Success Analysis in Architectural Design Competitions in Terms of Design Quality

Wojciech Bonenberg(✉)

Faculty of Architecture, Poznan University of Technology, Poznań, Poland
wojciech.bonenberg@put.poznan.pl

Abstract. The article presents a report on research pertaining to the possibility of success in architectural design competitions. The research was carried out in 2016 and 1017 with the aid of Poznań University of Technology Faculty of Architecture students and under the guidance of the author. The significance of architectural design competitions in building spatial systems and improving the built environment was highlighted. The significance of architectural design competitions for the growth of architectural creative activities and in particular educating architecture students was also pointed out. As a result of the research, architectural design quality attributes were identified, which are decisive to the greatest extent when it comes to success in professional architectural design competitions.

Keywords: Architectural design · Competitions · Success

1 The Research Problem

The objective of architectural design competitions is to obtain the best design solutions possible. They aim to ensure a high quality of the built environment with the public interest in mind and to establish conditions conducive for the development of architectural creative works. Designated judges - authority figures in the field of architecture, commissioned by the ordering entity, select the best architectural design within the scope of an architectural design competition. A strong belief prevails amongst architects, that architectural design competitions are an effective way for acquiring architectural creative ideas for further investment execution. The competitions objective is to select the best solutions, solutions which not only exhibit high aesthetic virtues, but ones which are also functional and thus effective. The opportunity to publicly compare awarded works with those which were not successful is very important. This constitutes a basis for further discussions amongst the interested parties and stimulates architectural critique which furthers the improvement of the built environment.

Interest in architectural design competitions stems from the fact that people evaluate their surroundings and this process contributes to satisfaction or discontentment. Thus, it is so important to be able to perform variant simulations of development visions, leading to a consensus as to the chosen design solutions, prior to interfering with the surroundings. This objective is associated with the general belief, that there are clear relations between the qualities of the built environment, professionalism, skill and creativity of architectural creators.

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Many myths and half-truths have arisen around architectural design competitions. Some competition participants believe that success in a competition depends on luck and is random. Others think that it is who you know that matters or that the jury has to be favourably inclined to you. There are also opinions which say that well known architectural studios, the so called "architecture stars" are most likely to win the competitions. Despite these doubts, the lion's share of architects taking part in the competitions consider that design quality virtues are decisive when it comes to competition success. However, a question does arise, as to which architectural elements (attributes) are most decisive when it comes to competition success. Is it functional correctness, stylistic innovation or perhaps an attractive graphical presentation of the design? In other words, what makes the awarded designs stand out from the crowd?

The conducted research aims to determine a relationship between architectural design competition success and attributes (properties) of designs entered for the competitions. Design suggestions presenting solutions for the same competition problem differ from one another. Partial quality attributes of given designs are the element which makes them stand out. Thus, it is so important to identify those attributes and to estimate the significance of each attribute for competition success.

2 Research Plan

A group of 20 Poznan University of Technology Faculty of Architecture students took part in the research. Stage one of the research entailed selecting a set of representative designs awarded in domestic and international competitions.

Then the competition designs were analysed. Within the scope of the analysis, partial attributes (features) characteristic for the designs subject to the research.

The characteristics of competition designs are to provide an answer to the question of why some architectural competition designs are awarded, and others are not? Which competition design attributes determine whether the given design is awarded? Which attributes are most common amongst awarded designs?

Thus, we are looking to identify those design elements which the jury awards the highest mark to.

15 characteristic partial attributes of an architectural design pertaining to its quality have been identified on the basis of subject literature [1, 3, 6, 7].

Then the "intensity" of the occurrence of the identified attributes in each competition design part of the research was measured. As a result, a ranking of the attributes characteristic for the given competition design was obtained. Each competition design was characterised using the "intensity" of the occurrence of the given attributes [8].

Then the designs subject to the analysis were ordered according to competition jury assessment. And thus, projects which won 1st, 2nd or 3rd place in architectural design competitions were grouped together.

Then an analysis of the attribute "intensity" distribution in each of the three competition design groups was performed. This made it possible to identify those attributes, which are decisive to the largest extent when it comes to top spots in a competition. As a result, a standard for the intensity of quality attributes which are decisive in terms of success in architectural design competitions was obtained.

3 Research Methodology

A research sample spanned 108 domestic and international architectural design competitions held in between 2011 and 2017. Competition designs were analysed, with particular emphasis on identifying attributes decisive in terms of competition success. The research methodology comprised the following steps [4]:

A. Selection of a representative sample.
B. Identification of partial quality attributes which characterise each design in terms of functional, structural and composition virtues (properties) and the design graphical presentation method.
C. Categorisation of competition designs according to the awarded prize (1st, 2nd or 3rd).
D. Analysis of partial attributes associated with design specific virtues in awarded designs (functionality, composition, context, etc.) and the design graphical presentation method. In other words, this is a determination of the impact of partial quality attributes on competition success. This analysis resulted in a tanking of partial attributes which contribute to architectural design competition success.

