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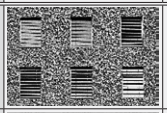
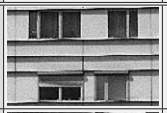
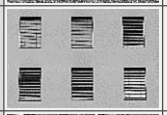
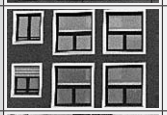
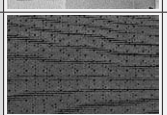
Table I Façades and respondents' reactions

Façade	Photo	Pair of (non-) greened façades	Negative reactions (x1-x4)	Positive reactions (x5-x10)	Neutral reactions (x11)	Façade	Photo	Pair of (non) greened façades	Negative reactions (x1-x4)	Positive reactions (x5-x10)	Neutral reactions (x11)
F1		F1ng-F10g	89 (90.9%)	7 (7.1%)	2 (2.0%)	F11		NA	72 (73.5%)	21 (21.4%)	5 (5.1%)
F2		F14ng-F2g	14 (14.3%)	79 (80.6%)	5 (5.1%)	F12		F12ng-F6g	70 (71.4%)	24 (24.5%)	4 (4.1%)
F3		NA	87 (88.8%)	9 (9.2%)	2 (2.0%)	F13		F5ng-F13g	25 (25.5%)	66 (67.4%)	7 (7.1%)
F4		NA	47 (48.0%)	47 (48.0%)	4 (4.0%)	F14		F14ng-F2g	71 (72.5%)	22 (22.4%)	5 (5.1%)
F5		F5ng-F13g	68 (69.4%)	18 (18.4%)	12 (12.2%)	F15		NA	64 (65.3%)	28 (28.6%)	6 (6.1%)
F6		F12ng-F6g	30 (30.6%)	57 (58.2%)	11 (11.2%)	F16		F16ng-F7g	61 (62.2%)	32 (32.7%)	5 (5.1%)
F7		F16ng-F7g	26 (26.5%)	66 (67.3%)	6 (6.2%)	F17		NA	33 (33.7%)	60 (61.2%)	5 (5.1%)
F8		NA	87 (88.8%)	7 (7.1%)	4 (4.1%)	F18		NA	68 (69.4%)	30 (30.6%)	0 (0%)
F9		NA	86 (87.8%)	10 (10.2%)	2 (2.0%)	F19		NA	43 (43.9%)	51 (52.0%)	4 (4.1%)
F10		F1ng-F10g	45 (45.9%)	51 (52.1%)	2 (2.0%)	F20		NA	88 (89.8%)	9 (9.2%)	1 (1.0%)

Notes: ng – non-greened; g – greened; NA – not applicable.
Response (X): x1 – dangerous, frightening, scary; x2 – unpleasant, incomprehensible, disturbing; x3 – very disturbing, repellent, depressing; x4 – boring; x5 – soothing, pleasant; x6 – understandable, coherent, legible; x7 – attractive, fascinating, invigorating; x8 – dreamy, romantic; x9 – mysterious; x10 – acceptable, unobtrusive; x11 – does not evoke determined response, neutral.
Mainly positive reactions (x5-x10 › 50%) are marked with a gray background.

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How Does Greenery on a Nearby Façade Changes Perception of a Window View?

MULTIDISCIPLINARITY
PERCEPTION OF VIEW
URBAN DENSIFICATION
VISUAL AESTHETIC
WINDOW VIEW

Window view is an important parameter of comfortable living. In densely urbanized areas, window view is often limited to a nearby façade, without all three visual layers visible and possibility of distant view. The purpose of the study is to examine what reactions are triggered by views of nearby façades, which by definition are not quality window views, and how observers' reactions are influenced by additional greenery on the façade. A questionnaire survey was used in the study as a method for obtaining research data. Respondents defined reactions to 20 various window views and the reasons for them. The results showed that reactions to window views of nearby façades varied, and that the negative response depended not only on a limited number of visual layers and the distance between buildings, but also on the visual aesthetic.
Furthermore, added greenery in the window view triggered more positive reactions than did façades without greenery. Measures for greening façades are proposed.

