TOWN HOUSE AND THE CITY

SEARCH FOR A BEAUTY - EYES UP

Abstract:
The topic is a quantitative analysis of the subjective perception of a town house as a trace of its visual factor and its direct influence on the environment, affecting the locality and passers-by. The focus is on the evaluation of the exterior and correlation with its function and the suitability of the investment. The respondent group is composed of professionals and laymen. The correlation between the visual factor of a townhouse, the attractiveness of areas and the object was unveiled.

Keywords:
Townhouse; Metropolitan House; Satisfaction component; Facade; Building aestethic; Brno

Introduction:
The focus of this paper is finding the connections between the visual factor and the overall evaluation of the town house. The city is an image of society. Apartment buildings, with a few exceptions, are composed of simple facades with non complex windows. Significant places formed by the presence of unique facades, according to artistic principles [Sitte, 2012], are missing. The research aims to bring new knowledge that can be put into practice – sensitive and economically profitable development.

Picture 1: *Example of a town house with a positive effect on its surroundings and passers-by.*

(House of the Black Madonna, Prague; photo archive of the author)

Current state of knowledge
The relationship between the satisfaction factors and whole evaluation of the apartment building was investigated in the initial study in Dhaka. [Mridha, 2015] The aim of this study is to implement already performed research into the locality of the Czech Republic and include visual factors. The author of the previous study claims that a closer examination of architectural elements has been neglected.

The context
Current development projects do not usually contain any major systematized use of architectural language or sensistive approach to context. Uses excuse of modernity context and connection with Brno functionalism. Contextuality of development projects in Brno may be questioned. Financial factors are limiting key factors of every project. “Studies have shown that differences exist between expert architects and laypeople in their aesthetic preferences” [Šafárová, 2019].

The development trend
Profitability of building project cannot be neglected. Financial savings for heating are monitored. [Vyhl.č. 264, 2020]. External Thermal Insulation Composite Systems is being used due to its relatively low price. “EIFS / ETICS” [Terraco EIFS, 2021] Polystyrene and mineral materials are being used. Due to work processes, the shape of the house is usually limited to simple mass. More complex shapes lead to higher economic demands.

Methodology
The original research proposal consisted of both data analysis: factor analysis and regression analysis. Because of the limited responses count a regression analysis was selected. Basic definition of town house was created.

Research goal
How to design city houses for economic profitability, its functional and visual qualities and support value of its surroundings.

Research question:
How does the visible exterior of a town house relate to its evaluation?

Hypothesis
(1) Passers-by are actively interested in the exterior of town houses - visible facades.
(2) The exterior of the town house - visible facade - directly affects its rating.
(3) The exterior of the house - visible facade - directly affects the evaluation of its surroundings.
(4) The exterior of the house - visible facade - is one of the keys of investment decisions.

Research design
The study investigated housing satisfaction in its socio-psychological context. Its design is build on previous study and research Living in an apartment [Mridha, 2015]. This study makes correlational conclusions instead of causal conclusions. Correlation analysis was intended to reveal dependence between subjective evaluation of the object with its quantifiable parameters.

Sampling and sample size
(1) Respondent-driven sampling: Snowball sampling by e-mail. The possibility of the further nomination was enabled.
(2) Clustered sampling: To obtain data from experts, professionals groups on social networks were selected.
(3) Convenience sampling:To obtain data from non-professionals, groups on social networks, composed of laymen, were selected.

