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Religious tourism and emotional experiences: An emotional cartography of Jerusalem

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An increasingly important segment of cultural tourism relates to ‘religious travel’, tourism motivated by spiritual reasons or associated with religious heritage sites. Thus, travel agencies are offering extensive journey packages to ancient places of worship, sacred destinations and pilgrimage sites. In this sense, according to data offered by the Ministry of Tourism of Israel, around one fifth of tourists to the country expressed religious tourism or pilgrimage as the main purpose of their visit.

Additionally, tourism is greatly founded on the consumption of experiences. Understanding the ways in which tourists experience the places is, therefore, fundamental to the study of the consumption of tourism and, in particular, of religious tourism and pilgrimage. Consequently, measuring the emotional situation of these tourists is crucial for the fulfilment of their expectations and, logically, for the degree of overall satisfaction of the experience itself.

Accordingly, this paper presents the preliminary results of the experimental implementation of an emotional measurement system in the context of a spiritual journey to Holy the Land during Easter 2015. This is a first trial out of a laboratory and, therefore, one controlled volunteer, whose primary motivation was pilgrimage, was selected to test the suitability of the method for measuring the emotional situation of the individual while in the aforementioned religious travel. The paper proposes an integrated framework of verbal and non-verbal measurement approaches and, together with spatial and temporal information, generates an emotional cartography of the Holy Land based on this journey. Initial findings suggest that emotional situation is influenced not only by space factors, but also by temporal and religious contextual factors surrounding the visitor. Even though results of the trial respond to a single case that should be expanded to contrast the obtained conclusions, it can be affirmed that there are significant implications for researchers and their methodological practices, particularly regarding the spiritual aspects of emotional engagement in religious tourism.

Key Words: spiritual tourism; emotional measurement; emotional cartography; time-space influence; Holy Land

Introduction

Religious or faith travel represents an important segment of cultural tourism, bringing heritage sites associated with spiritual reasons to the fore (Kim, Kim and King, 2016; Mintel, 2012; Nyaupane, Timothy and Poudel, 2015). Travel agencies, aware of this fact, are offering extensive journey packages to ancient places of worship, sacred destinations and pilgrimage sites.

Due to its historic significance, Jerusalem can be considered one of the paradigmatic destinations for this kind of tourism. Being the most sacred city for two of the three main monotheist religions, religious tourism represents an important share of tourists arriving at Israel every year. Data from 2017 show that religious

motivations are always among the top three reasons to travel to the country, together with touring and visiting friends and relatives (Ministry of Tourism, 2017). In this sense, according to official data, 22% of the tourists selected religious tourism or pilgrimage as the main purpose of the visit during 2015, 28% during 2016 and 19% during 2017 (Ministry of Tourism, 2017). Looking at the data of the tourists with religious or pilgrimage motivations during 2017, official results highlight that nearly nine out of ten of them (87,4%) identify themselves as belonging to different Christian denominations (Ministry of Tourism, 2017).

Additionally, in order to get a complete understanding of the phenomenon of pilgrimage, apart from the

objective data, a more subjective qualitative data has to be taken into account (Collins-Kreiner, 2018). The direct link of pilgrimage with personal experiences makes it necessary to understand this typology of tourists to better meet their needs and expectations, since people with religious motivations present different characteristics in comparison with more general tourists.

Consequently, this paper attempts to comprehend the emotional fluctuations of a pilgrim in the context of a travel to Jerusalem during the Easter of 2015. The contribution delves into variations on the emotion of the visitor according to spatial and temporal variables. Subsequently, results will allow researchers to elaborate an emotional cartography of the religious tourism experience in Jerusalem of the analysed individual.

Religious tourism and pilgrimage

As aforementioned, religious tourism is related to travelling to religiously significant sites (Griffin and Raj, 2017; Mintel, 2012) looking for the experience of sacredness (Goodnow and Bloom, 2017). Visitors to these sacred places, however, deliver a gradual non-homogeneous sense of holiness and piety (Nolan and Nolan, 1992). In general terms, this typology of travelling contributes to inner spiritual fulfilment and satisfaction of the tourist by means of improvement of the psychological and physical dimension of the individual (UNWTO, 2014).

However, there are differences when dealing with activities performed during travel. In this sense, religious tourism is associated with sacred tourist attractions, while traditional pilgrimage can be understood as the engagement of the tourist in an act of religious devotion through a quest to any sacred location (Nolan and Nolan, 1992; Griffin and Raj, 2017). Nevertheless, in all these cases, the liminality of the ritual process generates a state of spiritual calmness (Collins-Kreiner, 2018) that can lead to a hierophanical experience by the tourist (Goodnow and Bloom, 2017).

Nonetheless, the dichotomy between pilgrims and tourists is not as explicit as it might seem, since the former combine the religious and spiritual aspects with more general features associated with the latter (Collins-Kreiner, 2018; Nolan and Nolan, 1992). There are differences, however, when religious tourists or pilgrims and generic tourists approach religious sites. For instance, visiting a sacred site impels devout emotional states in religious tourists, while it arouses

feelings of admiration and cultural inspiration in regular tourists (Nyaupane, Timothy and Poudel, 2015). Therefore, it is important to discern between religious and non-explicitly religious perceptions of the heritage in question.

Similarly, one of the most characteristic features of religious tourism is the inherent subjectivity of the individual experience (Collins-Kreiner, 2018). Even though any tourism experience is highly based on the emotions and moods of the individual, this fact gains a greater importance among religious visitors and pilgrims, because their interpretation of the different episodes will clearly rely on their mental and spiritual states (Collins-Kreiner, 2018). Consequently, when recalling the experience, visitors will analyse it taking into account the degree of fulfilment of their spiritual and emotional expectations.

The emotional dimension of pilgrimage

As mentioned above, tourism is highly based on the personal perceptions and sensations of individuals when they relate to the different situations experienced during a trip. Consequently, the comprehension of this subjective valuation of the event has become vital when analysing the tourism experience as a whole (Li, Scott and Walters, 2015). Therefore, the study of emotions of travellers has gained ground during recent times, due to the great potential for the identification of fluctuations in emotional situations of users when trying to understand the subjective aspects of the tourism experience (Shoval, Schvimer and Tamir, 2018). In fact, the emotional situations of tourists will be the base to value the global tourism experience when recalling it (Lin and Kuo, 2016; Prayag *et al.*, 2017).

The emotional situation of individuals, however, is not a homogeneous, continuous process, since it responds to the numerous micro-experiences embraced by the tourism experience (Kim and Fesenmaier, 2017). In other words, the tourism experience is composed of numerous points of contact by tourists with diverse episodes that elicit emotions of diverse natures (Alcoba *et al.*, 2016).

This conception of the tourism experience is especially evident when analysing religious tourism and pilgrimage. The liminal character of pilgrimage is founded on emotional experiences, since it derives from the creation of states of peace and happiness which are halfway to heaven (Kim, Kim and King, 2016:145). Thus, the sequence of episodes, points of

contact and the emotional states they generate are at the core of the understanding and recall of the pilgrimage experience. Consequently, measurement of the emotional situation of these experiences is crucial for the fulfilment of the expectations of pilgrims and, logically, for the overall satisfaction degree of the tourism experience itself (Cànoves and Prat Forga, 2016; Lin and Kuo, 2016; Prayag *et al.*, 2017).