Introduction

The basic function of the window is the introduction of daylight and fresh air into the interior, and the view of the outside space from the interior, which provides psychological comfort and personal satisfaction (Yeom et al., 2020; Veitch and Galasiu, 2012). The importance of the window was demonstrated during the epidemic that required long-term lockdown, as window view provided the only visual contact with the environment and also social connection with other people (Batool et al., 2021a). Looking at the greenery through the windows reduced the level of anxiety, anger, fear, moodiness, boredom, irritability, and sleep disturbance (Spano et al., 2021, Soga et al., 2021).

Window view meets different needs (Szybinska Matusiak and Klöckner, 2016):

– The need for information about the outside environment – The window view provides important information about the time of day, informs about weather conditions, orients on the location and monitors activities that take place outside. Visual information through the window complements the audio information provided by the location (Deng et al., 2020) – birdsong, the rustling of the wind, the murmur of water, the bustle of children... All of that triggers pleasant feelings.

– The need for health and restoration – Numerous studies have shown that window views can improve the psychological well-being of individuals (Kaplan and Kaplan, 1989; Kaplan, 1995; Abraham et al., 2010), reduce stress (Tyrväinen et al., 2014), and prevent mental fatigue (Kaplan, 1995; Li and Sullivan, 2016). People respond to the window view. Most of them e.g. prefer an office with windows (Stone and Irvine, 1994), because the views allow for greater work productivity (Gilchrist et al., 2015). The price of hotel accommodation is shaped by the quality of the window view (Kim and Winneman, 2018). Patients in rooms with a view of nature recover faster and need less medication than those looking at a brick wall (Ulrich, 1984). Views of the green area from classrooms in schools reduce stress levels and restore students' attention (Li and Sullivan, 2016). Restorative environments help people recover from mental fatigue and stress (Tyrväinen et al., 2014), increase positive emotions, and improve mood and self-esteem (Jo et al., 2013). People like to look at natural environments (Ulrich, 1981; Kaplan, 2001) because they are much more restorative than urban ones (Korpela, 1992; Purcell et al., 1994; Sonntag-Öström et al., 2014). Furthermore, some studies attribute greater regeneration capacity to natural views and urban scenes with natural elements (Tenngart Ivarsson et al., 2008; Subiza-Pérez et al., 2021) rather than urban scenes without nature (Giraldo Vasquez et al., 2019).

The need for an aesthetic experience – Humans are sentient beings so they are also susceptible to visual aesthetics, defined by quantitative and qualitative parameters. Quantitative elements are the breadth and depth of the motive that the view encompasses, both the foreground and the horizon (Littlefair, 1996). Distant views take precedence over close ones (Herzog and Shier, 2000; Kent and Sciavon, 2020). A quality window view must have three "visible layers": the top layer (in the distance, contains the sky and the natural or artificial horizon), the middle layer (contains natural or artificial elements such as fields, trees, hills or buildings) and the bottom layer (visible in the foreground), includs greenery and soil (Bell and Burt, 1995; SIST EN 17037). The lower layer is particularly important, as the observer's gaze is often directed toward movement (e.g. vehicle, pedestrian activities, etc.) and also provides visual information about the distance and thus the size of objects in the middle layer. Giraldo Vasquez et al. (2019) investigated the dependence of preferences between views on the number of layers in the view – the smaller the number of layers, the more important is the view of nature; the larger the number of layers, the more desirable / acceptable urban views are. According to studies, visual content is also important. Users prefer urban features to be viewed

from afar, but this does not apply to nature. When views from afar cannot be provided due to location constraints, satisfaction increases with the placement of nature, e.g. a tall tree into the visible field (Kent and Sciavon, 2020).

Qualitative elements for evaluating the quality of the view are beauty (visual aesthetics of elements predominant in the view) and the composition of the view. Especially in urban environments, the aesthetic component is determined by architectural elements that contribute to visual richness. The view is improved by the complexity and legibility of the composition (Herzog and Chernick, 2000; Van den Berg, 2016). Perception of the urban environment is also decisively influenced by the age of buildings and their maintenance (Szybinska Matusiak and Klöckner, 2016; Herzog and Shier, 2000).