A representative sample contains designs which won 1st, 2nd or 3rd place in domestic and international competitions. The following criteria were taken into account in selecting designs: competition prestige, competition jury composition (share of judges which are considered to be authority figures amongst professionals), scope of competition design, design presentation type (architectural creative concept).

15 attributes characterising an architectural design were identified:

x1 - relevance - whether designers followed competition guidelines, emphasis on the performance of objectives and a functional programme,
x2 - context, urban planning conformation - location character reflected by references to the surrounding structures, colours, elements; attention focused on the land development aspect,
x3 - symbolism and illusoriness - dominance of abstract forms with numerous semantic references, a large number of architectural metaphors, use of obscure forms,
x4 - functional arrangement - meticulous solution of functional connections inside a building, interior design invention, creation of an appropriate entourage for the planned function, invention in terms of creating architectural interiors,
x5 - structure, material solutions - use of modern structural materials and systems; exposing structural elements as architectural composition elements, original building façade interpretation [5],

x6 - uniqueness - exhibiting values such as traditions of the site, mood of urban interiors, unique expression, cosy scale, interesting adaptation into the local context; individualised spatial design character,
x7 - legibility - combining composition, functional and structural virtues in an understandable form; easily understood meaning of architectural forms in an urban setting; legibility creates a clearer environment, one which provides more emotional stimuli,
x8 - cultural identification - a system of symbolic and emotional values, established as a result of identifying with the location's culture and traditions,
x9 – "en vogue" - conforming to fashion, solutions refer to the latest trends,
x10 - prestige - use of uncommon materials, refined design, elegance, dominance of cohesive formations in a conservative form,
x11 - innovation - esprit, brilliance, imagination, original thinking; use of rare technologies, materials and means of expression; pioneering idea for the execution of the given subject,
x12 - form/spatial form - highly irregular building spatial form, use of atypical shapes (including parametric forms) [2],
x13 - styling - emphasis on creating a visually attractive and stylistically different building,
x14 - ecology/energy efficiency - use of ecological motifs and associations; use of natural materials and greenery on walls and roofs, use of solar panels, heat pumps, mini wind turbines; building orientation with reference to cardinal directions meticulously thought-out,
x15 - design presentation method - competition boards visual message expression, meticulousness or execution, graphic design attractiveness.

For the research, design attribute was an independent variable X, whereas the places in a contest were dependent variables. Then the relationships between design attributes (independent variables X) and architectural design competition success were analysed. In other words, attributes (or a combination of attributes) which contributed to success in the competition were identified.

All variables are of a qualitative character. One should note that the relationships between design attributes and the place in a competition are of a probabilistic character.

Assessments by 20 competent judges (expert assessments) were used in the research, which improved the reliability of assessments. An assessment entailed determining the "intensity" with which each of the identified attributes occurred in the awarded designs.

The procedure was applied to each awarded design in the representative sample. The research was conducted through the use of a questionnaire interview. To measure the relationships between design attributes (independent variable X) and competition success (independent variable) a five-level Likert scale was used [9]. Expert assessments (based on their intuitive belief) were quantified in the 1–5 range, indicating the

Table 1. Questionnaire specimen used for design expert assessments in terms of partial attributes occurrence intensity (example).

Architectural design partial quality attribute	Attribute intensity				
	None (1)	Low (2)	Medium (3)	High (4)	V. high (5)
x1 – relevance				X	
x2 – context, urban conformation			X		
x3 – symbolism and illusoriness				X	
x4 – functional arrangement					X
x5 – structure, material solutions		X			
x6 – uniqueness	X				
x7 – legibility		X			
x8 – cultural identification			X		
x9 – "en vogue"				X	
x10 – prestige	X				
x11 – innovation		X			
x12 – form/spatial form					X
x13 – styling				X	
x14 – ecology/energy efficiency			X		
x15 – design presentation method				X	

intensity of a given attribute in awarded designs. The experts were asked to complete a pre-prepared questionnaire. A specimen questionnaire used to assess a product is shown in Table 1. The advantages of this technique include rate of data acquisition and the possibility to process it further.

As a result, the designs part of the representative sample were characterised. Each design was analysed in terms of partial attributes characterising its quality.

The expert assessment answered the question as to the degree (with what "intensity") with which partial attributes characterise the awarded designs. In other words, the significance (rank) of a given partial attribute in the overall design idea message was determined.