Nevertheless, as aforementioned, emotions are not static, but volatile and triggered by the diverse episodes that form the tourism experience. Hence, logically, if pilgrimage is understood as a continuous sequence of points of contact of individuals with the tourism practise (Hosany and Gilbert, 2010; Scuttari and Pechlaner, 2017), the understanding of these constantly fluctuating emotional episodes will shed some light on the global valuation of the whole experience in relation to the visited places (Kim and Fesenmaier, 2017). In this sense, the immediate measurement of the emotional episodes of pilgrims is crucial, since cognitive processes of the individual can influence the recall of the experience if measured after finishing it (Brunner-Sperdin, Peters and Strobl, 2012). Therefore, literature suggests that it is significantly important to measure in-process emotions and not only the after experience ones, in order to identify approach or avoidance behaviours (Brunner-Sperdin, Peters and Strobl, 2012). Moreover, the direct measurement and identification of the emotional situation of tourists and, by extension, of pilgrims allows linking the potential fluctuations with spatial and temporal variables (Shoval, Schvimer and Tamir, 2018). This opens up the possibility of giving contextual sense to the gathering of emotional information of the individuals.

Different approaches to the measurement of emotions

Traditionally, the analysis of emotions in the tourism ambit has been approached from diverse perspectives. Similarly, the information gathering instruments have been various, although the utilisation of post-experience subjective self-report questionnaires is still the most preeminent trend among researchers (Li, Scott and Walters, 2015). As mentioned before, the measurement of the emotional situation after the finalisation of the experience entails a potential recall bias, since most recent episodes and the so-called autobiographical memory tend to modulate the perception of individuals influencing the obtained overview of the global phenomenon (Brunner-Sperdin, Peters and Strobl, 2012; Wilhelm and Grossman,

2010). Similarly, the static momentary vision provided by questionnaires is questioned due to the mentioned volatility of the emotional episodes and the high influence of external stimuli on their fluctuations (Alcoba *et al.*, 2016; Kim and Fesenmaier, 2017; Wilhelm and Grossman, 2010). In other words, self-report techniques do not reflect the potential micro-fluctuations that contextual changes can cause in the emotional situations of individuals.

In this sense, continuous real time measurement techniques are gaining importance in recent times, supported by the increasing degree of penetration of tracking technologies in daily life technologies (Shoval, Schvimer and Tamir, 2018). Data gathered via tracking technologies reflect time and space variables that can be translated into contextual information due to their presence in realistic out of controlled laboratory environments (Kim and Fesenmaier, 2017; Shoval, Schvimer and Tamir, 2018; Wilhelm and Grossman, 2010). This fact, conversely, entails the difficulty of a lower degree of control over the circumstances in which the recollection of data takes place (Wilhelm and Grossman, 2010). However, as mentioned, this temporally and spatially contextualised data gathering trend to identify emotional fluctuations of tourists at the interaction with different points of contact or episodes of the tourism experience is gaining ground in current researches.

Similarly, apart from the verbal methods used to collect information on self-reports, during recent times the proliferation of sensors and wearables that gather neurophysiological information of the analysed subject has become evident. Many of these continuous measurement devices depend on the arousal level of the individuals, based on the electrodermal activity of the subjects (Shoval, Schvimer and Tamir, 2018). These devices allow measuring the arousal level of users in a less intrusive way, with minimal interference in the tourism experience. Consequently, they can be considered optimal tools to be implemented in the framework of religious tourism and pilgrimage, since the spiritual and ritual experience they pursue (Nyaupane, Timothy and Poudel, 2015) does not match with constant interruptions to measure the emotional situation of the analysed subject. While verbal methods require an active participation of the individual, physiological ones collect the information in less intrusive ways (Desmet, 2005). Thus, the continuous information gathering sensors and devices fit better than verbal methods when analysing the emotional experience of pilgrims and religious tourists, because

they do not interrupt any spiritual or religious fervour process and let the episodes of the experience flow without any disruption.

However, results from both approaches can be combined with temporal and spatial information collected by means of tracking technologies. This incorporation of contextual information to the emotional situation of the analysed subject is vital to understand the potential fluctuations during interaction with places throughout the whole religious or pilgrimage experience. This way, emotional experiences are linked to specific places and moments, giving a more accurate overview of the experience and allowing comparative analyses of different contexts.

Therefore, in line with this approach, this paper presents the design and implementation of an emotional measurement system that combines both verbal and non-verbal methods, as well as tracking technologies to obtain an emotional picture of the landscape of Jerusalem, one of the epitomes of religious destinations.

Description of the emotional measurement system and the measurement scenario

The approach to meet the aforementioned objective has been the design and development of a holistic measurement system that locates the diverse emotional episodes gathered via verbal and non-verbal methods in relation to spatial and temporal parameters. Since this was a first deployment of the system, it was tested on a single-case basis. Therefore, results are not very representative, but depict an initial step in the process of portraying the emotional landscape of any tourism destination. Consequently, results should be interpreted cautiously and no extrapolation should be done based on this first-off test.

The spatial and temporal location of the individual during each measurement was performed using a GPS receiver and data logger from the company Holux. This device recorded the position and timestamp of the subject every 30 seconds. Consequently, these data allowed delimitation of the mobility pattern of the user, identifying the different points of contact of the global experience.

As mentioned, the emotional measurement has been twofold. On the one hand, the verbal measurement method is based on the dimensional approach to emotions, represented by the PAD approach (Russell, 1980). This model measures three concepts, namely,

a) *pleasure*, identifying the degree of perceived delightfulness; b) *arousal*, identifying the activation level perceived by the analysed subject; and c) *dominance*, identifying the perceived degree of freedom experienced by the individual. The intensity of each one of these three dimensions was measured in a zero to ten scale, the lowest values representing the lowest intensity and the higher ones the most intense presence. This measurement was performed using a mobile application developed by CICTourGUNE – Competence Research Centre in Tourism and called *Emocionómetro*. The application was launched every 30 minutes asking the user to identify the intensity of every dimension, appearing on the first screen of their mobile phone until the subject answered each one of them. Therefore, this part of the system identified the emotional situation of the individual making extensive use of the verbal methods represented by the dimensional approach of the PAD model.

On the other hand, the non-verbal measurement was undertaken using a wearable sensor from the company Empatica, worn on the wrist of the analysed subject. The gathered data represents the levels of electrodermal activity of the user recorded every eighth part of a second by the sensor. Electrodermal activity is linked to the arousal level of the user, indicating the degree of activation of the individual. The measurement of the arousal level was expressed in microsiemens (μs) and later translated into skin conductance terms. Due to the cadence of the recollection of data, this measurement recorded the highest volume of results of the whole system. Each registry was timestamped by the wearable sensor itself.

A harmonisation process of all these data was performed to be able to generate the spatial and temporal cartography of the pilgrimage experience of the analysed subject. In fact, all the data obtained in both emotional measurement approaches were combined together with the geolocation information of the data logger. The different cadence of records has forced numerous electrodermal measurement to be discarded because it was impossible to match them with spatial information in order to geolocate physiological data. After this first homogenisation process, results from the verbal method were added to the closest timestamped registries. Once the whole process was completed, an analysis was performed displaying the complete emotional cartography of the selected measurement environment. Additionally, once the trip was over, the participant was asked to provide a brief recall account on the whole experience to obtain broader contextual information.

