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## EDUCATIONAL PLAYS AND GAMES IN CONTEMPORARY DESIGN AND ARCHITECTURE

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### GRY I ZABAWY EDUKACYJNE WE WSPÓŁCZESNEJ ARCHITEKTURZE I DESIGNIE

#### Abstract

The architecture of contemporary educational facilities is a field of the search for innovative learning spaces. School buildings, along with other facilities and solutions which serve the purpose of permanent informal education, create a varied learning landscape in the public space of the city. This article attempts to see this issue from the angle of ludic culture and discusses its impact.

*Keywords: architecture, space, education, game, play*

#### Streszczenie

Architektura współczesnych obiektów edukacji jest polem poszukiwań innowacyjnych learning spaces. Budynki szkolne wraz z szeregiem innych, służących permanentnemu, nieformalnemu kształceniu rozwiązań w przestrzeni publicznej miasta tworzą zróżnicowany learning landscape. Artykuł jest próbą spojrzenia na jego kształtowanie przez pryzmat wpływu kultury ludycznej.

*Słowa kluczowe: architektura, przestrzeń, edukacja, gra, zabawa*

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## 1. Introduction

‘Play’ means *creating a fictitious desired pretend world enabling better cognizance of the [real] world* [6]. ‘Game’ is a form taken by play; it is its inner structure. Game and play are notions close in meaning.

Play is nowadays considered to be one of the basic needs of human beings of all ages. During childhood, ‘play’ is an exercise that prepares children for adulthood, while in the adult world it is an object of scientific research as a method for improving educational and working results, as well as supporting co-operation and resolving conflicts. Each field of human activity, such as industry, medicine, defence, management, education or design, where creativity and cooperation are the key success factors, may become, with a suitable approach, a serious game. The significance of the ludic element is also accentuated in contemporary artistic ideologies. The joint play of the creator and recipient of a work builds a culture of co-participation – *‘in each form (...) of modern experimentation in art one may recognise the pursuit of replacing the distance of the spectator with the involvement of the game participant’* [3, p. 32].

This work aims to examine the impact of ludic culture on the development of architecture that serves educational purposes. The result of such correlative studies is to present a typology of architectural solutions that have their origins in the structure of popular games and play. Objects for testing were selected using the criteria proposed by Harrison and Hutton [4] and the design process characteristics adopted from J. Boys [2].

## 2. Designing as a play or game

J. Boys [2, p. 7] proposes viewing the contemporary educational space from three perspectives, namely: from the point of view of the players, then its creators – the architect and teacher – and finally from the perspective of the person managing or administering the building. Each time co-operation and conflicts happen, they influence the ‘game board setting’ thus creating a solution which can change the situation in the ‘next deal of the cards’. This article focuses on the architectural aspect of educational space shaping; however, it also bears in mind the importance of other aspects which are elements of a team game. The new generation of facilities serving the purpose of formal and informal education can be divided into three basic categories of learning spaces: schools, further and higher education campuses, and business and cultural facilities. There are sets of solutions available varying in scale, from single elements of equipment and furnishings, and their systems, through rooms and zones of the building, to entire buildings. They all create the modern learning landscape [4, pp. 9–17, 256]. Each type of architectural object in this landscape has specific individual characteristics. What is common to them all is that they house solutions for informal education, such as experimentation, co-operation, e-learning, recreation, and obviously play.

The metaphorical character of architectural solutions used in educational buildings draws the viewer’s attention [2, p. 25]. The adoption of a metaphor as a starting point for the creation of a concept is an expression of the search for innovation in design. There are various types of metaphor, for instance:

<b>Garden</b>	the concept of a green school – farm in Stockholm [3xn].
<b>Playground</b>	the roof of a nursery school in Vereda [Rueda Pizarro Arquitectos] or Olifantsvlei primary school in Johannesburg [Institute of Experimental Architecture /Studio 3]; equipment for Vittra schools in Stockholm [Rosan Bosch Studio]; attractions in the regenerated post-industrial areas on the example of Zollverein Essen, as well as creative places for adults – the interiors of LEGO@PMD, Billund [Rosan Bosch Studio & Rune Fjord] or Google offices in New York, Amsterdam, Dublin, Tel Aviv, London, Mountain View, Pittsburgh, and Zurich.
<b>Multi-functional agora</b>	objects for adult education, such as the Education Centre for VUC Syd Haderslev [Aart Architects + Zeni Architects], or HF & VUC Fyn Adult Education Centre Odense [CEBRA].
<b>Box</b>	higher schools and education centres: Le Fresnoy Art Center [Bernard Tschumi Architects], Sharp Center for Design, Toronto [Alsop Architects], Zollverein School of Management and Design [SANAA].
<b>Natural scenery</b>	Primary School for Sciences and Biodiversity Boulogne-Billancourt [Chartier Dalix Architectes].
<b>Forest</b>	Columbian Sports Center Forest of Hope, Soacha [G.Mazzanti], or Orquideorama Botanical Garden, Medellín [Plan B Architects + JPRCR Architects].
<b>Other, author's designs</b>	Book Mountain – library, Spijkenisse [MVRDV], or a slice of Swiss cheese – Rolex Learning Centre in Lausanne [SANAA]; cabaret, empty space, sandpit, café as a metaphor of the classroom [2, p. 25]