View of the nearby façade

The façade is the outer envelope of the building, which with its tectonics, volumes, geometric proportions and decoration gives the space an artistic identity. The farther the building is from the observer, the easier it is to interact with the wider environment, as it comes to life only in the context of the surroundings. The closer it is to the observer, the lesser the readability of the tectonic structure of the building is, and the more important become details such as disorder and poor maintenance, which can trigger negative responses (Joedicke et al., 1975).

A large part of the population today lives in urban environments, where the window view is often limited to the nearby buildings. These are sometimes so close that the view does not satisfy neither the need for information about the external environment, the need for health and restoration, and due to poor architecture, nor the need for aesthetic experience (Szybinska Matusiak and Klöckner, 2016). Some authors, nevertheless, find that people can respond positively to urban views if all three layers are included in the view, buildings are visible in the distance, and there is some greenery between the window and the built environment (Kent and Sciavon, 2020). Observing trees or plants through a window alone can have measurable effects (Grinde and Patil, 2009; Van den Berg et al., 2016). The more vegetation obscures the view of the urban environment, the greater the perceived restorativeness of the view (Ojala et al., 2019). The question is in what form greenery in the window view should be integrated into the urban environment, as research also shows that in addition to greenery, other features in the window view also affect psychological, physical and work well-being (Van Esch et al., 2019). Numerous studies, for example, identify the importance of quality window views and highlight the benefits of landscape views, or focus on comparisons between landscape and urban views, exploring the impact of greenery on well-being and health (Veitch and Galasiu, 2012; Soga et al., 2021), distance, number of layers in the view, differences between responses to views of natural and urban environments (Ulrich, 1981; Kaplan, 2001). Some studies have also indicated restorative potential in urban environments (Ulrich, 1981; Van den Berg, 2016; Tyrväinen et al., 2014; Sonntag-Öström et al., 2014). Batool et al. (2021b) for instance, found that urban views can be interesting if they are mysterious and encourage investigation. We note that there is very little research on the topic of close urban views when only the middle layer is visible through the window, without the sky layer that allows for a distant view, and/or the ground layer at which human activities take place. This creates a substantial research gap in this area. This study is, therefore, focused on finding the reactions to such window views, and establishing whether the greenery on the façade affects the response of observers. We assume that despite the absence of three visible layers and distant view, which are otherwise a strong indicator of window view quality (Bell and Burt, 1995; SIST EN 17037), respondents' reactions to window views of nearby façades, may not be only negative. We also expect that window views with greenery on a nearby façade will trigger more favourable responses than the window views without it and attempt to determine the differences in perceptions of façades with and without greenery (Kaplan, 2001, 1993; Ulrich, 1981; Van den Berg et al., 2016). The study focuses on the question of whether the view of the nearby façade with added greenery changes or improves the respondents' reactions and the reasons for them.

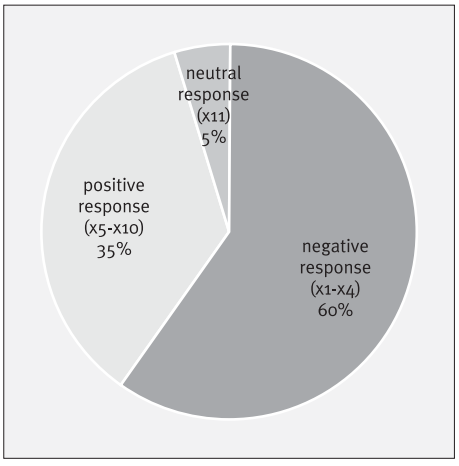
Aim, method and materials

The first step of the research was to record the responses to window views of nearby façades, which primarily do not meet most recommendations for quality view, to check whether greenery on the façade reduces the impact of its poor visual quality, and determine how reasons for reaction to window view relate to specific window views.

In order to ensure comfortable living, the room must, in addition to the appropriate temperature and relative humidity, air composition and acoustic conditions (Zbašnik-Senegačnik, 2018), also provide quality window views. This study, however, focuses specifically on the reactions to window views of the nearby façade, which is due to urban densification

Fig. 1 Issues discussed – view from the 3rd floor, two floors of the neighboring building are visible in the window view (only one layer, no possibility of distant view)

Chart I Structure of the reactions to the façades



often in the immediate vicinity. The view is, therefore, limited to only a part of the façade, which is contrary to the recommendations.