After setting up the whole emotional measurement system, a field-test was designed. Since it responded to its first fully operative implementation of the holistic system in a real life environment, one of the main aims was to ensure the quality of the obtained data and, therefore, a single participant was asked to utilise it. The selection was done from a pool of varied volunteers. The holiday destinations of these volunteers, as well as their travelling motivations were diverse. The selected case was the one fitting the purpose of the research best, since it combined both a religious destination with religious motivations. In a previous account, the selected volunteer declared that the main aim of the trip was to visit the places of the Passion and Crucifixion of Jesus according to the New Testament. Consequently, reflecting the Catholic beliefs of the volunteer, the main motivation of the trip was pilgrimage to sacred places of Christianity. Moreover, the volunteer asserted that the coincidence of his age with the traditional age of decease of Jesus was an important fact to decide on the destination for Easter holidays. Thus, the participant was a Catholic Christian 33-year-old male travelling to Jerusalem with pilgrimage motivations. Although the participant also travelled to other places of the Holy Land, the repetition of visits to some places only took place in Jerusalem. Consequently, in order to discern whether different contexts influence the emotional experience of the same religious places, this paper will present results obtained during the measurements performed in Jerusalem. All data were recorded during Easter holidays in 2015.

The whole process allowed identifying the emotional situation and potential fluctuations of the analysed subject in different contexts. This geolocation and timestamped information has been the basis for creating an emotional cartography of Jerusalem during a pilgrimage experience.

Results of the experiment

Once the pilgrimage was finished and data harmonised into a single document, a statistical process was performed using IBM SPSS Statistics 24.0 and the

geolocation of the respective points using QGIS Desktop 3.0.2. Following this, results from the verbal method and the non-verbal one are presented, to conclude with a comparison of both. The combination of all this information will result in a comprehensive emotional cartography of Jerusalem during Easter holidays for the selected analysed subject. As mentioned before, results should be understood in relation to the selected subject with no further extrapolation.

Results of the verbal measurement method

As aforementioned, the verbal method of measurement was based on the dimensional conception of the emotions and, more specifically, on the PAD model. According to this model, emotions can be identified by asking individuals to place themselves on a zero-to-ten scale for the pleasure, arousal and dominance dimensions.

The analysis of the data from this measurement shows that the experience was mainly highly rated by the individual in the three dimensions. Therefore, the subjective valuation of the experience by the analysed individual was overwhelmingly positive in terms of pleasure, arousal and dominance. In fact, the statistical analysis of each of the dimensions shows high mean values for all of them.

Taking the experience as a whole, arousal was the dimension with the highest score, since it scored a mean value of 9.14 and the standard deviation only 1.000, identifying it as the most stable dimension. On the contrary, the lowest mean value, as well as the highest standard deviation, were obtained from the dominance dimension scoring, respectively, 7.65 and 2.008.

Analysing only the measurements performed when in an area of religious significance, results vary slightly. The system triggered the measuring application in the Tomb of Lazarus in the adjacent village of Bethany, in the Church of Dominus Fleuit, in the Mount of Olives, in Gethsemane and in the Church of the Holy

Table 1 - Mean and standard deviation values of the dimensions measured with the verbal method

	General experience		Location of religious significance	
	Mean value	Standard deviation	Mean value	Standard deviation
Pleasure	8.33	1.705	8.91	1.221
Arousal	9.14	1.000	9.45	.522
Dominance	7.65	2.008	8.55	.820

Source: Authors' own elaboration

Sepulchre in the Old Town of Jerusalem. In general, mean values are higher than the ones related to the global experience. In fact, arousal scored 9.45, pleasure 8.91 and dominance 8.55 as mean values. Attending to the standard deviations, conversely, values decrease quite significantly, scoring 1.221 for pleasure, .820 for dominance and .522 for arousal.

Therefore, results in both analyses indicate that the subjective perception of the user was highly arousing, pleasurable and with a significantly high level of dominance. All these three dimensions, however, score higher values related to the perceived subjective experience when the analysis is limited to locations with religious significance. Consequently, measurements performed by verbal methods highlight a difference between generic places and religion-related ones within the pilgrimage experience of this individual.

Results of the physiological measurement method

As aforementioned, the other part of the system was based on the non-verbal measurement performed using a wearable wristband sensor. This device detected the skin conductance, which is translated into the electrodermal activity responding to the sympathetic nervous system of the analysed individual. Therefore, skin conductance is considered as an indicator of the arousal level of the subject. Each measurement registry was timestamped, allowing its later geo-location together with the information obtained from the data logger.

Following the calibration of the system, measurements of the first fifteen minutes of each day were not taken into account. Apart from this daily calibration, a harmonisation process was performed once the whole experience was completed. During this process, for a more accurate comparison of the levels of arousal of the individual, an average value of the skin conductance was calculated for the experience. This value has been considered the baseline to identify the placement of any measurement during the trip. The position of each point in the arousal scale was determined by the proportion of the scored value respecting the baseline and given in percentage values. The geolocation of these measurements was displayed in a greyscale, the lightest ones being values below the baseline. Similarly, the darker the colour of the point, the higher the percentage over the baseline it represented.

As explained before, the measurements were performed during Easter holidays in Jerusalem. The geolocation and timestamp of the different registries allowed the identification of the emotional experience from different perspectives. First, an analysis of the whole city of Jerusalem was performed to explore the complete emotional cartography during the period of research.

As can be seen (Figure 2), results show different arousal levels of the user throughout the whole experience. However, at a first glance, the darker colour of the representation of the points indicate that the overall experience was highly arousing in physiological terms.

Analysing the experience from a temporal differentiation perspective, two main findings can be highlighted. On the one hand, the mobility of the subject presents diverse patterns depending on the analysed day and the events related to the specific moment. On the other, there are obvious differences regarding the arousal level of the individual.