Various authors play with the form as well as invest it with new significance, building thus a fictitious, metaphorical, allegorical world and experimenting with it. The co-participants in the game include future users, such as: teachers, students, pupils, course participants, random passers-by, visitors, workers, etc. New architectural forms evoke associations with a forest, garden, island, box – in the same way their unconventional use is imposed. The space of the Rolex Learning Center is ‘stringy like melted cheese’, which encourages the search for new ways of using it, as traditional solutions cease to be possible in such an interior. Similarly, in Vittra schools [R. Bosch], the use of ‘The Mountain’ – an iceberg-looking structure; the ‘Multimedia House’ – whose outside walls are made of blackboards; ‘The Cave’ – serving as a house for loners, or the use of other multifunctional toys requires invention. The originator of this architectural object creates new rules of play by forming new shapes for sitting places, colours and sizes of spaces, and organic furniture.



Vittra AB, design: Rosan Bosch Studio, foto: Kim Wendt



Vittra AB, design: Rosan Bosch Studio, foto: Kim Wendt



LEGO@PMD, design: Rosan Bosch & Rune Fjord, foto: Anders Sune Berg



LEGO@PMD, design: Rosan Bosch & Rune Fjord, foto: Anders Sune Berg



Jurapark Park Krasiejów, Goczołowie Architekci Studio Autorskie, Ovo Grąbczewscy Architekci

- III. 1, 2. Vittra AB, Stockholm, Rosan Bosch, photo: Kim Wendt  
 III. 3, 4. LEGO@PMD, Rosan Bosch & Rune Fjord, photo: Anders Sune Berg  
 III. 5. Jurapark Science and Entertainment Park Krasiejów, Goczołowie Architekci Studio Autorskie, Ovo Grąbczewscy Architekci

### 3. Educational toys in architecture

IT solutions and computer games – a virtual educational environment – constitute an integral part of contemporary *learning spaces*. The mutual influence of play, computer games, and architecture is researched by S.P.Waltz [5, p. 133–256]. Following the trail of the ‘archaeology of ludic architecture’, he isolates a new category of physical objects being places-to-play. ‘*Playces*’ include playgrounds, campuses, city squares, theatres, stadiums, nursery

schools, amusement parks, etc. The objects which traditionally served purely entertainment purposes now support the educational process as a special group of public utility facilities. Waltz enumerates the structures of the architectural environment which originate from the world of games: tessellation, board, labyrinth, map, cave, territory, etc. These can be found in architectural objects connected with culture and education.

**Tessellation** is used in programming and board games. Tessellation nets of flat tile patterns made from anodized aluminium appear on the facade of the campus of Ravensbourne College of Design and Communication in London [Foreign Office Architects]. The roof cover of the new pavilion of Grueningen Botanical Garden [idA Buerher Wuest Architekten] also has a net structure, and similarly the skins of the multifunctional architectural objects on Federation Square in Melbourne [LAB architecture studio] and the new pavilions at the Korkeasaari Zoo in Helsinki [Beckmann-N'Thépé and TN+], which are a geometrized and processed fragment of the landscape of an island. All these examples refer to the structure of the cover of public utility buildings. Experiments with the use of a tessellation net often relate to temporary structures, such as the LED pavilion with the structure of a honeycomb which was prepared by the students and academic teachers of architecture at Bond University for the Vivid Light Festival in Sydney.

**Board** constitutes a basic element of logic and strategic games as well as games of chance. Educational boards are used in solutions prepared for the youngest users. Multifunctional play walls were used in nursery schools in Tromsø [70°N Arkitektur]. In the playground building in Utrecht [Mulders van den Berk Architecten of Amsterdam], a geometrical pattern of the floor, walls and ceilings as well as the external wall made of Corian, with a fancy grooved pattern, encourage the children to work on exercises developing their motor system. A sort of 'board' consisting of many elements can be also found on the surface of multifunctional squares / parks, such as Superkilen in Copenhagen [Topotek 1, BIG, Superflex]. Also the system of open multifunctional spaces in Ørestad Gymnasium in Copenhagen [3xn], or the exhibition rows in museums and educational centres give rise to associations with the game board.

