

CONCRETE AS HERITAGE: SOCIAL PERCEPTION AND ITS VALUING – THE ZARZUELA HIPPODROME CASE

GEMA RAMÍREZ GUERRERO, MANUEL ARCILA GARRIDO,
ADOLFO CHICA RUIZ & DAVID BENÍTEZ LÓPEZ
University of Cadiz, Spain

ABSTRACT

Concrete is the constructive material used to design most of the buildings of the 20th century, some of them of great architectural, historical and cultural relevance. However, the social perception that exists around these constructions, as regards the consideration as architectural and artistic heritage, reflects discordant aspects. Several authors affirm that the 20th century concrete heritage lacks enough appreciation by society, which hinders the tasks to develop or encourage their social consideration and their tourist use. On the other hand, in some cases, this kind of heritage are not considered attractive tourist resources, therefore the maintenance work is no longer a priority, which does not guarantee minimum standards of conservation. In this context, the University of Cadiz leads a European project H2020 called InnovaConcrete, whose aim is to preserve the 20th century monuments built in concrete in countries of the European Union. The Zarzuela Hippodrome (declared an Asset of Cultural Interest in 2009 and inaugurated in 1941, after the Spanish Civil War) has been selected as an ideal example when gathering aspects of economic, social, cultural, aesthetic and architectural functionality. The results obtained, through various surveys and interviews with agents involved, envisage a strong correlation between the widespread ignorance about the historical and architectural value of the building and its depreciation as a heritage element. It is therefore necessary to reflect on the special importance that, for this type of patrimonial groups, have the dissemination and information's tasks about their historical and architectural, as well as artistic and social peculiarities.

Keywords: concrete, heritage, tourist potential, cultural appreciation, H2020, InnovaConcrete, Zarzuela racecourse, cultural heritage, concrete architecture, Eduardo Torroja.

1 INTRODUCTION

Historic and architectural heritage has become in a basic resource in cultural tourism. The attraction of this heritage is linked to the historic moment of its construction, the cultural and identity bond where it is located and its beauty [1]. Concrete is a constructive material used to design most constructions of the 20th century, some of them with a great architectural, historical and cultural relevance [2]. Nevertheless, several authors suggest that there is a lack of appreciation and care by society [3]. Thus, this does not favour its value, and therefore, does not improve its perception from the social point of view. Despite of this affirmation, there is some evidence of an increase of interest in some places in Europe by these concrete edifications, “there are more people that show interest for the colossal concrete and steel structures in the different parts in the older Yugoslavia” [4].

In the light of the foregoing, is interesting to know the motives of the low valuation of these monuments and its incipient interest of the tourist and citizenship in general “This architectural heritage is a material testimony of its age, place and use” [4].

In this context, the University of Cádiz leads a project, InnovaConcrete [5], supported by the European Union's Horizon 2020, whose main purpose is to intervene in technical aspects, combined with activities to promote and achieve social awareness and value creation linked to monuments and representative buildings. One of the study cases of InnovaConcrete is the Zarzuela Hippodrome in Madrid [6]. The architects were Carlos Arniches and Martín Dominguez Esteban. They were joined by the engineer Eduardo Torroja, a pioneer in the design of concrete shell structures. His work on the stands with their distinctive roof is



recognized internationally [7], [8]. It was declared as a *Bien de Interés Cultural* (category of the heritage registered in Spain and in other Spanish-speaking countries) in 2009. The hippodrome was built in 1935, but it was interrupted during the civil war in 1941. The inauguration took place in 1941. Currently, it keeps its functionality as a racecourse and cultural centre, where is located the museum of Eduardo Torroja Foundation. The Zarzuela hippodrome is an example where we can collect some functional aspects such as economic, social, cultural, aesthetic and architectural [9].

At this point, the main goal of this paper is to provide an indirect estimate of the perception that users have of the 20th century concrete heritage, through a general analyse of the results obtained in the Zarzuela hippodrome case.