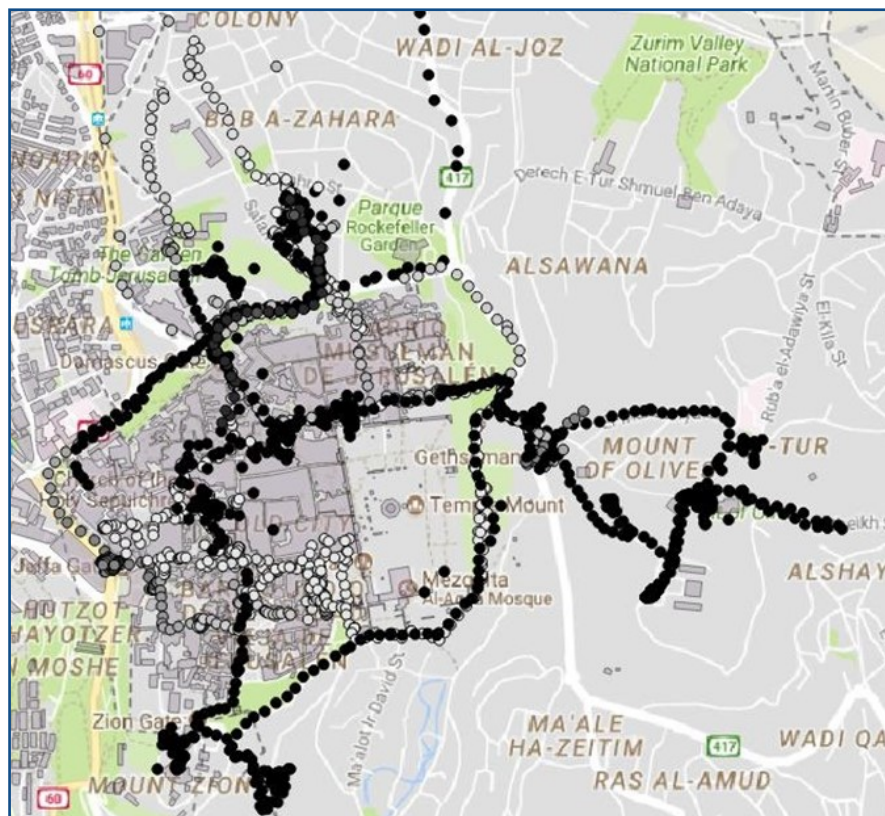
The analysis has been decomposed into three analytical units corresponding to the three days of the experience. Namely: Holy Wednesday and the guided tour through the Old City of Jerusalem (Figure 3); Maundy Thursday and the visit to the Mount of Olives and locations related to the arrest of Jesus (Figure 4), and; Good Friday and the visit to the locations of the Passion and Crucifixion (Figure 5).

According to religious tradition, the events recalled during Easter took place in different locations of

Figure 1 : Values and legend of the emotional cartography

Symbol	Values	Legend
○	-1000.00 - -100.00	< -100
○	-100.00 - -90.00	-100 - -90
○	-90.00 - -75.00	-90 - -75
○	-75.00 - -50.00	-75 - -50
○	-50.00 - -25.00	-50 - -25
○	-25.00 - -10.00	-25 - -10
○	-10.00 - 0.00	-10 - 0
○	0.00 - 10.00	0 - 10
●	10.00 - 25.00	10 - 25
●	25.00 - 50.00	25 - 50
●	50.00 - 75.00	50 - 75
●	75.00 - 90.00	75 - 90
●	90.00 - 100.00	90 - 100
●	100.00 - 3192.00	>100

Figure 2 : Emotional cartography of Jerusalem during Easter 2015.



Source: own elaboration

Jerusalem in a chronological sequence. Therefore, looking at the mobility pattern of the analysed individual, they mainly followed, as expected due to the pilgrimage motivation of the experience, the logic of the Biblical account.

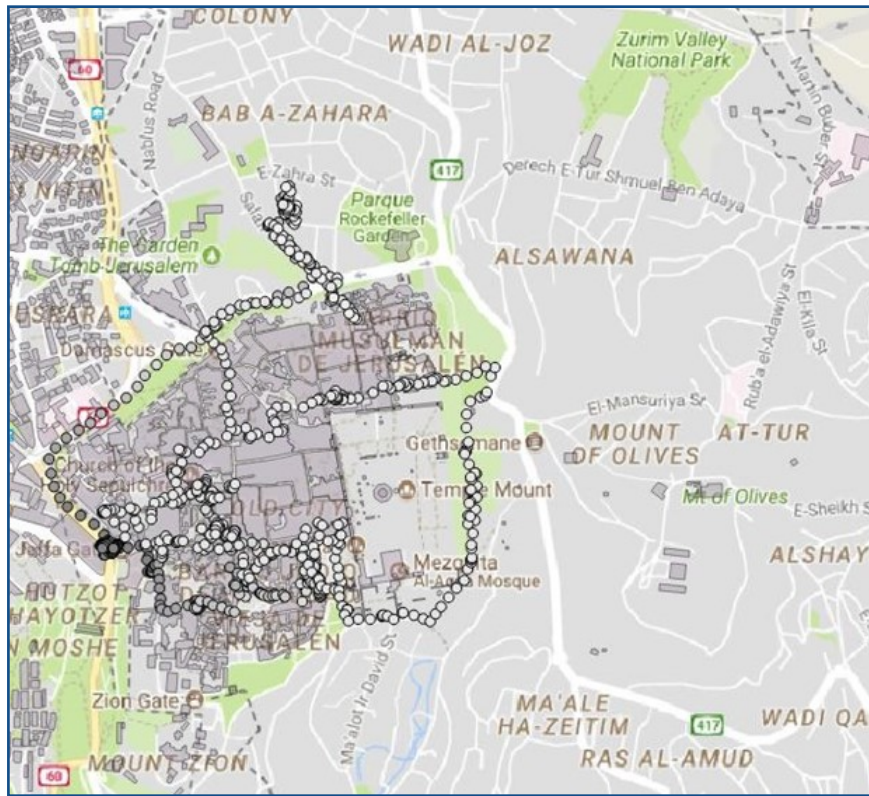
Analysing the arousal levels of the subject, similarly, there are some evident differences. The general overview of each day highlights that arousal levels were higher during Maundy Thursday and Good Friday than during Holy Wednesday. The first two, as aforementioned, present a pattern that coincides with the Biblical account, while during Holy Wednesday, according to the post-experience account, the individual took part in a generic guided tour and afterwards wandered through the Old City.

However, even within the temporal delimitation of a day, some arousal differences can be identified. Holy Wednesday shows a more homogeneous arousal level of the individual with some higher records around Jaffa Gate, while Maundy Thursday and Good Friday generally display a more highly arousing pattern, with some spots of registries with values below the mean - around north-eastern corner and the outside area north

of the Old City respectively. Consequently, no difference on the physiological arousal level can be attributed solely to different days.

