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Rethinking the Elements of Architectural Heritage: An Experience from Medina, Saudi Arabia

Randah Ashour[1]

Abstract

Rowshan is the projected latticework window, commonly found in façades of traditional dwellings in Medina. Due to functions that Rowshan provides, such as overlooking the surroundings with complete privacy and controlling natural ventilation and lighting in the dwelling, it achieved a widespread popularity in the traditional architecture of Medina, which gave the city its unique architectural identity. This article explored the public's attitudes, awareness, and concerns on the dwindling traditional Islamic identity in contemporary architecture in Medina as well as to understand their social demands and functional aspiration as possible window's end users. The self-completed questionnaire was conducted with the general public in Madinah between the 1st of February 2017 and the 15th of March 2017, using the online web-based service, Google Forms. The link of the survey was distributed via emails and smartphones apps, such as WhatsApp, to the participants who were expected to complete the 23 questions of the survey within 15-20 minutes. The majority of study participants were males (73.1%), Saudis (79.2%), 30-49 years old (57.3%), had university degree (54.7%), house owners (54%), living in a flat (54.9%) and had a monthly income of up to SAR 10,000 (£1900) (63%). The majority of people were severely concerned about the gradual erosion of the authentic architectural identity in contemporary architecture in Medina. Visual privacy, the functional performance, and aesthetic appearance were chosen by a remarkable proportion of participants of survey (24%), (22.9%), and (20.7%), respectively as the most important issues that determined their selection of window shading type. Rowshan, compared with contemporary windows, was more effective in covering home windows for achieving satisfying levels of aesthetic appearance, visual privacy, and daylight at homes compared with contemporary windows as people agreed. However, there are three major drawbacks that make using of the traditional form of Rowshan incompatible with contemporary Madani architecture. These are high cost, large number of Rowshan openings, and lack of craftsmen. The findings of the present study showed that Madani society was highly motivated and had a positive attitude toward using Rowshan in their homes.

Keywords: Rowshan, Identity, Medina, Saudi Arabia, Latticework window, Culture.

[1] Ph.D. candidate, Faculty of Art, Design, and Humanities, De Montfort University, Leicester, UK. E-mail: p08180541@my365.dmu.ac.uk

1. Introduction

The Saudi Vision 2030 plan aims to draw 6 million pilgrims to Hajj[2] and 30 million pilgrims to Umrah[3] visiting annually (AFP, 2017). Although visiting Medina is not a rite of Hajj or Umrah journey, the unique merits of Medina attract the hearts of millions of Muslims each year, to visit the Prophet's city, his Mosque, and his sacred tomb. According to Medina Development Authority, the total number of people who visited Medina was 7 million in 2019, and this number is expected to increase every year to reach 10 million by 2025 (Colliers International, 2014). This massive yearly influx of visitors from all over the world has dramatically changed the traditional architectural fabric of Medina; especially the central historical area (the Central District) around the Prophet's Mosque as most of the traditional buildings in the Central District have been destroyed to make room for expansion of the Prophet's Mosque and provision of accommodation and facilities to the visitors around the year. According to an estimate by the Washington-based Gulf Institute, more than 95% of the traditional buildings in the two Holy Cities of Mecca and Medina, which have existed since the seventh century, have been demolished in the last 20 years (Taylor, 2012). As a result of this massive demolishing, a large collection of traditional buildings, including residential properties, libraries, hotels as well as mosques was reduced to rubble and buried with it a precious treasure of the unique cultural heritage that characterised Medina for centuries (Al-Mahdy, 2013). Admittedly, the government paid high prices for the lands, so that a large number of local families who lived in those areas could move to the new suburbs around the city (Kaki, 2011). As a result, most of the remaining houses in these areas were occupied by foreign poor workers from other nationalities who were living in very harsh circumstances that matched the condition of the buildings (Picture 1). This has increased the area of destruction of buildings and leading to a lack of use and maintenance, which turns has made the area subject to crime, which reduces the desire to invest in and maintain the area (Khayat, 2019).

Rowshan (pl. Rawāshīn) is one distinctive innovation of traditional Islamic architecture used for several reasons, such as to provide visual privacy, reduce the glare from direct sunlight, and allow natural ventilation. It is a type of projecting latticework window, commonly found in façades of traditional dwellings in Medina. Rowshan is created in wood as it is a natural insulator prevents the burning rays of the sun reaching the building and it is a material that resists natural conditions. Due to the multi-functions that Rowshan provided, it achieved widespread popularity in the vernacular architecture of Medina, which gave the city its unique identity. Due to lack of Rowshan documentation at the time of demolishing because of the absence of specialists and experts in architectural documentation and surveying, Rowshan started to disappear, from the architectural landscape of Medina and replaced by aluminium frames with glass panels, as a step to confer the modern appearance to the building's façade, which many people were keen to express (Al-Mahdy, 2013, Al-Hussayen, 2002 and Abu Al Haija, and Abu Al Haija, 2016). Giving that glass is a transparent material that does not prevent vision or block the sunlight, a new element was introduced in the shape of a curtain made of cloth, in addition to a blackout curtain or even thermal insulation at times. With the passage of time, this type of windows could not meet the needs of the community for privacy, leading owners to keep their outside-looking windows shut all the time. This results in a negative effect on the house environment, cutting off natural light and ventilation. It may thereby cause some physical and mental health problems or conditions (Al-Hussayen, 2002).

[2] Hajj is the annual pilgrimage to Makkah, at a specific time of the year, that wealthy Muslims are expected to make at least once in their lifetime.

[3] Umrah is a pilgrimage that can be done any time of the year. In contrast to Hajj, Umrah is not obligatory.

Picture 1: Neglect of Medina's traditional dwellings.