Based on the previously discussed theoretical context, 20 façades in close-up view in residential neighbourhoods in Ljubljana were selected for the analysis of window views, which were considered suitable for the study. Façades with articulated architectural elements that Ching (2015) highlights as important for achieving visual comfort were deliberately avoided and the quality of the architecture was not a criterion for the selection. To ensure sufficient variability, façades from different architectural periods, which contain different architectural and construction elements and are in various maintenance stages, were selected. Some selected façades are deliberately similar to check the consistency of the responses. In the representative sample, the buildings have 5 floors. The view is framed in the way that the 3rd and 4th floors of the adjacent building can be seen through the window in terms of communication distance (Hall, 1966), horizontal field of vision (Gehl et al., 2006), architectural or environmental determinism (Carmona et al., 2003), and human scale elements (Gehl, 2010). At this position, only the middle layer is visible, without trees, shrubs, activities of people on the ground and without roofs and the sky above them – i.e., without most elements recommended by Bell and Burt (1995) to achieve visual comfort (Fig. 1). Greenery on five façades was created with Adobe Photoshop. The framing of views is unified so that all the façades had the same apparent distance from the observer.

A total of 135 students of the 3rd year of architectural study at the University of Ljubljana, Faculty of Architecture (UL FA) were invited to participate in the study, and 98 students responded. The problem of small distances between buildings, which leads to poor quality of window views, was not previously discussed with them. We hypothesize that students of architecture are particularly sensitive to detecting visual features and architectural elements on the façades, which is positive from the research point of view, as it makes it easier for them to define the reasons for specific reactions to window views. In the analytical phase of the research, a questionnaire was designed. The questionnaire contained 52 questions in three parts: (1) In the socio-demographic section the focus was on gender, age and long-term residency; (2) The second part of the questionnaire included questions about the type and size of the building in which the respondents live and their connection with nature; (3) The study presents the results of the third part of the questionnaire, in which the respondents expressed their reaction to 20 window views of nearby façades and the reason for them. The survey was published in the learning platform Moodle of the UL FA, 20 May 2021, access was available for 24 hours. The time to complete the survey was not limited.

The respondents answered two questions on each of the façades. In the first question, they chose between 11 possible reactions to a specific window view. The characteristics of the views were descriptive (variable X): x1 – frightening, scary, dangerous; x2 – unpleasant, incomprehensible; x3 – very disturbing, repellent, depressing; x4 – boring; x5 – soothing, pleasant; x6 – understandable, coherent, legible; x7 – attractive, fascinating, invigorating; x8 – dreamy, romantic; x9 – mysterious; x10 – acceptable, unobtrusive; x11 – does not evoke determined response, neutral. Specific responses were defined based on past experiences of researchers and case studies from the literature (Kim et al. 2018; Brown et al., 2013; Aries et al., 2010; Kent and Schiavon, 2020; Van Esch et al., 2019; Kaplan and Kaplan, 1989; Elsadek et al., 2019; Drobne et al., 2022). The second question on the same façade referred to the reason that triggered the selected reaction X. Respondents choose between 7 reasons (variable Y): y1 – surface characteristic (e.g., colours, texture), y2 – composition quality (good or bad) e.g., position and proportions of the elements), y3 – narrative quality (e.g., involuntary attention, suggestiveness), y4 – complexity (e.g., singularity in form, details), y5 – dynamics (e.g., degree of vegetation, human activities in opposite buildings), y6 – unpleasant/pleasant space (e.g., maintenance, safety, health, compatibility, unity), y7 – other (can't define). The selected reasons are derived from the conceptual elements of visual aesthetics (Ching, 2015).

In the second step statistical analyses were carried out by comparing the frequencies of reactions and reasons, analysing the analytical charts and using statistical testing of the hypotheses. The x^2-test was used to test the research question about the randomness of the reactions, to test the correlation of the nominal variables, but the homogeneity of the answers, as well as the reasons, was tested with the Fischer-Snedercor test.