2 METHODOLOGY

The methodology is according to a general framework for qualitative researches with an exploratory character, through a bibliographic search of the published studies, such as the Higher Council for Scientific Research (CSIC) and monographs and papers about tourism, such as *Cuadernos de Turismo, Pasos*, among others. Moreover, the official webs of international organizations, as UNESCO and Docomomo (Documentation and conservation of the architecture and urbanism of the modern movement), have been consulted.

To determine the factors that directly affect the value of the Zarzuela hippodrome, we proceeded to design a range of surveys to be applied *in situ* and through cards with QR codes, distributed to racecourse users so that they could access the online survey.

A work calendar was designed in three phases (see Fig. 1) throughout the year 2018–2019 to achieve a transverse time dimension and to estimate the frequency at a given time. Since the P value (equal or greater) (see Table 1), for runs above and below the median is less than 0.025, there is a statistically significant mix with a confidence level of 95%.

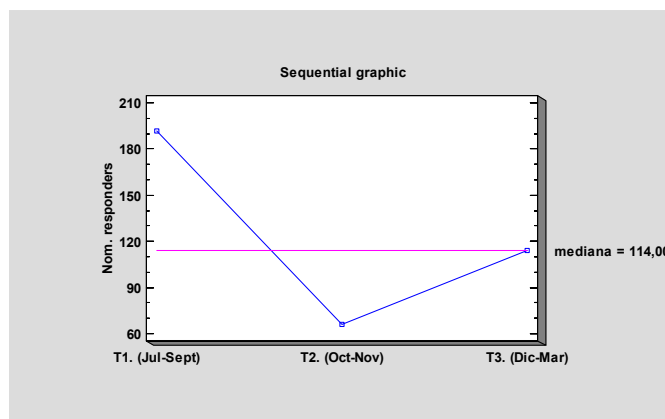


Figure 1: Sequential graphic. Nom. Responders per phase. (Source: Own elaboration.)

Table 1: Sequential data. (Source: Own elaboration.)

Test	Observations	Expected	Longest	P(>=)	P(<=)
Runs above and below the median	2	2.0	2	<	<
Runs above and below	2	1.66667	1	0.641602	0.965137

The type of sampling used is random (simple), pq , of a certain number of individuals of a population that, at the given time, comply with the phenomenon object of study: to be in the hippodrome.

This guarantees that all the components of the population are equally likely to be part of the sample and each of the possible samples of the same size have the same probability of being chosen.

The statistical base consists of 371 responses, with a 95% level of confidence and an error rate of 4.2% (SE = 0.75). Referring to the homogeneity of the answers related to perception. To calculate the sample, it has considered the population based on data obtained in 2017 (number of visitors).

The survey has twenty-one questions and it is divided into three themed content blocks:

1. Visitor profile: gender, origin, age, motive of the visit, etc.
2. Set of buildings: satisfaction in multiple points and information related to the group of buildings.
3. Cultural uses: different uses of the hippodrome.

For the selection of the questions, it was considered the nature of the content and its function, including the next kind of questions:

- Closed (pre-coded or fixed response).
- Multiple choice:
 1. A range of answers: multiple choices of answers, being exhaustive and mutually exclusive.
 2. The range of answers with an open item: suitable for that what is not complete certainty of being exhaustive, leaving the possibility to the respondent of adding options which are not contemplated in the given alternatives.
 3. Estimation questions: We have opted, as scaling procedures, the summative ranges (Likert).
- Identification questions (gender, age, studies level and provenance.)
- Questions of consistency and control, to check the consistency of the answers of the respondent.

3 STUDY CASE: ANALYSIS AND DISCUSSION

Based on the results obtained during the fieldwork, we obtain a valuable source of information that allows us to define, on the one hand, the profile of the visitor, analysing issues such as age, gender, origin, whether the visit to the hippodrome is recommended or not, if it has been previously, etc., as well as issues directly related to the degree of knowledge, satisfaction and patrimonial valuation of the building and its knowledge about it.