This paper aimed to examine the public's attitudes, awareness, and concerns on the dwindling traditional Islamic identity in contemporary architecture in Medina as well as to understand their social demands and functional aspiration as possible window's end users. Through conducting a survey questionnaire with the general public of Medina, the author tried to explore people opinions about the following questions: Are people of Medina aware of the gradual erosion of the authentic architectural identity of their city? What are the most important factors that the public of Medina take into consideration when designing a window shading device for their building façades? What are the reasons behind the declining practice of using Rowshan in contemporary houses? Do people of Medina still accept the use of Rowshan to achieve satisfying levels of privacy and daylight in architectural interior spaces, and at the same time to enhance the aesthetics of the buildings' façades from the exterior? What is the public's attitude towards using innovated versions and new styles of Rowshan in their homes?

2. Method

For conducting this study, a questionnaire was carried out in different stages. This starts by stating the survey questionnaire's aim and objectives, determining the sample size and subjects selection, designing, pretesting, distributing the survey questionnaire, and analysing and discussing the results. The sections below describe this in detail.

2.1 Questionnaire distribution

The self-completed questionnaire was conducted with the general public in Medina between 1/2/2017-15/3/2017, using the online web-based service, Google Forms. This website allowed the researcher to separate the survey questionnaire into various sections. Furthermore, Google Forms is able to generate different versions for various devices such as computers and smartphones automatically, so there was no need to create different versions for the different devices available to

purchase (JadAllah, 2018). It was decided to use online service, as it ensures efficiency, speed, and low cost. The link of the survey was distributed, via emails and smartphones apps such as WhatsApp, to the participants who were expected to complete the 23 questions of the survey within 15-20 minutes. The participants were briefed on the objectives of this survey questionnaire, the number and the type of questions to be asked and the time to be spent on the questionnaire.

2.2 Sample size and subjects selection

The total population of the city of Medina, according to the latest 2017 census published by General Authority for Statistics, was 1,245,547 people (General Authority for Statistics, Saudi Arabia, 2016). The target population in this survey (people of both genders who were 18 years or older) from the above figure was 932,691. A suitable sample size for the research that would represent the whole community was determined using Krejcie and Morgan's method (Chuan, 2006). This method suggests that as much as 384 samples are adequate to measure opinions of one million people in a probability sample with 95% of confidence level and 5% of error estimate.

2.3 Design of the questionnaire

The questions contained in the questionnaire were of a closed-ended question type, in which all possible answers were included; it is easy, quick to answer, and less confusing for the respondents. A five-point Likert scale was applied for most of the questions, as it provides pre-coded data that can be easily analysed. Choosing from a list of options type was also selected where appropriate. In addition, the questionnaire included some images of architectural design elements, such as traditional and contemporary window devices, so respondents could determine their preferences towards each of them. The aim in finalising the wording of the questions was to use simple and clear language, direct and short expressions, and no ambiguous or leading questions. An Arabic translation of the survey questions was made available in addition to the English questions to ensure a better understanding of the questions asked.

These survey questions were distributed on five sections. The first section contained a general background about participants such as gender, age, nationality, education level, house ownership, property type, and monthly income. The second section included questions to examine the public's attitudes, awareness and concerns on the dwindling Islamic cultural heritage and identity in contemporary architecture in Medina. The third section included questions to evaluate the public's satisfying of visual privacy, daylight, and aesthetic levels achieved by current window designs and to assess the importance of these factors in Madani houses. The fourth section included questions to evaluate the willingness or reluctance of Madani residents to use traditional methods such as Rowshan for achieving satisfying levels of visual privacy, daylight and aesthetic at their homes, as well as reasons underlying their attitudes toward these methods. The fifth section of the questionnaire included questions to explore the public's acceptance of innovations of older approaches and attitudes toward using them in newer homes.

2.4 Pilot survey of the questionnaire

Piloting the questionnaire, as suggested by Denscombe (2010), is useful in helping the researchers to discover any comments on the wording as well as to eliminate any misleading questions and to be aware of the time needed to complete the questionnaire. The researcher interviewed ten people to check if they understood the questions, if there was any ambiguity and how long they took to answer it. Furthermore, the questionnaire survey was given to two of the researcher's colleagues and then to the researcher's supervisors to read through in order to explore their opinions about the questionnaire items and to check whether the questionnaire was sufficiently comprehensive to collect all the

information needed to address the study's objectives. It was found that some questions needed minor adjustments, such as rewording or merging, while others needed additions of the response options so that participants could have more options to choose from. According to their feedback, the questions were revised and the final draft of the questionnaire was prepared.

2.5 Ethical stance

Ethical consent was discussed and approval was granted by the ethical committee of Faculty of Art, Design, and Humanities at De Montfort University prior to starting the survey questionnaire.

2.6 Analysis of the survey questionnaire

Online-based services like Google Forms provide automatically collated results and present the results in a descriptive manner through the use of graphs. However, the researcher used the Microsoft Excel software to present data in the form of tables and charts.

3. Results

3.1 Responding rate

The response rate was considerably high and above expectations, as the survey successfully gained 819 responses from different fields and nationalities residing in Medina in the first week of sending the survey link. Only 787 were considered to be valid since 32 responses were incomplete.

3.2 General background of the respondents

Among the 787 respondents, 575 (73.1%) were males and 212 (26.9%) were females, with a male to female ratio of 2.7:1. The majority of study participants were Saudis (79.2%), 30-49 years old (57.3%), had university degree (54.7%), house owners (54%), living in a flat (54.9%) and had a monthly income of up to SAR 10,000 (£1900) (63%). The general socio- demographic characteristics of study participants are shown in Table 1.