Participants
A total of 136 people agreed to participate. No one was excluded

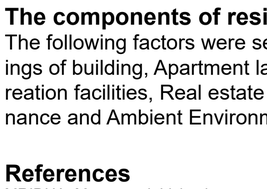


Chart 1: *Represented age*

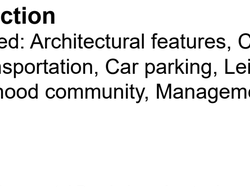


Chart 2: *Gender*

Chart 3: *Educational attachment*

Chart 4: *Occupation*

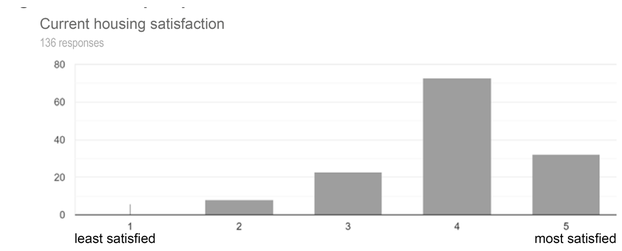
Chard5: Type of current housing

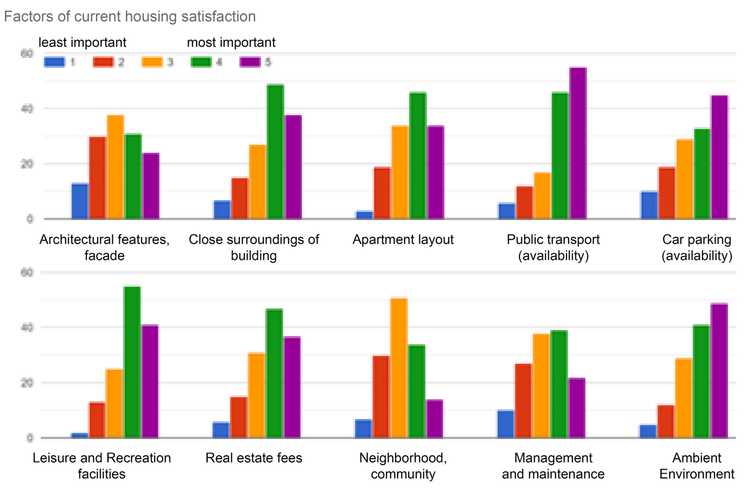
Chart 5: Location of current housing

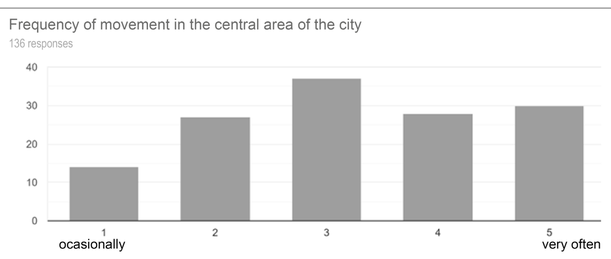
Measurement instrument
Anonymous online questionnaire was created to repeat a previous study. Data were collected for a period of 14 days. The key part of questionnaire were three last parts (Current housing evaluation, evaluation of metropolitan houses facades, and overall metropolitan houses evaluation). A total of 15 questions were defined. The language of the questionnaire (and native language of respondent group) was Czech. Data were then translated to English for purpose of this study. The form uses the scale of the answers from 1 (worst) to 5 (best).

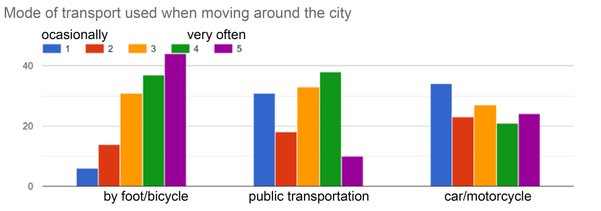
The components of residential satisfaction
The following factors were selected and defined: Architectural features, Close surroundings of building, Apartment layout, Public Transportation, Car parking, Leisure and Recreation facilities, Real estate fees, Neighbourhood community, Management and maintenance and Ambient Environment.