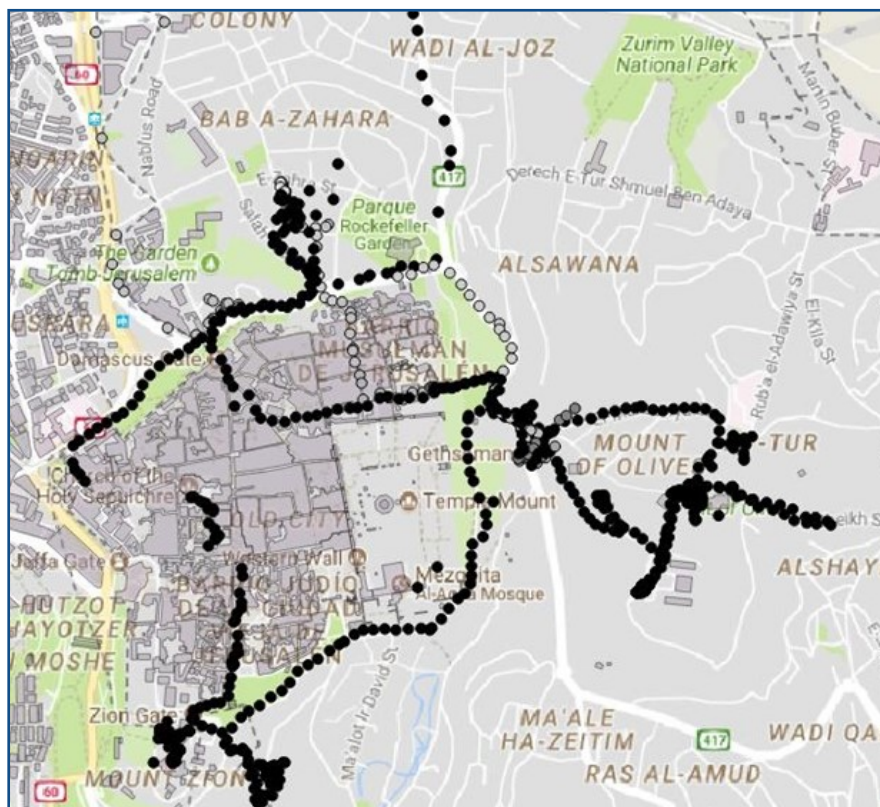
In addition to the general analysis of the emotional experience in Jerusalem, another more specific one has been undertaken in relation to some particular places of the city. Thus, a comparison of some locations of Christian significance with other more generic ones has been completed, to understand potential differences related to the characteristics of the places themselves. For this analysis, registries associated to diverse locations and representing different days of the experience have been selected to ensure the representativeness of the results in this context. The locations selected are, in chronological order, the Western Wall in the Old City (Figure 6), Lazarus Tomb in the vicinity of Bethany (Figure 7), the Mount of Olives (Figure 8), the Church of Saint Peter in Gallicantu (Figure 9), the Tomb of the Kings (Figure 10) and the Garden Tomb (Figure 11). Some of these places are directly linked to the Catholic tradition of Easter, while others are less present in that Biblical account.

Figure 3 : Emotional cartography of Jerusalem during Holy Wednesday.

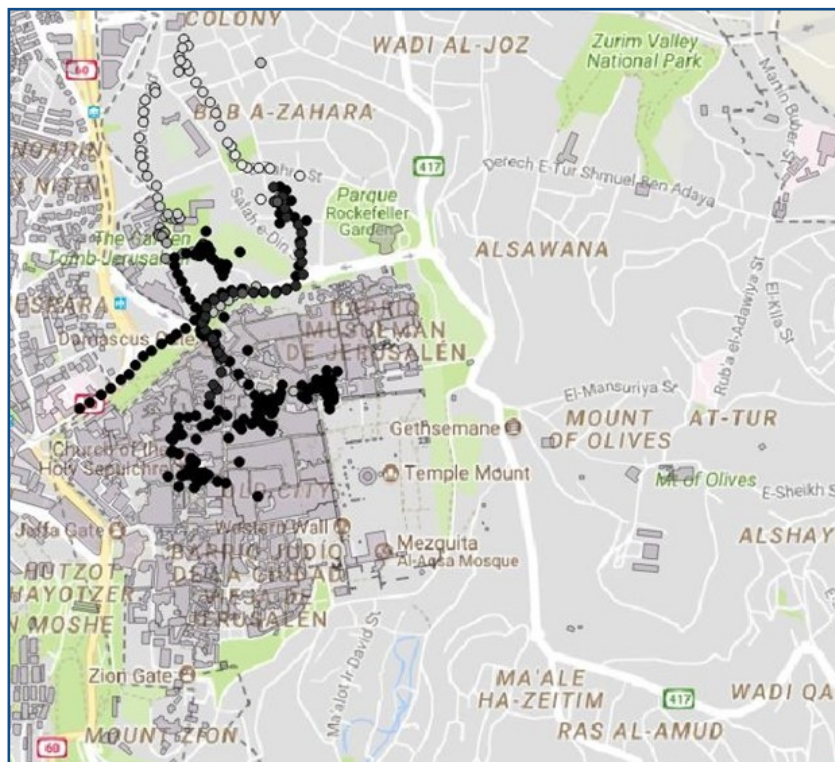


Source: own elaboration

Figure 4 : Emotional cartography of Jerusalem during Maundy Thursday.



Source: own elaboration

Figure 5 : Emotional cartography of Jerusalem during Good Friday.

Source: own elaboration

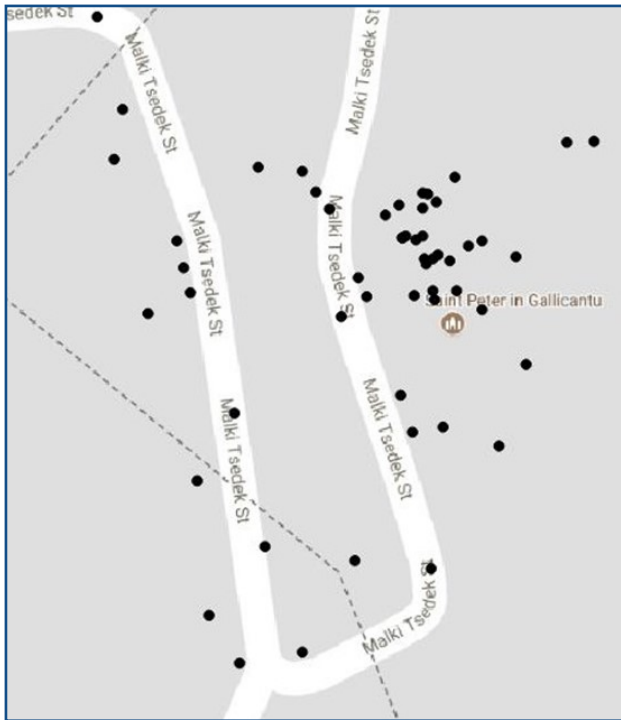
Results of the physiological arousal of the individual seem to reflect this fact, because more generic locations, such as the Western Wall and the Tomb of the Kings, display lower arousal values than the overall experience. On the contrary, locations identified with places specifically mentioned in the Biblical account during the Passion of Christ were highly arousing for the analysed subject. In this sense, Lazarus Tomb, the descent of the Mount of Olives and the Church of Saint Peter in Gallicantu were really high above the overall arousal level of the experience. A singular case was the one of the Garden Tomb, since it is not related to the Catholic tradition, but more directly to the Evangelical Anglican and Protestants one. Results show that the individual approached the location with an arousal level slightly over the mean, but, during the visit to the place, it increased significantly. According to the post-experience account of the subject, although it was not identified as the burial place of Christ, the location depicted the archetypical image described in the Bible and unconsciously boosted a feeling of inner peacefulness. Therefore, the analysed subject stated that their perception was transformed from that of a generic tourist place into a religiously significant one during the visit. This process of meaning transformation seems to be also reflected in the physiological arousal level of the individual.

Thus, the registries of the different measurements display a divergence in the arousal levels of the pilgrim according to the generic or more religious characteristics of the location in which they took place.

Finally, a separate analysis has been performed with the locations that were visited at least twice during the whole trip. According to the account of the analysed subject, these places were visited in different contexts.