Table 1: The socio-demographic characteristics of the study participants

Variables	Frequency (n)	Percentage (%)
Gender		
Male	575	73.1%
Female	212	26.9%
Nationality		
Saudi	623	79.2%
Non-Saudi	164	20.8%
Age groups		
18-29	191	24.3%
30-39	252	32%
40-49	199	25.3%
50-59	108	13.7%
≥60	37	4.7%
Educational level		
Undergraduate	430	54.7%
Postgraduate	337	42.8%
Interested in heritage	20	2.5%

House ownership		
Owner	425	54%
Tenant	362	46%
Property type		
Flat	432	54.9%
Villa	355	45.1%
Monthly income SAR		
<5000	254	32.4%
5000-10,000	241	30.6%
10,000-20,000	201	25.5%
>20,000	91	11.5%

3.3 Understanding the public perceptions towards the current contemporary architecture in Medina

Question 1: In your opinion, how do you describe the façades of contemporary architecture in Medina?

Six hundred and fifty-eight (83.7%) of respondents were not able to categories the houses' façades styles of the contemporary architecture in the city because they do not reflect the local traditional Islamic style nor the new emerging Western style. However, 94 (11.9%) and 35 (4.4%) of the public in Medina thought that contemporary façades do reflect traditional Islamic style and Western-style, respectively.

3.4 Exploring the public attitude towards the future of contemporary architecture in Medina

Question 2: From your point of view, which do you feel is more important when designing the façades of contemporary houses in Medina? 1. Retaining the traditional Islamic cultural identity Or 2. Embracing a global cultural identity.

Six hundred and forty-seven (82.2%) of respondents felt that it is essential to see a greater reference to traditional Islamic identity in the contemporary architecture in Medina. However, 140 (17.8%) of respondents preferred a change of cultural identity and expressed that it is important to embrace a global cultural identity.

Question 3: What type of ornamentation do you prefer to cover your home window?

When further asked those who selected the traditional Islamic cultural identity, in the previous question, about the pattern of Islamic ornamentation that they prefer for an exterior window treatment of their building façades, the respondents were divided into two main groups: one group 303 (46.8%) selected the mix geometric and floral patterns as their preferred type, while the other group 277 (42.8%) preferred the geometric pattern only. A minority of the respondents 67 (10.4%) selected the floral pattern as their preferred type of Islamic ornamentation.

3.5 Identifying the most important factors that people take into consideration when designing a window shading device for their building façades in Medina

Question 4: When choosing your exterior window treatment, what factor matters the most? Please rank all those relevant in order from 1 downwards:

1. *Visual privacy*
2. *Aesthetic features*
3. *The cost of the shading device*
4. *The function of the shading device: daylight and ventilation*
5. *Environmental factors: use environmentally friendly materials*

6. *Social factors: social communication with the surrounding environment*

The findings described in Figure 1 show that visual privacy was chosen by 189 (24%) as the most important issue that determined their selection of window shading. This was followed by functional and aesthetic performances, which were chosen by 181 (22.9%) and 162 (20.7%) of the respondents respectively as the most important factors in determining the selection of shading. The cost and construction material of the shading device was considered to be the first priority of only 96 respondents (12.2%), while the social factor was chosen by 92 (11.7%) of the respondents as the most important issue when choosing an exterior window treatment. Environmental efficiency and use of environmentally friendly materials were graded as being least important by 67 respondents (8.5%).

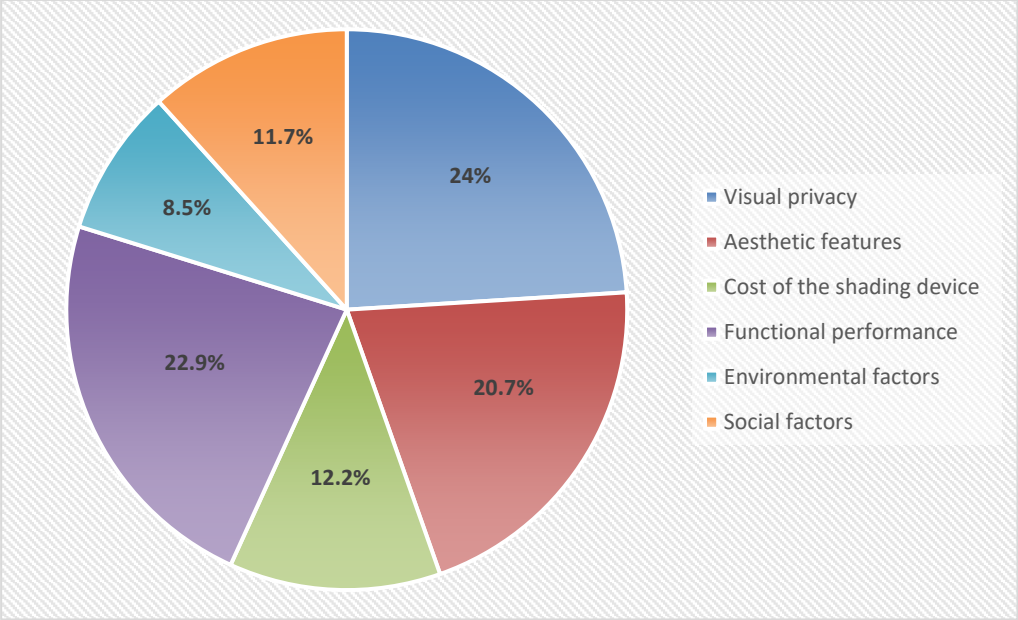

Figure 1: Respondents' preference about factors matters the most when choosing an exterior window treatment.

3.6 Evaluating the aesthetic, visual privacy and daylight performance of the current windows used in contemporary buildings' façades in Medina

3.6.1 Aesthetic performance:

3.6.1.1 Respondents' preferences for aesthetical values in their homes

Question 5: How important for you that home window appears in an aesthetic form? 1. Very important; 2. Important; 3. Moderately important; 4. Less important; 5. Not important at all.

Seven hundred and three (89.4%) of respondents stated it was important (162; 20.7% of them considered it very important, 296; 37.6% indicated that it was important and 245; 31.1% said it was moderately important). Sixty-one (7.7%) and 23 (2.9%) of respondents, respectively, said that it was less important and not important at all to them that their home windows appear in an aesthetic form.