3.1 Thematic block 1: Visitors' profile

For defining the responders' profile, we observe the data cross between the independent variable *Age* and *Gender*, with dependents variable such as kind of event chosen, reason for the visit, if has been previously in the hippodrome and the origin of the user.

Regarding the respondents' provenance (see Fig. 2), the responses collected allow us to highlight the following data:

- 97.22% have Spanish nationality,
- of which 93.57% are from Madrid (291 visitors).



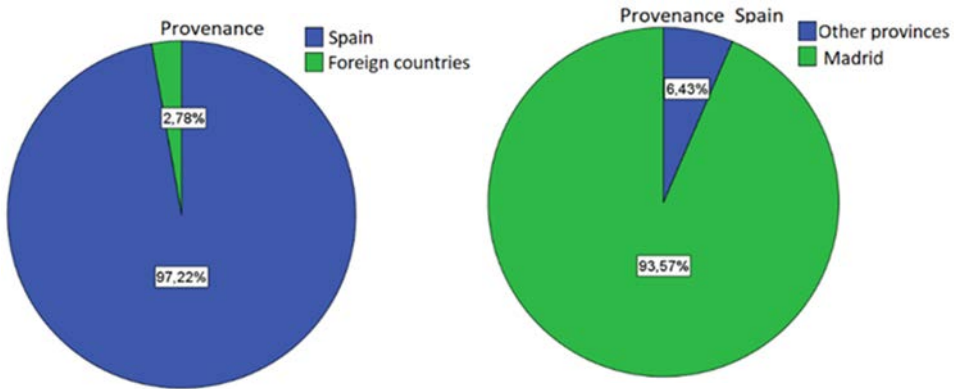


Figure 2: Pie chart. Provenance. (Source: Own elaboration.)

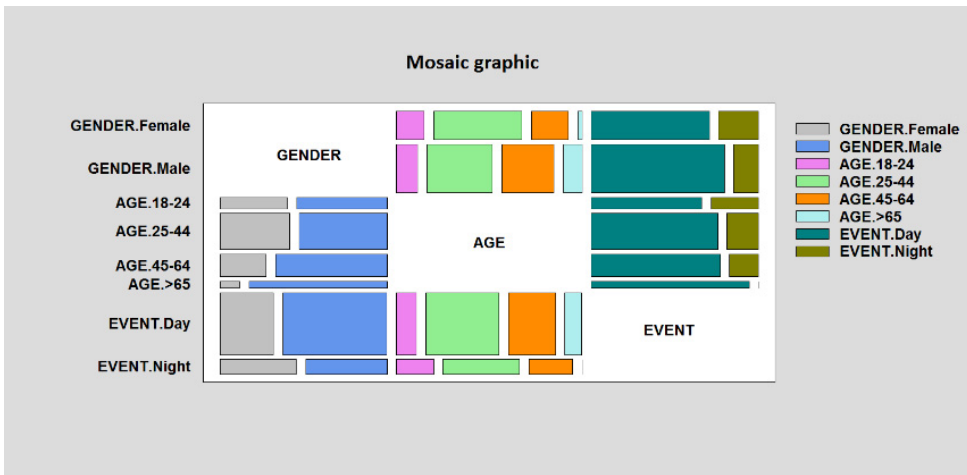


Figure 3: Mosaic graphic. Gender, Age and Event. (Source: Own elaboration.)

The races at the hippodrome take place in day and night events, depending on the time of the year. Therefore, in order to differentiate the main profiles (see Fig. 3), Age and Gender are listed below, considering Event.

The Burt table (Table 2) shows the simultaneous occurrence of pairs of categories for two variables.

This procedure shows the relationships between the categories of the three data variables. As shown in the graph, according to the total number of surveys conducted, both personally and online, the male gender stands out over the female. Also, the age between 25 and 44 years predominates in the sample collected. On the other hand, given the temporality of the data collection, more responses were obtained in the daytime events, since the night races are included in the months of July, August and mid September.