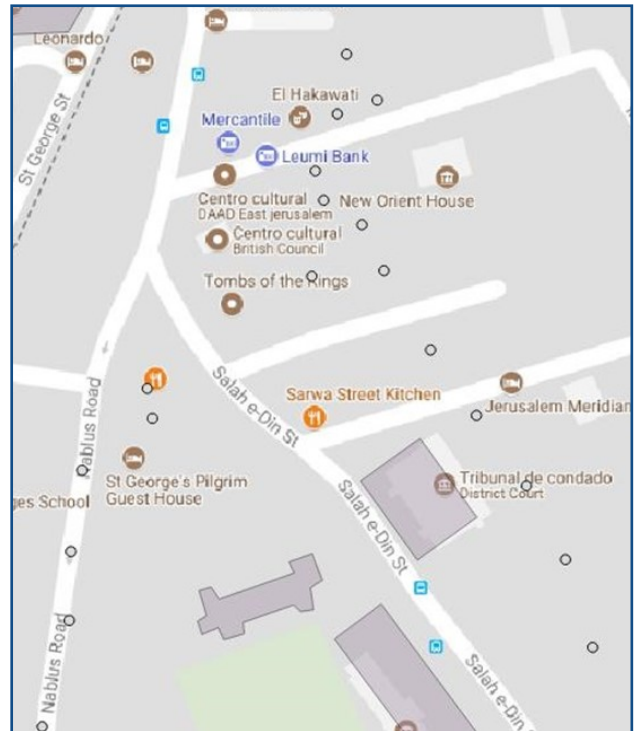
Chronologically speaking, the Kidron Valley outside the walls of the Old City was the first place to be visited more than once. The first visit took place during Holy Weekend, when no specific religious event is associated with the location. The second visit, conversely, happened during the second part of the day on Maundy Thursday when the Biblical account reports that Jesus was arrested in Gethsemane and lead to court using that valley. Therefore, during the first visit the location had no attached religious context, while during the second one it was associated with a specific Biblical event. The graphical representation of the measurements related to both visits (Figure 12) displays differences also in terms of physiological arousal. Whilst the first visit can be ranked among the events with an arousal level below the average of the experience, the second one recorded levels high above

Figure 9 : Arousal level of Saint Peter in Gallicantu.



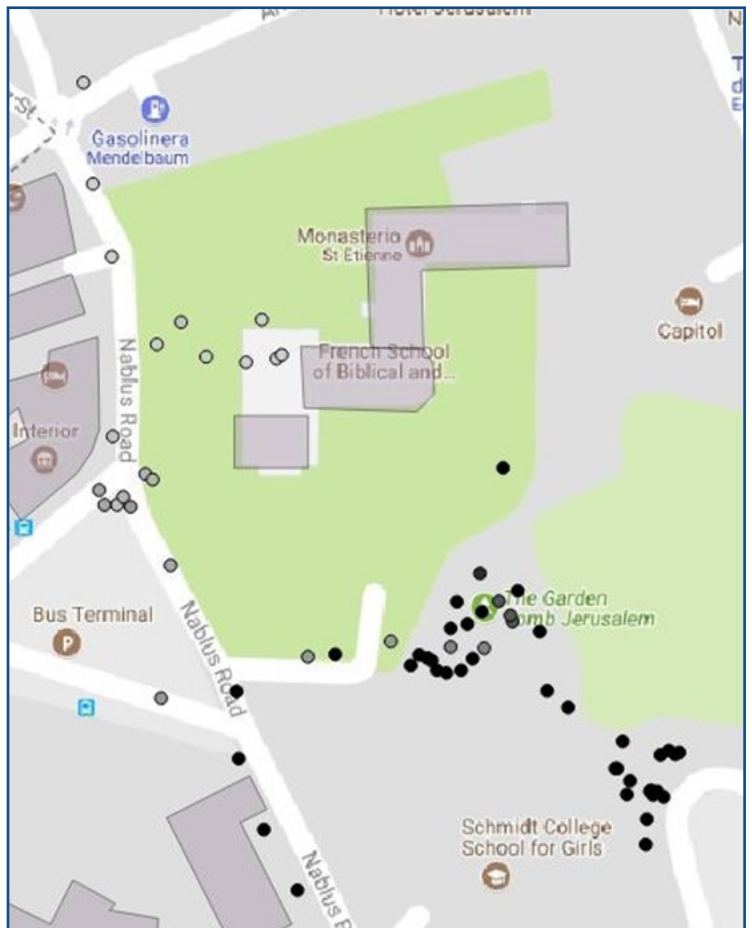
Source: own elaboration

Figure 10 : Arousal level of the Tomb of the Kings.

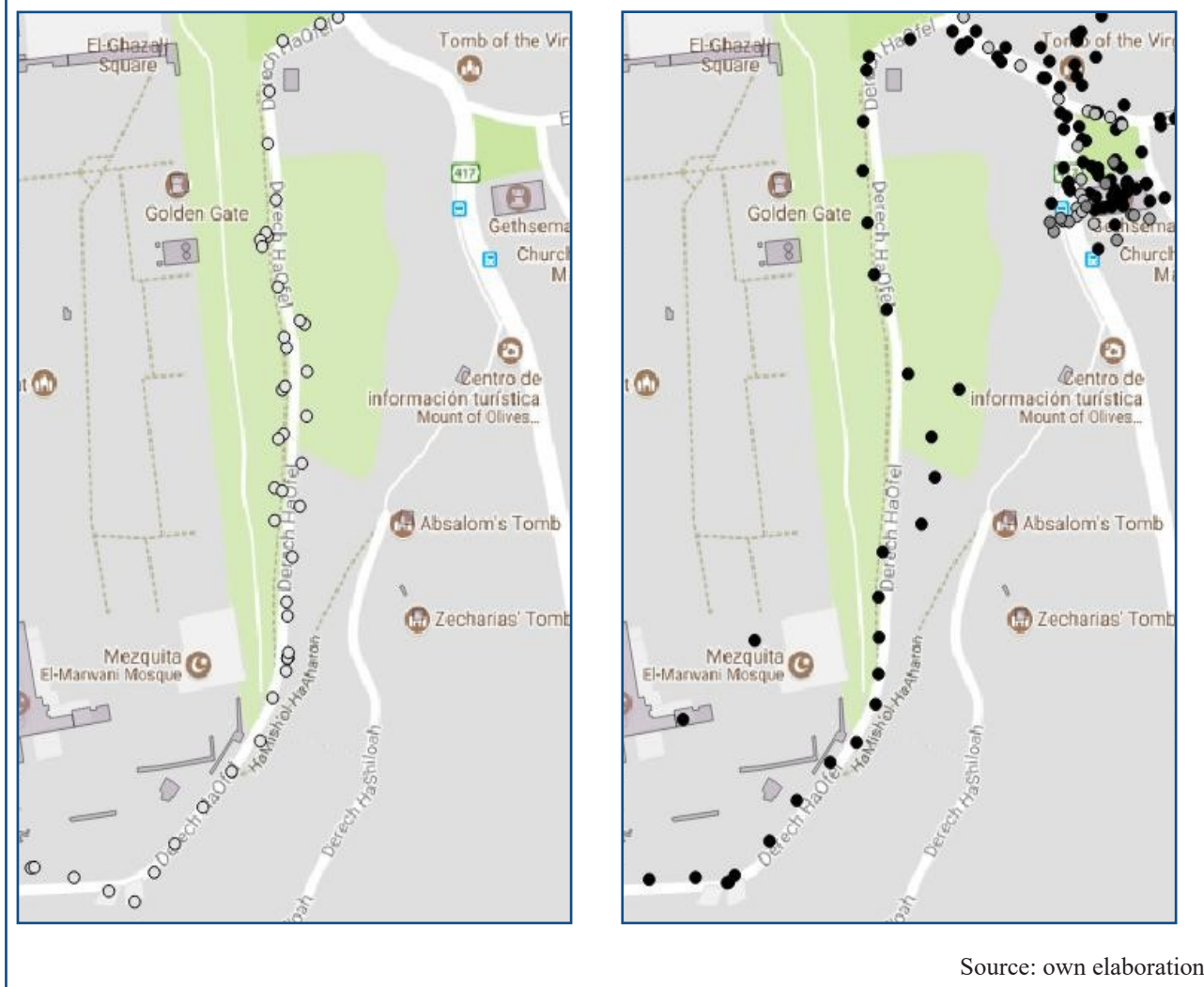


Source: own elaboration

Figure 11 : Arousal level of the Garden Tomb.