Results

A summary of the survey results can be found in Table I, where all façades included in the survey are labelled F1 to F20. In the table, pairs of façades are labelled as non-greened (ng) and greened (g) façades. We have highlighted the reactions of the respondents when they see the façade. We distinguish between negative (x1-x4), positive (x5-x10) and

neutral (x11) reactions. The predominantly positive reactions (more than 50% of the positive answers) are highlighted with a gray background.

Looking at the results in Table I, it is immediately noticeable that respondents overwhelmingly reacted positively to the greened façades (F2g, F6g, F7g, F10g, F13g and F17g) and to the one façade without greening (F19ng) – which is quite varied and unusual.

We investigated whether reactions to the views of neighbouring façades differed even when the distance of view in three layers is not present and we would expect negative reactions in all of them. The results of the survey showed very different reactions. 98 respondents gave 1960 reactions for the 20 façades. 1174 (60%) of the reactions expressed a negative experience of the façade, 694 (35%) of the reactions expressed positive feelings when viewing the façade and 92 (5%) of the reactions were neutral (see Chart I). The test x^2 was used to test the hypothesis that the reactions were random. Assuming that the reactions were not random, the risk is very low, almost zero (H = 360,893.02; x^2 = 68.76, α = 10^{-16}).

Next, we tested whether façade greening triggers positive reactions compared to façades without greening. The analysis was carried out in two steps. In the first step we analysed the reactions for all façades (F1 to F20), and in the second step we compared only the pairs of non-greened/greened façade (F1ng-F10g, F14ng-F2g, F5ng-F13g, F12ng-F6g and F16ng-F7g). The contingency tables for façades without and with greening can be found in Table II (for all 20 façades) and Table III (for pairs of façades only). The tables show that in both cases relatively more respondents had a positive reaction to the greened façades.

In both cases, the correlation test of the nominal variables (test x^2) shows a statistically significant correlation between a greened façade and an overwhelming number of positive reactions (in the case of all 20 façades: (H = 314.24; x^2 = 73.68, α = 10^{-16}); in the case of pairs of façades: (H = 110.88; x^2 = 73.68, α = 10^{-16}). From this we conclude that the greening of the façade generally triggers positive reactions.

We thus found that façades with additional greenery (façade pairs F1ng-F10g, F14ng-F2g, F5ng-F13g, F12ng-F6g and F16ng-F7g; see Table IV) elicit predominantly positive reactions. For the façade pairs, the predominant reactions, their changes when the same façade is greened, and the predominant reasons for the reactions were analysed below. Thus, façades without greening were described as boring (x4) and as unpleasant, incomprehensible, disturbing (x2). The reasons for these reactions ranged from compositional quality (y2), to unpleasant/pleasant space (y6), to surface characteristic (y1). After the façades were greened, the responses changed to predominantly acceptable, unobtrusive (x10) and soothing, pleasant (x5). The most frequently cited reason for this change in reactions was dynamism (y5), other reasons were surface characteristic (y1) and other (can't define) (y7). Chart II shows the change in reactions when the façade is greened. Positive reactions increase differently with greening for the different façades, but always by more than 1/3. Positive feelings increase the most with greening for the pair F14ng-F2g by 58.2%, for the pair F1ng-F10g by 45%, for the pair F5ng-F13g by 38.8%, for the pair F16ng-F7g by 34.6% and for the façade pair F12ng-F6g the least with 33.7%.

For the paired façades, we also checked whether greened façades, by eliciting more positive reactions, unite them; we also checked what happens to the reasons for greened façades. The dispersion of reactions and reasons was analysed using a relative measure of dispersion, namely the coefficient of variation. Chart III shows greater uniformity of reactions for greened façades (CV = 0.455) than for non-greened façades (CV = 0.625); the degree of confidence is very high (F = 1.373; a = 0.0005). For greened façades, the uniformity of reasons is also slightly higher, but the difference is not statistically significant in this case (F = 1.041; a = 0.67).