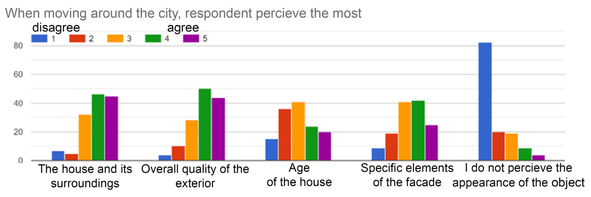
Results

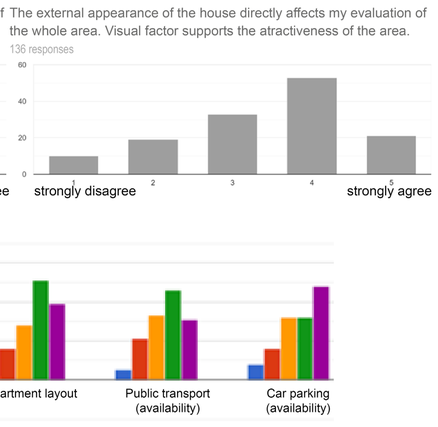










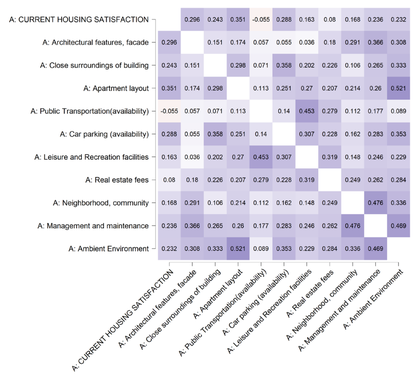


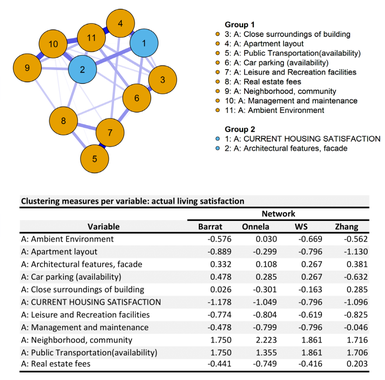
Data cross analysis
ost respondents (38,24 %) live near the city center, least respondents lives in urban sprawl (5,15 %) followed by the central part of the city (8,82 %). The largest part of the sample consists of people aged 21-30 living near the city center (14,71 %). The most common response to overall satisfaction with current housing was 4 and 5 points. The most satisfied group was 71 - 80. The least satisfied group was 11-20. Overall satisfaction of male respondents was slightly higer than satisfaction of female respondents.

COUNTA of A: CURRENT HOUSING SATISFACTION	A: CURRENT HOUSING SATISFACTION				
CURRENT HOUSING	2	3	4	5	Celkový součet
Apartment - Own	7.50%	20.00%	50.00%	22.50%	100.00%
Apartment - Rent	12.50%	27.50%	50.00%	10.00%	100.00%
Apartment Association - Rent	0.00%	0.00%	100.00%	0.00%	100.00%
Apartment building - Own (tenement house)	0.00%	40.00%	20.00%	40.00%	100.00%
Apartment outside the city - Own	0.00%	0.00%	100.00%	0.00%	100.00%
Family house - Own (also multigenerational)	0.00%	5.00%	55.00%	40.00%	100.00%
Family house - Rent (also multigenerational)	0.00%	0.00%	85.71%	14.29%	100.00%
Family house multigenerational - village	0.00%	0.00%	100.00%	0.00%	100.00%
Hut - Cottage - Summer House	0.00%	0.00%	100.00%	0.00%	100.00%
Celkový součet	5.88%	16.91%	53.68%	23.53%	100.00%

Regression analysis
For this phase of the study was selected correlation analysis. [Řehák, 2017] which was performed in three areas of interest.

Correlation analysis A - Current housing: Overall satisfaction and its components.
These values serve as reference numbers. We can see a correlation expressed by Spearman´s Rho [Řehák, 2017] in values from .232 to .521. (used due uneven distribution of results). Higher count means higher existence of mutual relations. Mainly positive correlations were revealed. Overall satisfaction correlates the most with the layout of the apartment (.351), in the second place are architectural elements (.296). A negative correlation of -.055 was found in connection with the availability of public transport.

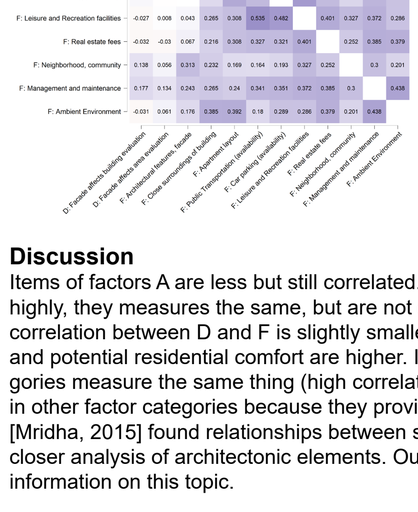


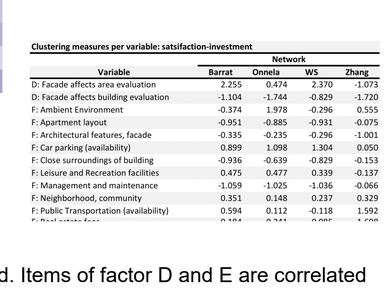


Clustering measures per variable: actual living satisfaction

Variable	Network			
	Barrat	Onnela	WS	Zhang
A: Ambient Environment	-0.576	0.030	-0.669	-0.562
A: Apartment layout	-0.889	-0.299	-0.796	-1.130
A: Architectural features, facade	0.332	0.108	0.267	0.381
A: Car parking (availability)	0.478	0.285	0.267	-0.632
A: Close surroundings of building	0.026	-0.301	-0.163	0.285
A: CURRENT HOUSING SATISFACTION	-1.178	-1.049	-0.796	-1.096
A: Leisure and Recreation facilities	-0.774	-0.804	-0.619	-0.825
A: Management and maintenance	-0.478	-0.799	-0.796	-0.046
A: Neighborhood, community	1.750	2.223	1.861	1.716
A: Public Transportation(availability)	1.750	1.355	1.861	1.706
A: Real estate fees	-0.441	-0.749	-0.416	0.203