3.6.1.2 Respondents' satisfaction with the aesthetic appearance of their home window designs

Question 6: How satisfied are you with the aesthetic appearance of your home window design? 1. Very satisfied; 2. Satisfied; 3. Dissatisfied; 4.Very dissatisfied; 5. Neither satisfied nor dissatisfied.

Four hundred and sixty-one (58.6%) and 120 (15.2%) of respondents were dissatisfied and very dissatisfied regarding the aesthetic appearance of their home window design, respectively. On the other hand, 135 (17.2%) were satisfied, 46 (5.8%) were very satisfied and 25 (3.2%) were neither satisfied nor dissatisfied.

3.6.1.3 Respondents' preferences for aesthetic techniques and materials used in window design

Question 7: What materials and techniques are you using to cover your home window to appear in an aesthetic form? 1. Aluminium-framed window with reflective glass; 2. Coloured glass; 3. Iron grills; 4. Movable shutters; 5. Rowshan; 6. Other.

The findings illustrated in Figure 2 show that aluminium-framed window with reflective glass was chosen by almost half of the respondents 370 (47.1%) as the most appropriate technique used to cover their home windows to appear aesthetically pleasing. Coloured glass came next in which 215 (27.3%) of the respondents used it to cover their home window. Iron grills and movable shutters were used by 80 (10.2%) and 75 (9.5%) of the respondents, respectively. Rowshan was only used by a minority group of the respondents 35 (4.4%), while 12 (1.5%) of the respondents used other techniques to cover their home window in an aesthetical way.

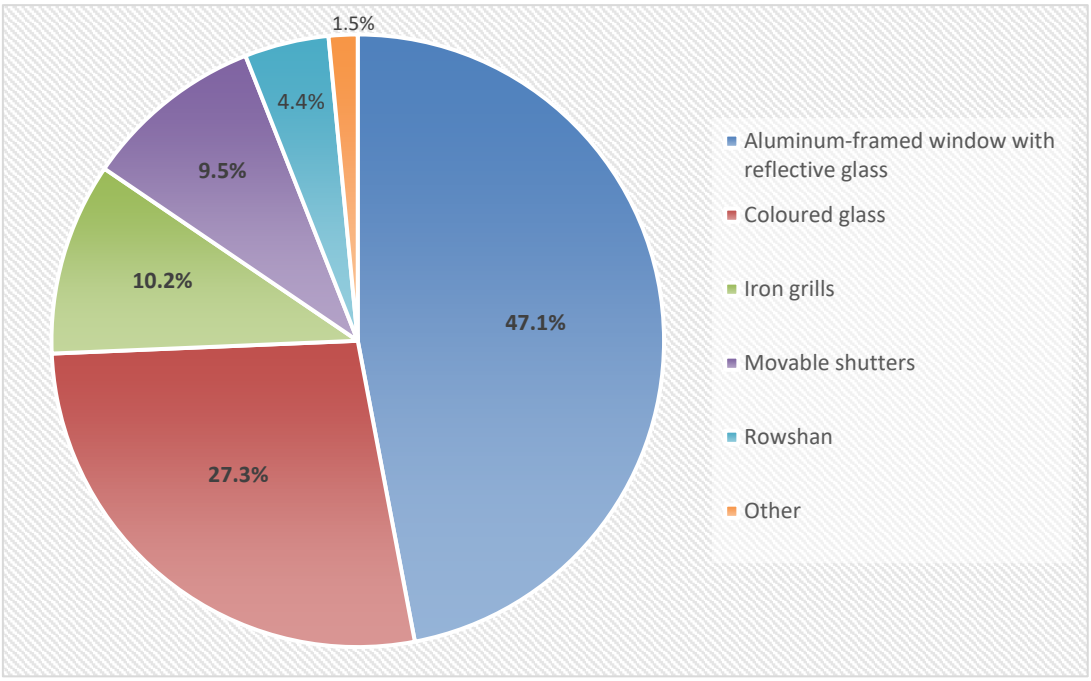

Figure 2: Respondents' used methods to cover home windows to appear aesthetically pleasing.

3.6.1.4 Respondents' preferences for window type

Question 8: Which option do you prefer to cover your home window? 1. Using ready used windows commonly found in existing houses (aluminium -framed windows with reflective glass)? Or 2. Using windows that are designed according to personal artistic taste (Rowshan, for example)?

The selection of a preferred shading device to cover home windows varied significantly between standard ready used windows and personalised types. The majority of respondents 510 (64.8%) preferred using windows that are designed according to their personal taste (Rowshan), while only 277 (35.2%) chose the ready used windows to cover their home windows.

Question 9: How do you describe the importance of personalised designed windows to the aesthetic value of the building?

When further asked those who preferred using windows that are designed according to their personal taste, in the previous question, about the value of personalised window designs compared to the aesthetic value of the building, the majority of the respondents 432 (84.8%) considered them an essential value with a significant impact on the aesthetic appearance of the building. However, 78

(15.2%) of the respondents considered personalised window designs luxuries and have no value, but they bring added value to the building and construction cost.

3.6.2 Visual privacy performance:

3.6.2.1 Respondents' preferences for visual privacy in their homes

Question 10: At your home, how important is the visual privacy to you? 1. Very important; 2. Important; 3. Moderately important; 4. Less important; 5. Not important at all.

Six hundred and twenty-two (79%) of respondents stated it was important (189; 24% of them considered it very important, 238; 30% indicated that it was important and 195; 25% said it was moderately important). Hundred and two (13%) and 63 (8%), respectively, said that it was less important and not important at all for them to maintain visual privacy at their homes.

3.6.2.2 Respondents' satisfaction with the achieved level of visual privacy at their homes

Question 11: How satisfied are you about the achieved level of visual privacy at your home? 1. Very satisfied; 2. Satisfied; 3. Dissatisfied; 4. Very dissatisfied; 5. Neither satisfied nor dissatisfied.

