tool in the field of design creation. Its role is to involve local cultural associations, stakeholders, designers, researchers and end users in the design process to ensure that the final product meets all the needs of the consumer. The new research method will focus on laces of Hont and Novohrad that represent a specific cultural heritage of the regions. In order to preserve this tradition, it is necessary to bring it closer to the current generation. However, the tradition must be preserved so that it is recognisable and accepted by the public. Therefore, it is essential to deepen the cooperation with locals and experts in the domain of the local traditional lace, as well as with active participants in courses with the intention of creating regional products. By collaborating in the design process, we can thus support and revive this existing element of folk culture into a contemporary, sustainable form through products with the attributes of local identity that would be acceptable to the local society.