Correlation analysis D, E - Metropolitan house: Appearance and components of residential satisfaction
Analysis reveals stronger correlations than the previous part. The values of significant corelation is in range of Spearmens rho from .246 to .540. We see a negative correlation between the evaluation of the facade and public transport (-.211), the availability of parking (-.126) and the availability of recretaion and leisure (-.196).





Clustering measures per variable: satsifaction-facades

Variable	Network			
	Barrat	Onnela	WS	Zhang
D: Facade affects area evaluation	-2.029	-1.939	-2.287	-1.652
D: Facade affects building evaluation	-1.841	-1.660	-1.841	-1.564
E: Ambient Environment	0.550	0.446	0.472	0.031
E: Apartment layout	-0.120	0.279	0.387	-0.074
E: Architectural features, facade	-0.560	-0.831	-0.058	-1.258
E: Car parking (availability)	0.726	0.405	0.684	1.067
E: Close surroundings of building	0.076	0.191	0.387	0.246
E: Leisure and Recreation facilities	0.584	0.810	0.387	0.280
E: Management and maintenance	0.743	0.159	0.090	0.429
E: Neighborhood, community	0.322	-0.114	0.260	0.724
E: Public Transportation (availability)	1.033	1.325	0.833	1.468

Correlation analysis D, F - Metropolitan house: Suitability of the investment and Components of Residential Satisfaction
This part uses the same variables as the second phase but evaluates the suitability of the investment. Threfore shows significantly different values. The number of negative correlations is smaller (facade rating with public transport -.133). Significant correlations are found in range from .252 to 0.535 and their total count is smaller. There is a significant correlation between “Facade affects area evaluation” And “Facade affects building evaluation” (.388) and strong correlation between “Management and maintenance” and ”abient enviroment”(.438), “Leisure and Recreation facilities” correlated to “Real estate fees”.401.

Clustering measures per variable: satsifaction-investment

Variable	Network			
	Barrat	Onnela	WS	Zhang
D: Facade affects area evaluation	2.255	0.474	2.370	-1.073
D: Facade affects building evaluation	-1.104	-1.744	-0.829	-1.720
F: Ambient Environment	-0.374	1.978	-0.296	0.555
F: Apartment layout	-0.951	-0.885	-0.931	-0.075
F: Architectural features, facade	-0.335	-0.235	-0.296	-1.001
F: Car parking (availability)	0.899	1.098	1.304	0.050
F: Close surroundings of building	-0.936	-0.639	-0.829	-0.153
F: Leisure and Recreation facilities	0.475	0.477	0.339	-0.137
F: Management and maintenance	-1.059	-1.025	-1.036	-0.066
F: Neighborhood, community	0.351	0.148	0.237	0.329
F: Public Transportation (availability)	0.594	0.112	-0.118	1.592

Discussion
Items of factors A are less but still correlated. Items of factor D and E are correlated highly, they measures the same, but are not correlated to items of factor D and F. The correlation between D and F is slightly smaller. Correlation between real estate fees and potential residential comfort are higher. Individual items in the same factor categories measure the same thing (high correlation), but are different from other items in other factor categories because they provide different information. The initial study [Mridha, 2015] found relationships between satisfaction factors, but did not provide a closer analysis of architectonic elements. Our “search for beauty” has provided some information on this topic.

Conclusions
This study was developed to verify the research proposal and its methods, gain practical experience, and reveal the limits of research. The correlation between current housing satisfaction and its factors turned out slightly differently from the initial study. The differences were recognized mainly in factor of rent and fees, architectural elements and neighborhood of the building. The most common answer to the question “curent satisfaction” was 4 points. We can say that the overall satisfaction of respondents is caused by the posibility of choice. Hypothesis were confirmed except number 3 and 4. Subsequent data collection will be performed to gain more balanced responses. Factor analysis will reveal more detailed relationships.

References

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