Six hundred and forty-four (81.8%) of respondents were satisfied with the level of visual privacy achieved in their homes (429; 54.5% said that they were satisfied and 215; 27.3% were very satisfied), while 81(10.3%) and 16 (2.1%) were dissatisfied and very dissatisfied respectively. Forty-six of the respondents (5.8%) were neither satisfied nor dissatisfied.

3.6.2.3 Respondents' preferences for visual privacy techniques used in window design

Question 12: What methods are you using to maintain visual privacy at your home?

The findings illustrated in Figure 3 show that reflective glass with a curtain behind was chosen by a significant number of the respondents 362 (46%) as the most appropriate technique used to achieve visual privacy. Hundred and twenty-four (15.7%), 92 (11.7%), 76 (9.7%) and 75 (9.3%) of the respondents used coloured glass, movable shutter, textured glass and frosted glass respectively to maintain their visual privacy at homes. Rowshan was the least applied technique used by 35 (4.4%) of the total number of the respondents. However, there were 23 (2.9%) of the respondents used other techniques to maintain visual privacy in their homes.

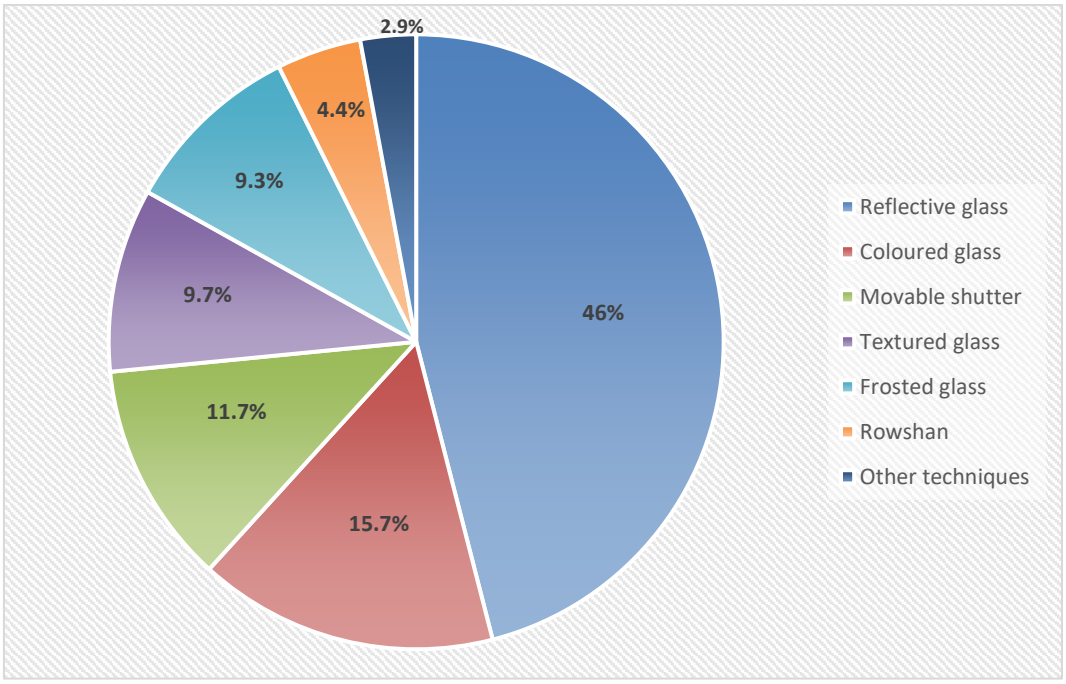

Figure 3: Respondents' used methods to maintain visual privacy at their homes.

3.6.3 Daylight performance:

3.6.3.1 Respondents' preferences for daylight in their homes

Question 13: At your home, how important is the daylight to you? 1. Very important; 2. Important; 3. Moderately important; 4. Less Important; 5. Not important at all.

Six hundred and thirty-three (80.4%) of respondents stated it was important (181; 22.9% of them considered it very important, 213; 27.1% said it was moderately important and 239; 30.4% indicated that it was important). On the other hand, a minority of the respondents 154 (19.6%) considered admitting natural daylight into their living spaces was not important (97; 12.4% of them said it was less important and 57; 7.2% indicated that it was not important at all).

3.6.3.2 Respondents' satisfaction with the level of daylight at their homes

Question 14: How satisfied are you about the achieved level of natural daylight at your home? 1. Very satisfied; 2. Satisfied; 3. Dissatisfied; 4. Very dissatisfied; 5. Neither satisfied nor dissatisfied.

Five hundred and eighty-three (74.1%) of respondents were dissatisfied with the level of natural daylight admitting into their homes (457; 58.1% said that they were dissatisfied and 126; 16% were very dissatisfied), while 157 (19.9%) and 22 (2.8%) were satisfied and very satisfied respectively. Twenty-five (3.2%) of the respondents said that they were neither satisfied nor dissatisfied.

3.6.3.3 Respondents' acceptance of and preference for daylight controlling techniques used in window design

Question 15: What methods and techniques are you using to control the amount of natural daylight admitting into your home?

When people were asked about the methods or techniques they used to control the amount of natural daylight admitting into their homes, 518 (65.8%) of the respondents achieved that by using reflective glass with curtains, 169 (21.5%) used reflective glass with curtains and blackouts, 47 (5.9%) were using movable shutters and 23 (2.9%) used Rowshan, while 30 (3.8%) used other techniques to maintain adequate natural daylight in their homes (Figure 4).