Table 2: Burt – inertia calculated: Event, Age and Gender. (Source: Own elaboration.)

	Gender: female	Gender: male	Age: 18–24	Age: 25–44	Age: 45–64	Age: >65
Gender: female	137	0	24	77	32	4
Gender: male	0	234	32	97	77	28
Age: 18–24	24	32	56	0	0	0
Age: 25–44	77	97	0	174	0	0
Age: 45–64	32	77	0	0	109	0
Age: >65	4	28	0	0	0	32
Event: day	102	197	39	139	89	32
Event: night	35	37	17	35	20	0

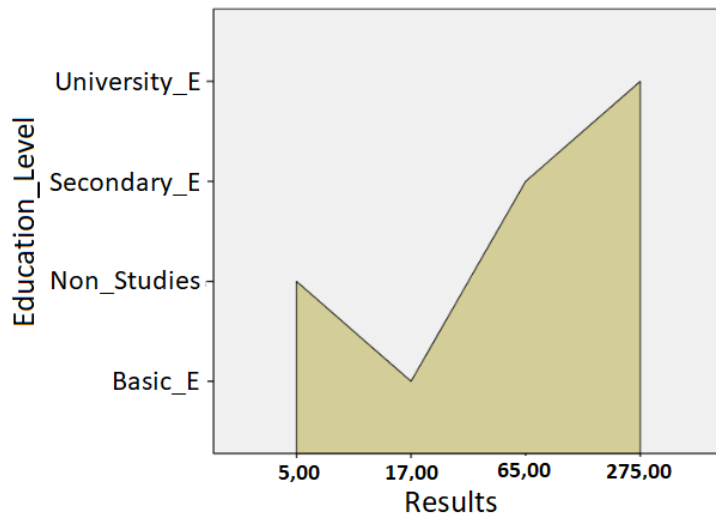


Figure 4: Frequency polygon – education level. (Source: Own elaboration.)

According to the education level, 76% of the respondents have university studies, followed by 18% who affirm to have secondary education (see Fig. 4).

An important fact from results reveals that 72% (total sample) visit the racetrack on several occasions. It should be noted that 90% of respondents know the hippodrome by family and friends, which could place the hippodrome as a usual leisure place, a fact that already points positively to the perception of the visitor. However, this situation could reflect that, currently, new visitors to the building are not being attracted, supposing a weakness in the diffusion activities and, hence, in its tourist underutilization.

Regarding the reasons for visit the hippodrome, the general data reflect that, although the main motivations are horse races (56%) followed by the environment or social meeting place (24%), other types of activities are also selected as complementary offer, as shown in Fig. 5.

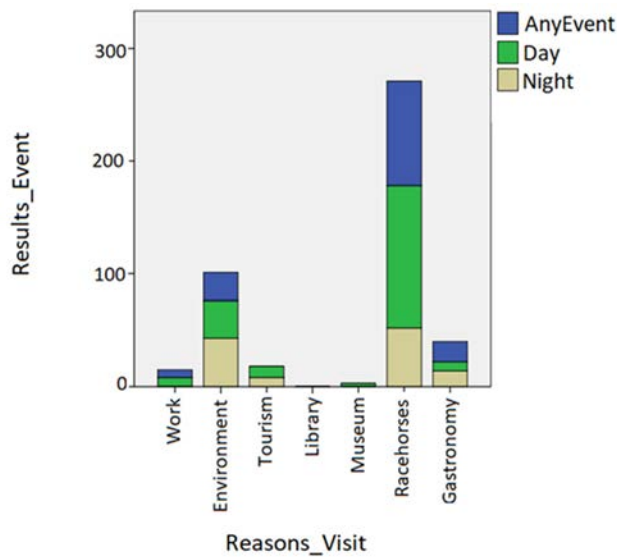


Figure 5: Histogram – reasons for visit the hippodrome. (Source: Own elaboration.)

With the aim of looking for differences or similarities in the samples by type of event, respondents were asked in which time zone they usually go to the hippodrome.