Source: own elaboration

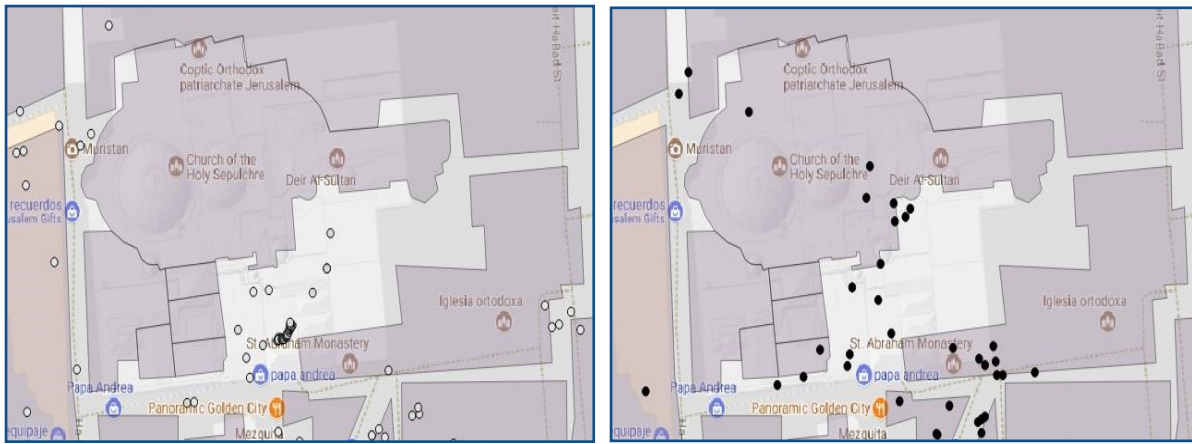
Figure 12 : Arousal level of Kidron Valley during the first (left) and the second visit (right).

it. Thus, the visit when the location had a more direct link with the Biblical account was highly arousing for the analysed subject contrarily to the one with more generic significance.

Regarding the Holy Sepulchre, the values of the registries repeat the recently explained pattern (Figure 13). The first visit took place during the more generic tour through the Old City of Jerusalem, while the second one occurred during Good Friday, just at the end of the procession. Logically, the religious significance of the second visit was significantly higher than the previous one. Similar to what happened with Kidron Valley, that second visit scored significantly higher physiological arousal levels than the other one. Therefore, also in this case the more evident religious significance of the place was linked to a higher engagement degree of the individual by means of physiological arousal.

The analysis of Via Dolorosa has been performed following the same logic of the previous ones, but there is a slight difference when representing the obtained results. In fact, after an initial approach to the results, the analysis shows that there were three different patterns in only two visits to Via Dolorosa. Hence, the graphical depiction has been split into three, representing the first visit during the generic tour on Holy Wednesday, the arrival to the procession on Good Friday, and the procession itself during that day (Figure 14). As results display, the first visit presented arousal levels below the average according to the registries. During the arrival to the procession, the location slowly increased the arousal level of the individual, probably reflecting the increasing religious significance that the place was gaining. That is, as the initial moment of the procession in Via Dolorosa was approaching, registries show a progressive increase on the arousal levels of the analysed subject. Finally, with the beginning of the procession, values score rise

Figure 13 : Arousal level of the Church of the Holy Sepulchre during the first (left) and the second visit (right).

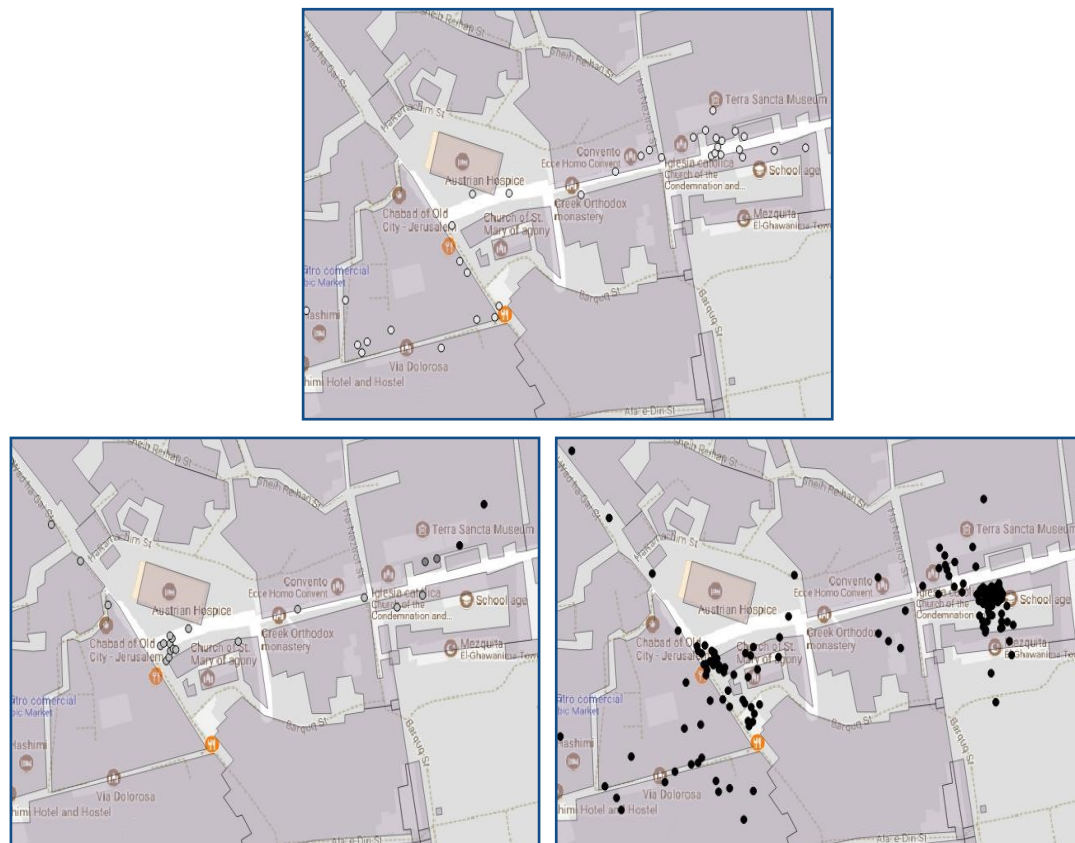


Source: own elaboration

significantly over the average and are recorded as among the highest ones of the whole experience. Consequently, this individualised analysis of Via Dolorosa suggests that, at least in this case, the religious significance of the location was linked to the arousal levels of the subject.