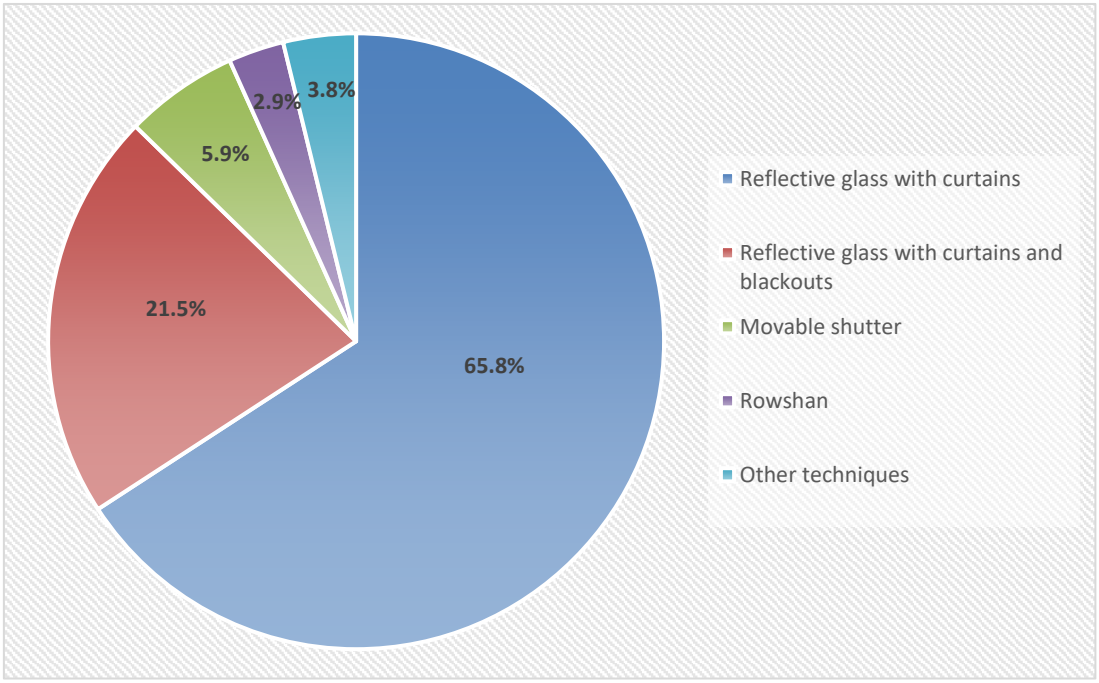

Figure 4: Respondents' used methods to control the amount of daylight admitting into their homes.

3.7 Respondents' interest in using Rowshan in their homes

3.7.1 Respondents' awareness of Rowshan's legacy

Question 16: How aware are you of the socio-cultural, aesthetic and environmental features of Rowshan legacy? 1. Very much; 2. A little; 3. Not at all.

When people were asked about their level of awareness about the cultural, social and aesthetic legacy of Rowshan, it was clearly noted that a significant number of the public in Medina 373 (47.6%) have little awareness and understanding of Rowshan's legacy. In addition, 215 (27.2%) did not care at all about it, and a minority of 199 (25.2%) were aware of Rowshan's legacy.

3.7.2 Respondents' experience with Rowshan

Question 17: Have you ever been to a place covered with Rowshan?

Five hundred and forty-eight (70%) of respondents had experienced being in a place covered with Rowshan, while 239 (30%) had not. This indicates that the respondents gave answers based on their real experiences, not on their hypothetical opinions.

3.7.3 Investigating the reasons behind the erosion of Rowshan in contemporary houses

Question 18: In your opinion, what are the reasons behind the declining practice of using Rowshan in contemporary houses in Medina?

The findings illustrated in Figure 5 show that the reason (it is expensive) received the highest proportion 236 (30%) of the responses, followed by the reason that (it is difficult to clean and provides access for insects and dust) with 187 (23.7%) of the responses. Then, 168 (21.3%) and 94 (12%) of the respondents gave the reasons that (lack of craftsmen and manpower) and (it reflects the old cultural values); these were the reasons in third and fourth places respectively. Moreover, the reasons (lack of tight sealing, causing noise entering the house) and (it obscures the view) had almost the same numbers and percentages of 34 (4.3%) and 31 (4%) of responses, respectively. Then came the reason that (length of time required for construction), which received 18 (2.3%) of responses, while 5 (0.6%) of the respondents said (it is old-fashioned and not stylish). However, 14 (1.8%) of the respondents stated that there were other reasons behind their reluctance to use Rowshan in modern times.