Given the results, we can highlight a certain trend between day visits with main attraction for horse races (46%) and, on the other hand, the environment as a social meeting place for night visits (42%). Both percentages of total visits per event.

In respect of the *Eduardo Torroja* Museum and the *Miguel Ángel Ribera* Library, 1% and 0% (respectively) of the survey respondent say that they have visited the *Eduardo Torroja* Museum and that fact, is an extra motivation to visit the racecourse. However, is not unexpected the low percentage if we consider that 98% of survey respondents did not know that the museum and the library exist.

3.2 Thematic block 2: Set of buildings: satisfaction in multiple points and information related to the group of buildings.

To introduce this thematic block, two questions were included to evaluate the general knowledge about the building, being: *Did you know that HZ is protected as a cultural asset (BIC) since 2009?* and *Did you know who was the engineer who participated in the construction of the Zarzuela hippodrome?* We have the same results in both questions, 93% of the survey respondents did not know the answer. This point can be quite enlightening to understand how important the knowledge is for the proper valuation of heritage.

The items valued have been those related to the historical, architectural, aesthetic and cultural perspective, as well as aspects oriented to the building infrastructure such as access, signalling or seat in the stands.

In order to achieve a global vision of how users value the hippodrome and the components of its offer, the relationship between the different valuations, in scale questions from 1 to 5 (*being 1 Not enough and 5 Excellent*) and the different items considered is shown in Fig. 6.

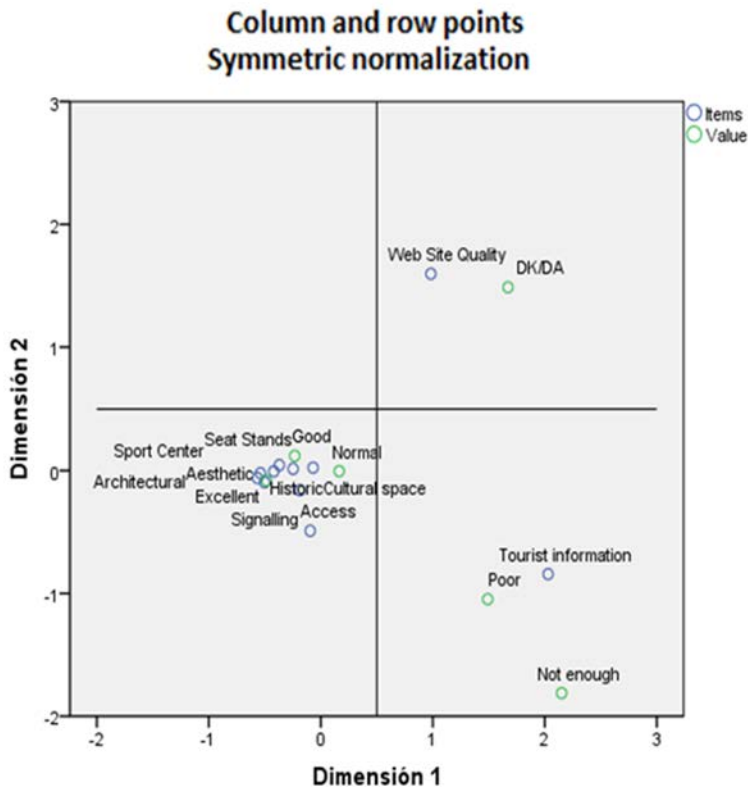


Figure 6: SCA – Correspondence analysis. Set of buildings. (Source: Own elaboration.)

As the analysis shows, the evaluation aspects of the building, such as architecture, history or aesthetics are positively valued. Although, the representativeness of the data is reduced, except for Tourist information available to visit the hippodrome, Hippodrome as sport centre and Website Quality variables. It is necessary to highlight the general discontent of the users due to the lack of tourist information in the city of Madrid or in the nearby provinces. In the same way that the lack of activities dissemination to advertise the hippodrome to new visitors.