Table II Contingency table between façades and reactions

	non-greened	greened
negative reaction (x1-x4)	1001	173
positive reaction (x5-x10)	315	379
neutral reaction (x11)	56	36

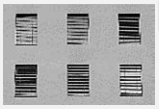
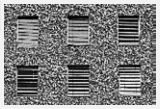
Table III Contingency table between non-greened/greened façades in pairs and reactions

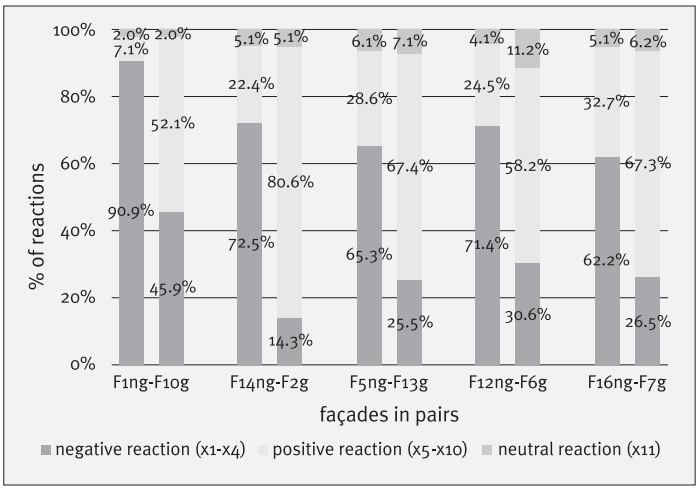
	non-greened	greened
negative reaction (x1-x4)	359	140
positive reaction (x5-x10)	103	319
neutral reaction (x11)	28	31

Discussion

The results show that 60% of all respondents expressed negative reactions when viewing the nearby façades, while the share of positive

Table IV Non-greened/greened façades in pairs, the most frequent respondents' reactions and reasons

F1ng-F10g	F1ng		F10g	
reaction	x4 – boring		x10 – acceptable, unobtrusive	
reason	y2 – composition quality		y1 – surface characteristic	
F5ng-F13g	F5ng		F13g	
reaction	x4 – boring		x10 – acceptable, unobtrusive	
reason	y1 – surface characteristic		y5 – dynamic	
F12ng-F6g	F12ng		F6g	
reaction	x4 – boring		x5 – soothing, pleasant	
reason	y2 – composition quality		y7 – other (can't define)	
F14ng-F2g	F14ng		F2g	
reaction	x2 – unpleasant, incomprehensible, disturbing		x10 – acceptable, unobtrusive	
reason	y6 – unpleasant/pleasant space		y5 – dynamic	
F16ng-F7g	F16ng		F7g	
reaction	x2 – unpleasant, incomprehensible, disturbing		x5 – soothing, pleasant	
reason	y6 – unpleasant/pleasant space		y5 – dynamic	



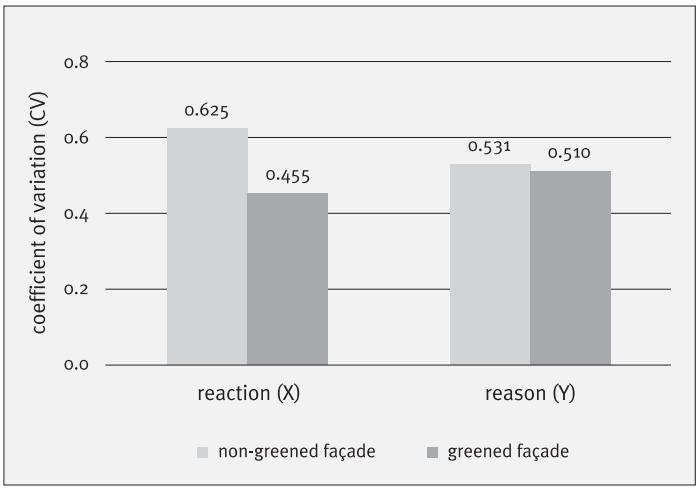


Chart II Change in reaction when the façade is greened

Chart III Variability of respondents' reactions and reasons to the non-greening/greening façades in pairs

reactions was around one third of all responses, and very few were neutral reactions.