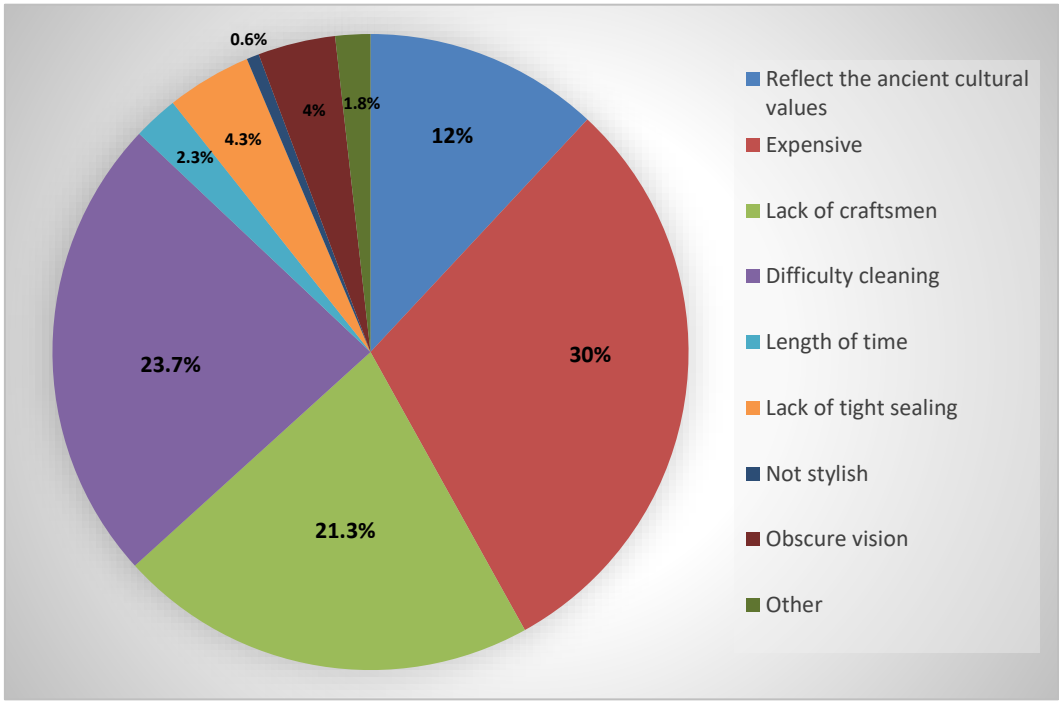

Figure 5: The reasons behind the erosion of Rowshan in contemporary buildings in Medina.

3.8 Exploring respondents' attitude towards using innovated versions and new styles and colour of Rowshan

Question 19: What colour of Rowshan do you prefer? 1. Green; 2. Blue; 3. Brown.

Six hundred and twenty-four (79.4%) of respondents preferred to see Rowshan in its natural brown colour, while 109 (13.8%) and 54 (6.8%) of the respondents preferred the blue and the green colours respectively.

Question 20: If Rowshan is developed and redesigned with creative ideas, which of these methods would you prefer to use?

1. *Wooden Rowshan covered with coloured glass panels*
2. *Steel or aluminium Rowshan covered with coloured glass panels*
3. *Concrete Rowshan covered with coloured glass panels*
4. *Gypsum Rowshan covered with coloured glass panels*

When people were offered some images of the new Rowshan designs with different materials and different coverings and asked them to chose which method would they prefer to use, it was clearly noted that a significant number of the public in Medina 473 (60%) preferred to use a wooden Rowshan covered with coloured glass. Steel or aluminium Rowshan covered with coloured glass was indicated as the second choice by 129 (16.5%) of the study sample, with concrete Rowshan covered with coloured glass as the third choice mentioned by 85 (10.8%) of the respondents. A gypsum Rowshan covered with coloured glass came fourth as it was chosen by 62 (7.9%) of the respondents. However, 38 (4.8%) of the respondents stated that there were other methods they prefer other than those mentioned (Figure 6).

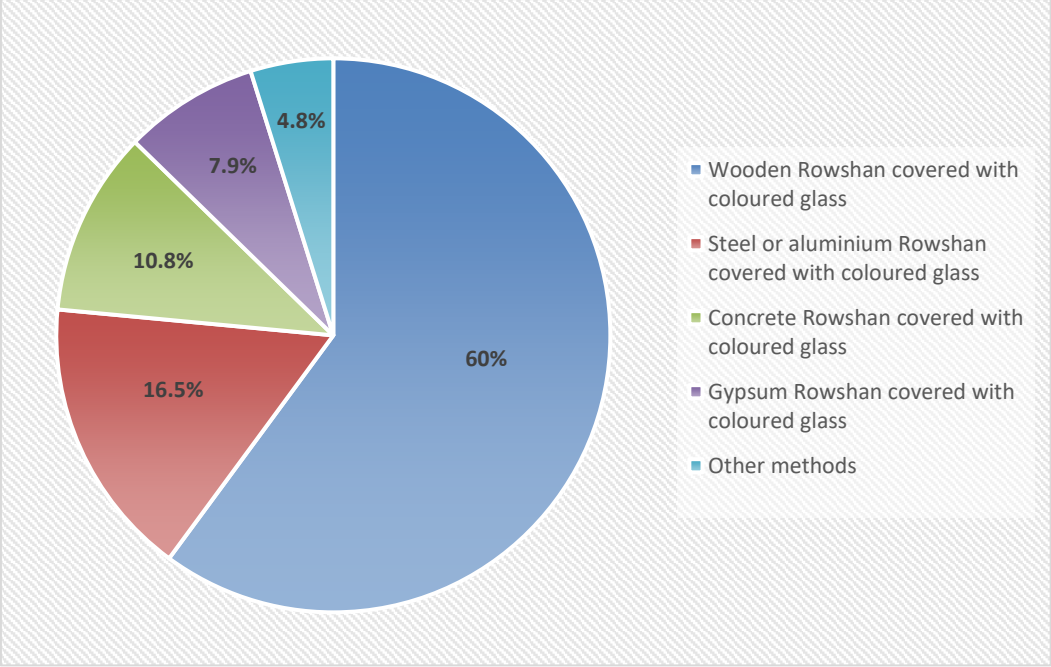

Figure 6: Respondents' attitude towards using innovated versions and new styles and colour of Rowshan.

3.9 Respondents' interest in using traditional Rowshan over contemporary windows for achieving satisfying levels of aesthetically pleasing, visual privacy and daylight in their homes

Question 21: In compared with the ready used windows commonly found in existing houses nowadays (aluminium-framed windows with reflective glass), do you agree that Rowshan is more effective in covering home windows to appear aesthetically pleasing? 1. Strongly agree; 2. Agree; 3. Disagree; 4. Strongly disagree; 5. Neither agree nor disagree.

Regarding the effectiveness of Rowshan, compared with the contemporary windows, to provide satisfied levels of aesthetic appearance, 691 (87.8%) of the respondents agreed with this statement (248; 31.5% of people strongly agreed and 443; 56.3% of people agreed). On the other hand, 83 (10.5%) of the respondents disagreed with the statement (69; 8.7% of people disagreed and 14; 1.8% of people strongly disagreed). Thirteen of the respondents (3.2%) said that they were neither agreed nor disagreed.