3.3 Thematic block 3: Cultural uses: different uses of the hippodrome

In the third and last block of the survey, information was obtained about the variables related to the hippodrome's cultural uses such as *Events*, *Dissemination of activities*, *Library*, *Miguel Ángel Ribera Library*, *Eduardo Torroja Museum* or *Racehorses as cultural element*, among others. From this block is extracted as general data that the dissemination of activities carried out by the hippodrome is insufficient or poor (45%); the museum or the library is not disseminated and, hence, unknown by users (78% do not know it); the hippodrome is considered as an important tourist offer (70%) and as a social place. The best valued aspect is the global beauty, with 83% of the total sample.

The data moves away from the general average, obtaining a good representativeness in general terms (see Fig. 7).

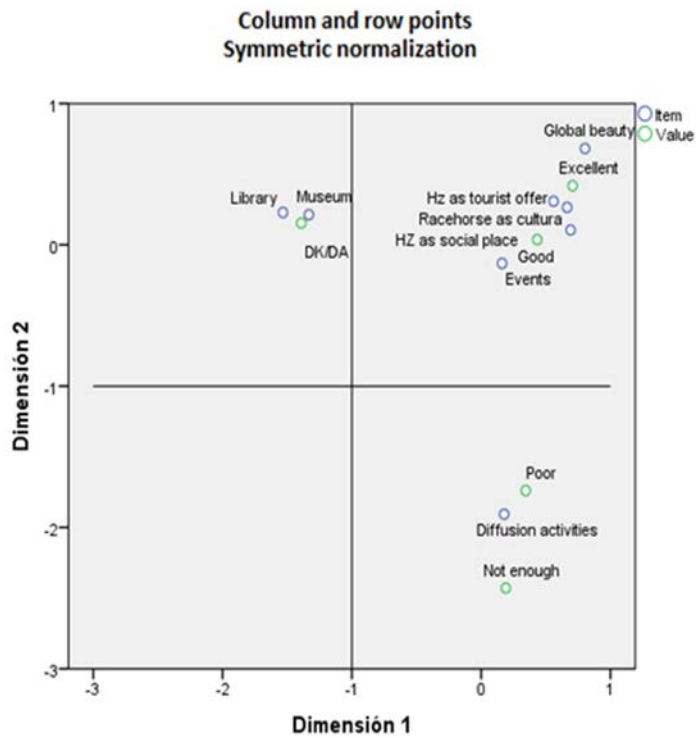


Figure 7: SCA – correspondence analysis. Cultural uses. (Source: Own elaboration.)

To conclude with the global data from the users' perception and satisfaction, an analysis by subgroups is shown below that unites all the valuation variables from the 2nd and 3rd blocks (see Fig. 8).

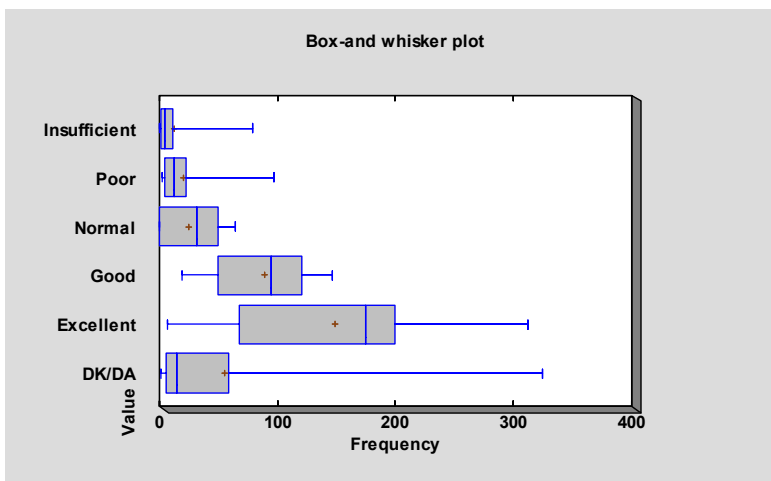


Figure 8: Subgroups analyses – frequency per value. (Source: Own elaboration.)