Further analyses showed that the reactions were not random. With that we confirmed the hypothesis that respondents' reactions to window views vary despite the fact that the window views do not contain three visible layers and distant view and therefore lack essential components of view quality (Bell and Burt, 1995; SIST EN 17037). Previous studies indicated that urban views can be interesting if they are mysterious and encourage investigation (Batool et al., 2021b). The observer's attachment to a certain type of location can also have an impact on the response – people from rural areas, e.g., value the natural environment, and urban dwellers are fascinated by both natural (Herzog and Shier, 2000) and urban environments (Wilkie and Stavridou, 2013). Some studies also suggest that city dwellers can find restorative views in an architecturally stunning neighbourhood or feel anxious in a lonely forest (Twedt et al., 2019) and those views of museums, monasteries, city images at night can have a similar effect as natural restorative views (Kaplan et al., 1993). In further studies, it would be valuable to identify correlations between the location of residence and personal preferences with targeted research on the criteria for specific responses.

This research has indicated that there are also other parameters that affect the reactions to window views of nearby façades. A very important research question was whether the added greenery on the nearby façade changes the reactions of the respondents. We added different types of greenery to five selected façades and randomly included them in the questionnaire:

– Unsupported climbers who ascent the entire façade surface (grip independently) (F1ng-F10g);

– Linear planting with flower containers on balconies – upright or hanging perennials or seasonal plants that create dynamics on the façade (F5ng-F13g and F12ng-F6g);

– Climbers on balconies that need support such as balcony railings (façades F14ng-F2g and F16ng-F7g).

Selected five pairs of façades were presented in the questionnaire in the variant with and without greenery (Table IV). We deliberately used two examples of façades with covering and linear planting to check the consistency of responses.

The correlation test of nominal variables showed a statistically significant correlation between the greened façade and the predominantly positive reaction. Based on the results, we can see that the change is quite pronounced and that the added greenery in the window views in all cases of the analysed pairs of façades – triggers a significantly more positive reaction (Chart II):

Façade pair F1ng-F10g: For F1ng with an even flat surface, uniformly arranged windows of equal dimensions and monotonous geometry, received 90.9% of negative reactions, most often x4 – boring; as the reason respondents most commonly named y2 – composition quality. F10g has an added climber that completely covers the façade surface, the façade has become x10 – acceptable, unobtrusive, and the most common reason is y1 – surface characteristic.

Façade pairs F5ng-F13g and F12ng-F6g: F5ng and F12ng have slightly fewer negative reactions than F1ng (69 and 70%), are geometrically varied (protruding façade planes) with colour accents, however, respondents mostly defined them as x4 – boring. With the addition of flower containers (F13g and F6g) they become more acceptable, most commonly x10 – acceptable, unobtrusive, then x5 –

soothing, pleasant. In F13g, the size of added greenery is larger and according to the respondents the facade has become y5 – dynamic, while in F6g the greenery is not very pronounced and respondents did not find or could not decide the reasons for their reactions and most commonly chose y7 – can't define.

Façade pairs F14ng-F2g and F16ng-F7g: F14ng and F16ng (71 and 61% of negative reactions) form a distinctive construction ornamentation with additional balcony elements, creating an intricate, hardly legible composition. Among the negative reactions, the most common was x2 – unpleasant, incomprehensible, disturbing. Respondents most commonly chose y6 – unpleasant space as the reason for such a response. Previous research suggests that due to the proximity of the façade, the tectonic design of the building is not visible. In such cases the details (Herzog and Shier, 2000), as well as the lack of maintenance, sometimes become disturbing (Joedicke et al., 1975). In the case of the views considered, the reason can also be neglected, dirty or unmaintained surfaces. The greening of balcony railings with climbers covers displeasing elements on façades (F2g and F7g), unifies the appearance and reduces the complexity of the façade composition. A uniform green surface changes the reaction from y6 – unpleasant space on both façades to y5 – dynamic.