Question 22: In compared with contemporary windows, do you agree that Rowshan is more effective in covering home windows for achieving satisfying levels of visual privacy? 1. Strongly agree; 2. Agree; 3. Disagree; 4. Strongly disagree; 5. Neither agree nor disagree.

Regarding the effectiveness of Rowshan, compared with the contemporary windows, for achieving satisfying levels of visual privacy at homes, 389 (49.4%) of the respondents agreed with this statement (171; 21.7% of people strongly agreed and 218; 27.7% of people agreed). On the other hand, 353 (44.9%) of the respondents disagreed with the statement (224; 28.5% of people disagreed and 129; 16.4% of people strongly disagreed). Forty-five of the respondents (5.7%) said that they were neither agreed nor disagreed.

Question 23: In compared with contemporary windows, do you agree that Rowshan is more effective in covering home windows for achieving satisfying levels of daylight at homes? 1. Strongly agree; 2. Agree; 3. Disagree; 4. Strongly disagree; 5. Neither agree nor disagree.

Six hundred and fourteen (78%) of respondents agreed with this statement (223; 28.3% of people strongly agreed and 391; 49.7% of people agreed). On the other hand, 165 (20.9%) of the respondents disagreed with the statement (117; 14.9% of people disagreed and 48; 6% of people strongly disagreed). Eight of the respondents (1.1%) said that they were neither agree nor disagree.

4. Discussion and conclusion

Our study indicated that there is a state of confusion and chaos among people of Medina, as 83.7% of respondents were not able to categories the houses' façades styles of the contemporary architecture. These houses' façades did not reflect the local traditional Islamic style nor the new emerging Western-style, as respondents noticed. This could be attributed to several factors; perhaps the most important one is the globalisation and openness to global markets and gaining access to new building materials that were incompatible with the city's environment and the cultural orientation of people of Medina (Al-Naim, 2011). In addition, the recruitment of foreign labour and technical expertise that allowed the construction sector to benefit from new methods and techniques that gave no cognizance to the nature of the city's environment nor its authentic identity and lack of laws and regulations imposed by local governmental authorities to enforce building regulations that could encourage the traditional Islamic style of building design contributed in no small way to the gradual erosion of traditional Islamic identity in contemporary architecture in Medina (Al-Hussayen, 2002, Kaki, 2000). However, the people of Medina still have a strong relationship and affiliation with their Islamic cultural identity, as there is a great desire from the society to develop and to preserve the identity of Islamic style and to see a greater reflection of traditional Islamic heritage in contemporary architecture in Medina.

Visual privacy was chosen by 24% of respondents as the most important issue that determined their selection of window shading type, followed by the functional performance (22.9%) and aesthetic

appearance (20.7%). This is expected because maintaining visual privacy within homes in Madani societies, like many other Islamic societies, is considered a fundamental requirement, derived from religious beliefs and socio-cultural factors which deeply rooted in that society (Al-Jawder, 2014, Al-Ban, 2016). Therefore, reflective glass with a supporting interior curtain was the most appropriate technique used by many people in Medina to achieve visual privacy. This appeared where 81.8% of the society were satisfied with the level of visual privacy achieved in their homes, while only 22.7% were satisfied with the level of natural daylight admitting into their homes.

Aesthetically speaking, it seems that the option of using reflective glass did not meet the aesthetic needs of Madani people, as 73.8% of the public of Medina were dissatisfied regarding the aesthetic appearance of their home windows. Furthermore, many people preferred using customised windows that are designed according to their personal taste, such as Rowshan over contemporary windows, such as aluminium-framed windows with reflective glass. Many people considered personalised windows as an essential value that had a significant impact on the aesthetic appearance of their homes. Having shown that 20.7% of the society considered aesthetic appearance as the most important issue that determined their selection of window shading, all these clearly indicate the high aesthetic sense among people of Medina and how their appreciation of the value of beauty is just as important as the other values such as visual privacy and daylight availability.

The majority of Madani people were lived in places covered with Rowshan, were well aware of the richness of Rowshan legacy and were eager for its return in contemporary architecture. However, there are three major drawbacks, as people noticed, to using the traditional form of Rowshan that, as a result, make it incompatible with contemporary Madani architecture and society. The high cost is the first drawback, as the traditional Rowshan is made of expensive types of woods such as teak, cedar, oak, ebony, and mahogany, which are not available as a local source and are expensive to import, thereby raising Rowshan's cost and maintenance considerably. The second disadvantage of the traditional Rowshan is a large number of openings of different sizes that provide access to insects and dust to enter the house, which requires cleaning the house constantly. The third drawback to using the traditional Rowshan is lack of craftsmen, as the construction of Rowshan is highly labour intensive, requiring special materials and techniques and skilful hands to construct it, both of which are not available in today's modern life. Similar findings were reported by Hariri (1991) and Batterjee (2010) in their studies.

When people were offered some Rowshan designs with different colours and materials and were asked to choose which method would they prefer to use, 60% of them preferred to use the wooden Rowshan in its natural brown colour but covered with coloured glass panels. The nostalgia for seeing Rowshan in its natural colour and original material clearly reflected how people of Medina were deeply linked to their historical roots and were proud of their cultural heritage. From a practical point of view, people thought that adding coloured glass panels to Rowshan could protect the house from insects and dust as well as giving Rowshan a modern external look.

In conclusion, the current study showed that people of Medina were highly motivated and had a positive attitude towards using Rowshan in their homes for two main reasons; first, the close connection of Rowshan with their traditional architectural identity. Second, compared with contemporary windows, Rowshan was more effective, as people agreed, in covering home windows and achieving satisfying levels of aesthetic appearance, visual privacy and daylight at homes. However, there are some obstacles that make Rowshan incompatible with contemporary architecture in Medina. More studies are needed to provide designs for Rowshan that honour traditions and also provide excellent solutions to those obstacles, making Rowshan harmonious with contemporary architecture, thereby strengthening the correlation between the past and the pioneering future.

Disclosure

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