**Labyrinth** is used in board games, exercises developing the motor system, and stimulating logical thinking, as well as in the structure of many computer games. The experience of the *maze* [confusion, disorientation in the labyrinth] is a frequent motif of the artistic activity in public spaces. There have been numerous examples of labyrinths over the past few years: a maze made of birch plywood in the atrium of the National Building Museum in Washington [BIG]; a triangular labyrinth of glass walls in the Donald J. Hall Sculpture Park at the Nelson-Atkins Museum of Art, Kansas City [R. Morris]; Transarquitetônica, a plywood installation imitating entangled giant tree roots inside which the visitors can walk – Museu de Arte Contemporânea da Universidade w São Paulo [H. Oliveira]; a mirror maze "Please Touch the Art" [J. Hein] in New York's Brooklyn Bridge Park;

a reinforced concrete structure The Labyrinth 10Cal Tower in the park next to Gym Burapha University, Bangsaen, erected to commemorate the 100th anniversary of the concern Siam Cement Group [Supermachine Studio].

### **Map**

a plan or network of places is an integral element of computer games. The well-known motif of the map in architecture connected with education was realized in the sphere or the globe constituting the support for spiral stairs going around it: Open-air school in Suresnes [E. Beaudoin / M. Lods, 1931–35]. The drawing of a map has been an inspiration for many solutions in landscape architecture, beginning with the classic multilayer plan of the Parc de la Villette in Paris [B. Tschumi] and ending with the contemporary designs for zoological gardens, such as Korkeasaari Zoo on an island in Helsinki [Beckmann-N'Thépé and TN+], or thematic parks – the plan of JuraPark in Krasiejów [Goczołowie Architekci – Studio Autorskie, Ovo Grąbczewscy Architekci].

### **Cave**

has been an object of board games and computer games as well as a popular motif in the interiors of informal education spaces, a place of isolation in the public space. It is one of the five elements/principles of shaping the Swedish schools Vittra [R. Bosch]. The cave motif can be found in the installation Rest Hole made of wooden ribs, on the ground floor of the students' dormitories in the campus of the University of Seoul [UTAA]. The bends of concrete walls create cave-like rooms in the building of the Faculty of Architecture at Bond University, Queensland [CRAB Studio, p. Cook]. A similar function is played by 'cocoon' – compact forms with an external, usually oval, casing. These can be found in the Saltire Centre – the library of Glasgow Caledonian University and the Google headquarters in Zurich. The motif of a hanging cocoon [hanging sack] appears at Crochet Playgrounds, colourful crocheted playgrounds installed in the public space buildings Hakone Sculpture Park, Sapporo, Museum of Contemporary Art, Rome, The Children's Museum, Winston-Salem [T. H. MacAdam].

### **Territory**

game participants compete in fighting for territory. Three areas of Superkilen [Topotek 1, BIG, Superflex] are individual, separate in terms of colours, zones making up one entity. The solutions are dedicated to different ethnic groups living in the neighbourhood. In the buildings, such as Columbian G.Mazzanti: Flor del Campo Educational Center, Bolívar [with F.Mesa] and Pies Descalzos, Cartagena, the territory and the building are united in one entirety creating an enclave in their vicinity.

## **4. Summary**

Studies have shown that examples of solutions originating from the world of play and games in educational, cultural and business spaces are multiple. The motif of module blocks is often used in universal buildings which are flexible and easily

adaptable. Museums, educational centres, and parks resemble more ‘thematic games’, etc. Architectural multifunctional toys and playgrounds are designed for children, teenagers and adults. Playing and developing are necessary for people of all ages. In today’s pursuit of innovation, learning and experiencing the world through play has become an integral part of both education and creative work. The design of solutions for new school, cultural and business facilities are surprising, metaphorical and ingenious. They are often design experiments which seek an innovative public space. They provide physical solutions supporting a permanent educational process and general development. Such solutions stimulate creative thinking and are conducive to cooperation. New, informal, specially arranged and play-friendly spaces come into existence in the educational landscape and supplement the space of the traditional classroom or lecture room. Education is one of the games played in the architectural space. The architect creates its rules and often actively participates in it. As it was stated by H. G. Gadamer – *Play is such a fundamental function of human life that human culture is unthinkable without the element of play* [3, p. 25].

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