This procedure calculates the summary statistics for the frequency values corresponding to each of the 6 levels of value, being 1 *Insufficient*, 5 *Excellent* and 6 *Do not Know/Do not answer*. The general data show a positive evaluation from users. The global average valuation of the hippodrome, from the 15 items indicated, is located in most of the cases around the 5–4 (Excellent–Good rating).

In terms of age (see Fig. 9), the users who most value the architectural, aesthetic and historical aspects are those between 24 and 44 years of age, followed by the range of 45 to 64 years.

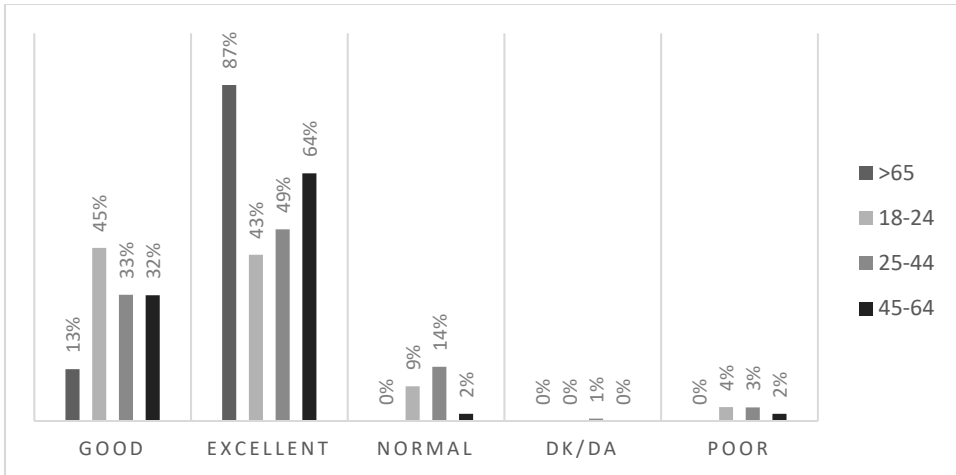


Figure 9: Subgroups analyses – frequency per value. (Source: Own elaboration.)

Before finalizing the survey, a last question was included to find out whether users would recommend the hippodrome to a friend. The results reflect 100% of the affirmative answers.

In general terms, we have detected that the hippodrome is perceived as a sports and leisure centre, where are users from Madrid who frequently visit the place.

Cultural aspects and heritage information, as well as general knowledge about the building as a cultural asset, are unknown to a large number of visitors (98%). However, in terms of architectural, historical and aesthetic terms, the results envisage a positive assessment.

Finally, the cultural offer seems not to be sufficiently widespread, which could be a cause of the general ignorance detected. Also, one of the aspects most recognized by the respondents has been the high dissatisfaction derived from the lack of publicity.

4 CONCLUSION

Concrete is part of one of the basic materials of big quality in many buildings, structures and modern monuments that currently are considered historically important. However, as architectural and artistic heritage and the social perception existing around this construction, the value over them is low. Many authors confirm, that 20th century concrete heritage have a lack of appreciation by society [3], [10]. This difficult the tasks to develop or encourage its tourist enhancement.

On the other hand, these constructions are not considered as an attractive tourist resource, hence, the maintenance work is not priority, it means that does not allow to guarantee minimum conservation standards [11].

In this context, the data collection in Zarzuela hippodrome, within the Project InnovaConcrete for its value, shows a result that reflects a limited perception of its patrimonial value by users from the point of view of the knowledge about the building.

There is a big rank of answers given about the architectonic beauty and aesthetics aspects, however, the lack of general knowledge about its historic value is detected.