Synthetic research results have been shown on graphs. Graph 1 (Fig. 1) depicts the attribute ranking for designs which won prizes in domestic competitions.

Graph 2 (Fig. 2) depicts the attribute ranking for designs which won prizes in international competitions.

Graph 3 (Fig. 3) depicts the attribute ranking for all designs which won prizes.

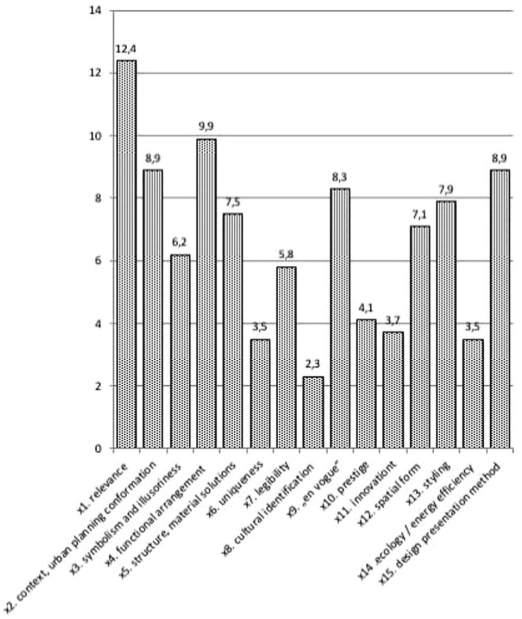

Fig. 1. The attribute ranking for designs which won prizes in domestic competitions.

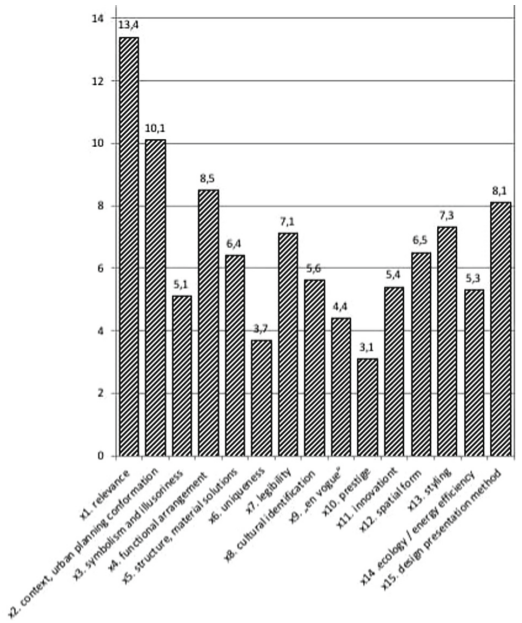

Fig. 2. The attribute ranking for designs which won prizes in international competitions.