These results confirmed the initial expectation that the greenery on the façade triggers mostly positive reactions. Similar result can be observed in reactions on all façades (Table I) and also in the comparison of the paired façades (Table IV). This is consistent with the findings of previous studies that the satisfaction of residents with window views is significantly improved in the presence of natural elements (Kaplan, 2001; Kaplan, 1993; Gilchrist et al., 2015; Li and Sullivan 2016, Chang et al., 2020, Soga et al., 2021). We see that the greenery on the façade changes the character of the façade and thus triggers a change in the perception of the façade. We found that in the façades with added greenery, respondents' reactions were much more uniform than in the non-green façades. With this we confirmed the initial assumption that green façades, by triggering more pleasant sensations, unify reactions of respondents. We could not prove that they also unify the reasons for these reactions.

Respondents give very different reasons for their reactions. Among the reasons for the reactions to greened window views, respondents often chose the importance of dynamics in the view (variability, seasonal dynamics, movements), which stimulates interest in the window view of the nearby façade. According to previous research, greenery in the view with its dynamism contains the potential of "fascination" or "being away" (Kaplan and Kaplan, 1989), which also suggests the possibility of restorativeness in the view (Li and Sullivan, 2016) and thus potential stress relief (Tyrväinen et al., 2014). Some examples of studied window views where the most common listed cause was surface characteristics (greened façade surface) can be also placed in this category (for example, the interesting properties of the surface, which moves in the wind and changes seasonally). These results are consistent with the findings of previous studies, which suggest that the more vegetation obscures the view of the urban environment, the greater the acceptability of the view of the nearby urban environment (Ojala et al., 2019; Kent and Sciavon, 2020).

The acceptability of the views is also influenced by the age and maintenance of the buildings. People generally prefer newer buildings to older ones; however, this is also related to their maintenance. When older buildings are well maintained, people prefer them to newer ones, as they excel newer ones in complexity, readability, mystery, and coherence (Herzog and Shier, 2000). Greenery simply covers up the consequences of poor maintenance, which can be otherwise disturbing.

Furthermore, the survey results have shown important impact of compositional quality on reactions. In urban motives, the aesthetic component also influences the reaction to the window view (Szybinska Matusiak and Klöckner, 2016). Given that the view of the nearby façade is studied, which excludes the sense of the architectural context of the entire building in an urban environment, architectural elements with a constructional and decorative function are crucial for providing visual comfort. As mentioned above, due to their proximity, the range of these elements excludes readability of tectonics (Joedicke et al., 1975), is limited to the colour and texture of façade surfaces, grids and sizes of glazed surfaces, exposed / protruding balcony structures and deepened niches and terraces, and unique functional elements such as fences, shading devices, curtains, etc. When the listed architectural elements on the façades are not balanced and harmonious, the artistic composition of the façade is hardly comprehensible and legible, and this is reflected in the reactions to window views (Herzog and Shier, 2000; Van den Berg, 2016).

Conclusion

In the case of urban environments, building density often limits the distant window view and allow only the observation of the middle visible layer. In such a context of urban space, the reaction to window view largely depends on visual aesthetics (Szybinska Matusiak and Klöckner, 2016), including high compositional quality, part of which is the introduction of greenery. Greenery on the façades changes the aesthetics of the façade and thus triggers a change in the perception of the façade. The results of the study show that it elicits mainly positive reactions. Among the reasons for responses to greened window views, respondents also highlighted the importance of dynamics in the view.

According to the findings, the following measures are suitable to improve the quality of the window view of the nearby façade:

– Covering the uniform façade with climbers creates more acceptable surface characteristics.

– Greenery in balcony planters makes the view more acceptable and pleasant, but the green area must be large enough.

– Partial greening of surfaces, e.g., climbers on balcony railings, may cover excessive or poorly maintained elements, unify the complex construction ornamentation and create a more harmonious and dynamic façade.

The greenery on the façade therefore has a significant effect on the higher acceptability of the window view of the nearby façades in a densely built environment. It also makes a significant contribution to improving the microclimate, as it reduces overheating of façade surfaces and consequently mitigates urban heat island (UHI), offers sun protection on balconies and terraces, balances air humidity, absorbs dust and reduces noise levels (Bustami et al., 2018).

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