A consequence of this unknowledge could be the lack of tourist activity in the hippodrome, this is confirmed by the data received from the surveys, where 93.5% of the respondents are from Madrid. This data should be pointed because, firstly, its special tourist potential and, secondly, the highest influx of tourists in summertime, with an arrival in July (2018) of 855,296 in Madrid (5.6% more than 2017) [12]. This data could be consistent with the lack of interest, by tourist companies, to include Zarzuela racecourse as a point of visit for touristic itineraries in the province.

It is not surprising, therefore, that 45% of survey respondents consider the dissemination of the offer of racecourse activities to be not enough. Cultural offer of the racecourse seems not to be enough disseminated, focusing its publicity, almost exclusively, to Social media and official web site (unknown by 42%), excluding tourism office or tourist specialized webs.

Concluding, with the given results, the Zarzuela hippodrome seems to be perceived as a sport and leisure place. Without considering its cultural attractions such as the *Eduardo Torroja* museum o *Miguel Ángel Ribera* library.

Sum up, the 20th Century concrete heritage seems to suffer a general ignorance by society. In view of the above, it is considered especially important to make efforts aimed at improving the dissemination and awareness of the high architectural, cultural and historical values of these kinds of buildings. Such an effort would help to better understand them and, therefore, encourage their tourist use.

ACKNOWLEDGEMENTS

This research was supported by InnovaConcrete Project, which has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 760858. We thank the Zarzuela hippodrome administrators who have allowed us to carry out our field work and conducting the surveys.

REFERENCES

- [1] Custance-Baker, A., Crevello, G., Macdonald, S. & Normandin, K., *Conserving Concrete Heritage: An Annotated Bibliography*, The Getty Conservation Institute: Los Angeles, 2015.
- [2] Valença, J., Almeida, C. & Júlio, E.S., Concrete heritage: Tentative guidelines for the 'Patch Restoration Method'. Presented at *3rd International Conference on Concrete Repair, Rehabilitation and Retrofitting III*, Cape Town, South Africa, 2012.
- [3] Criterios de conservación del patrimonio arquitectónico del siglo XX, Documento de Madrid, Fundación DOCOMOMO Ibérico, 2011. www.docomomoiberico.com. Accessed on: 21 May 2019
- [4] Pisker, L., En la antigua Yugoslavia el turismo renueva el interés por el legado de hormigón de la lucha antifascista. *Equaltimes*, 2018. www.equaltimes.org/en-la-antigua-yugoslavia-el?lang=es. Accessed on: 10 May 2019.
- [5] InnovaConcrete, Innovative materials and techniques for the conservation of 20th century concrete-based cultural heritage. www.innovaconcrete.eu/. Accessed on: 15 Jun. 2019.
- [6] Zarzuela hippodrome, www.hipodromodelazarzuela.es/. Accessed on: 10 Jun. 2019.



- [7] Deza, C.T., Forma, proyecto y construcción en las cubiertas del Hipódromo de la Zarzuela. <http://oa.upm.es/47548>. Accessed on: 9 Apr. 2019.
- [8] Torre, C.R., El Hipódromo de la Zarzuela de Madrid. Carlos Arniches, Martín Domínguez y Eduardo Torroja. Presented at *II Congreso Pioneros de la Arquitectura Moderna Española: Aprender de una Obra*, 2015.
- [9] Quijada, B. & Rodríguez, M.Á., Una tarde en las carreras: el madrileño hipódromo de la Zarzuela abre sus puertas e inaugura un nuevo espacio para las clases acomodadas, 2006. <https://dialnet.unirioja.es/servlet/articulo?codigo=2690786>. Accessed on: 9 May 2019.
- [10] Chiorino, C., Structural concrete architectural heritage, problems and strategies for documentation and conservation: The case study of Turin. *Proceedings of the 2nd FIB Congress*, FIB Italia, Naples, 2006.
- [11] Nawy, E.G., *Concrete Construction Engineering Handbook*, CRC Press, pp. 21–29, 1997.
- [12] Hotel Occupancy Survey of the National Institute of Statistics (INE), Data from month July 2018. www.ine.es/. Accessed on: 20 Jun. 2019.