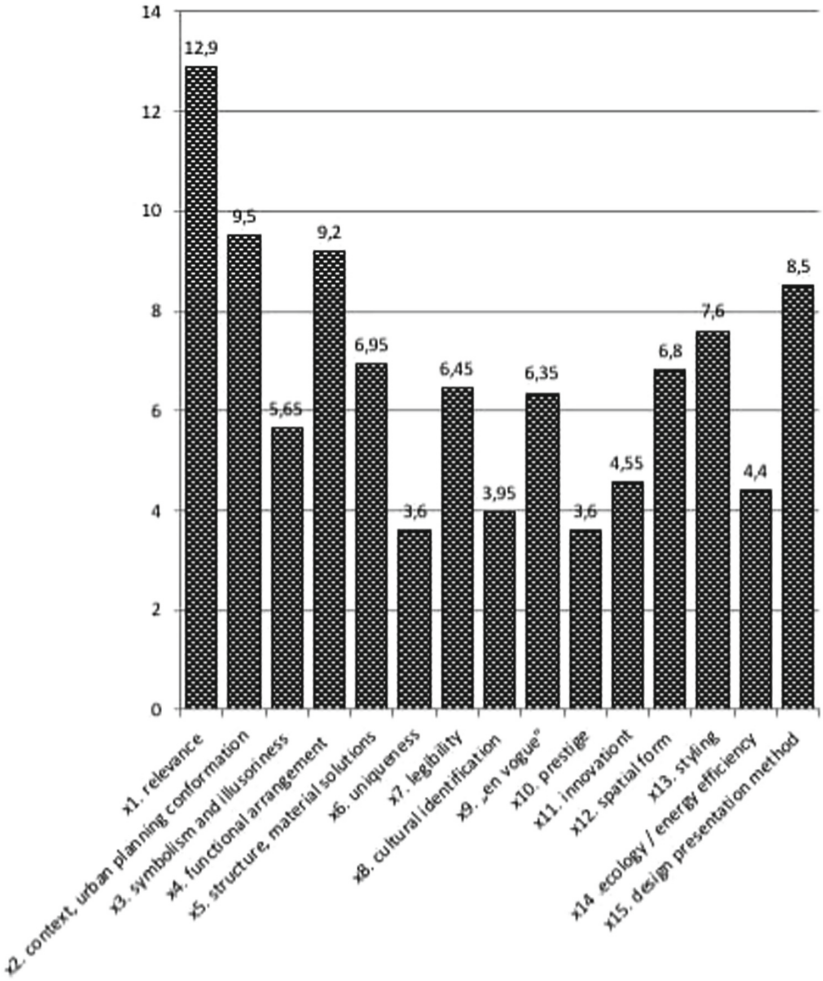

Fig. 3. The attribute ranking for all designs which won prizes.

4 Conclusions

The conducted research shows, that the attributes weights are similar for designs on domestic as well as international levels. This indicates a certain standardisation of competition assessments. And thus, designers from Poland are able to successfully take part in foreign competitions, just as foreign firms stand a chance in Polish competitions.

Out of the identified quality attributes, relevance is most important - whether designers followed competition guidelines, emphasis on the performance of objectives and a functional programme (attribute x1). Context and urban planning conformation (attribute x2) was among the top spots in the ranking.

The research demonstrated significantly higher importance than expected of design presentation method - competition boards visual message expression, meticulousness or execution, graphic design attractiveness (attribute x15). This is interesting inasmuch that this attribute is not linked with actual qualities of the space shaped by the design. Attributes which were lower down in the ranking are also noteworthy, and in particular the surprisingly low position of ecology and energy efficiency (attribute x14) as compared with styling (attribute x13) and the manner in which the building form/spatial form is shaped (attribute x12).

The design presentation method can be summarised in greater detail - competition boards visual message expression, meticulousness or execution, graphic design attractiveness (attribute x15). In most cases, the winning works contained sunshine and a cloudless, blue sky. Approximately 1/3 of the works showed the designs on cloudy days or after rain. In most cases the use of such measures emphasised the character of a building (urban complex), made it look more rugged, further accentuated by the materials used for the façade. Building illumination was shown in the evenings, just after sunset and rarely at night.

Works which depicted designs as a photorealistic visualisation or an ordinary render were staunch winners. Works which employed the collage technique made up just over 15%, with just 2 works out of more than 100 subject to assessment featured hand drawings.

Most winning works were shown in pastel colours. Most often bright colours appeared on boards in the form of a strong accent or lead motif, reflected in the overall board colour scheme and visualisations. Dark colours were prevalent in designs, where the lead motif entailed an interior, monument or shelter. Less than 10% of the works were presented in monochrome.

Architects may find this synthetic characterisation of presentation methods for winning designs very useful. The fact that in 2017 five out of the 20 students taking part in the research were awarded prizes in international student competitions stands testament to its usefulness.

References

1. Bonenberg, A.: Ergonomic experimentation in the architectural design process – types of test environments. In: Charytonowicz, J. (ed) Advances in Human Factors, Sustainable Urban Planning and Infrastructure, Advances in Intelligent Systems and Computing, vol. 600, pp. 199–206. Springer International (2017)
2. Bonenberg, A.: Facades and multimedia screens in contemporary architecture–ergonomics of use. In: Advances in Social and Organizational Factors, pp. 122–127. CRC Press Taylor & Francis Group (2012)
3. Bonenberg, A.: Place brand-building. Urban empathy as an evaluation method. In: Antona, M. (ed.) Universal Access in Human-Computer Interaction Methods, Techniques, and Best Practices, pp. 150–160. Springer International Publishing, Switzerland (2016)
4. Brown, T.: Change by Design. Harper Collins Publishers, New York (2009)

5. Ceconello, M., Bisson, M., Boeri, C., Vignati, G.: Colour plan for urban design. In: Ontologies for Urban Development: Conceptual Models for Practitioners. 2nd Workshop COST Action C21 – Towntology, pp. 150–161. Politecnico di Milano, Dipartimento INDACO, Turin (2007)
6. Koos, U., Richter, K.: The Book of Design. Keiser Verlag, Neusass (2001)
7. Melss, P.: Elements of Architecture, From Form to Place. Chapman and Hall, London (1992)
8. Miller, D.: Wpływ wiedzy projektanta na formułowanie problemu projektowego. Polska Akademia Nauk. Instytut Filozofii i Socjologii. Ossolineum, Wrocław (1990)
9. Norman, G.R.: Likert scales, levels of measurement and the "laws" of statistics. Adv. Health Sci. Educ. **15**(5), 625–632 (2010)