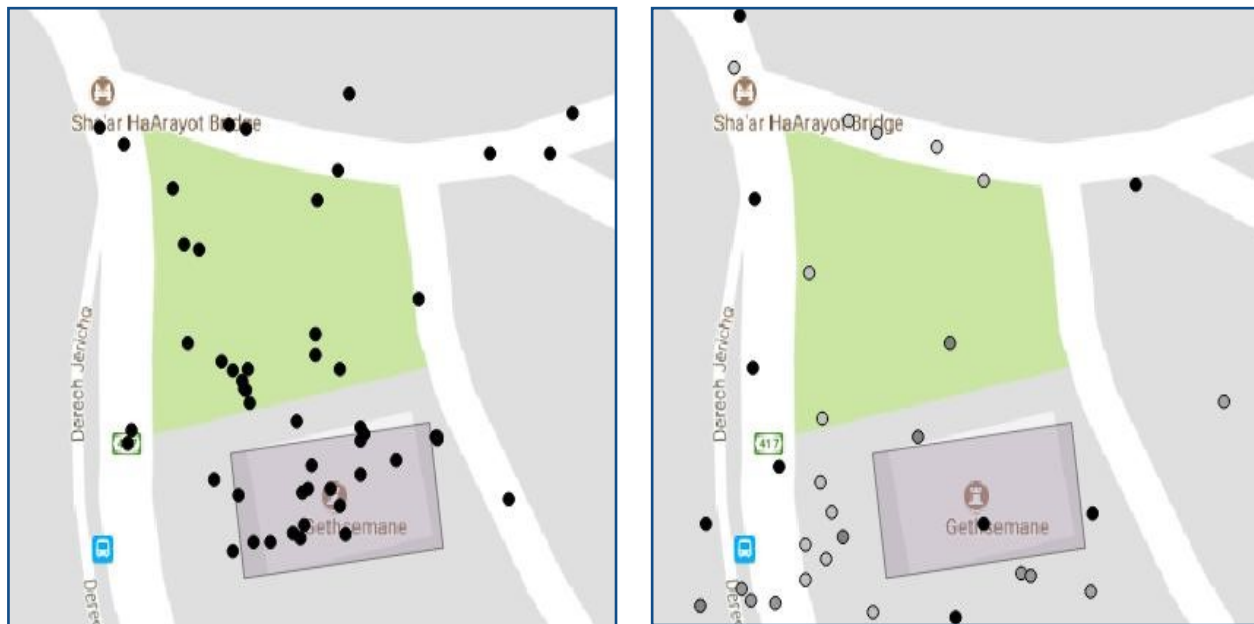
Finally, the analysis regarding Gethsemane, conversely, shows a different pattern compared to the other ones (Figure 15). In fact, the first visit was one of the most arousing ones of the whole experience. In this case, both visits took place during the same day with a separation of only a few hours. According to the account of the individual, the first visit happened just

Figure 14 : Arousal level in Via Dolorosa during the generic tour (top), the arrival to the procession (bottom left) and the procession (bottom right).



Source: own elaboration

Figure15 : Arousal level in Gethsemane during the individual descent of the Mount of Olives (left) and the Holy Mass (right).



Source: own elaboration

after the subject completed the descent of the Mount of Olives following the Biblical narration. As for the other visit, it occurred during the celebration of evening Holy Mass on Good Friday. If the logic of the other cases was to apply, arousal levels should be higher during the second visit. Results, however, display a contrary trend, since, although in both cases the values are high over the average, the first visit scored the highest ones. The explanation of this fact resides in the post-experience account of the individual. According to their description, the descent of the Mount of Olives was done alone, and reinforced an inner reflection process linked to the pilgrimage. This way, the visit to Gethsemane was considered by the individual as one of the pinnacles of the whole experience. The Holy Mass, on the contrary, was overcrowded and the logistics to broadcast the event made it more impersonal. Therefore, the engagement of the subject, represented by the physiological arousal level, was lower than in the previous visit. This interpretation has been done based on the report of the subject and supported by the results of the physiological measurements.

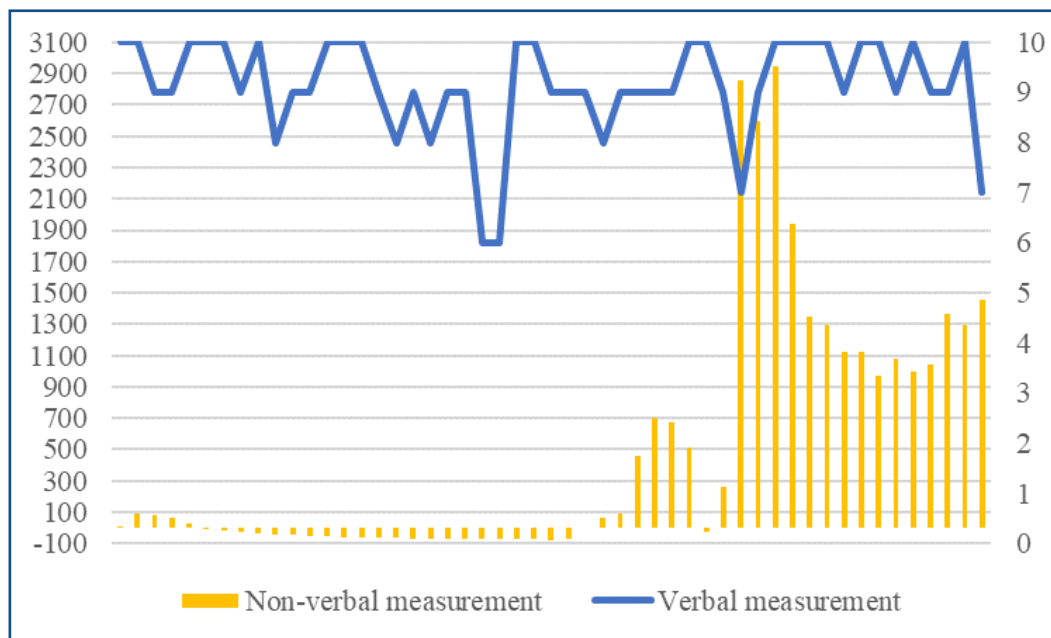
Thus, within a generic context of highly arousing non-verbal physiological measurements, results in all the differentiated analyses underpin that higher arousal levels were obtained in contexts where religious significance and relation to the pilgrimage motivation of the subject were higher.

Comparison of verbal and non-verbal results

To conclude the analytical part of the research, a comparison between the two measurement methods has been performed. Both of them recorded different arousal parameters of the individual, allowing, consequently, the comparison of results during the moments in which both methods were triggered practically simultaneously. Since the other parameters of the verbal method were not contemplated in the physiological one, the comparison has to be limited to the arousal measurements. Due to the cadence of the registries, many physiological records have been disregarded for this stage, analysing the fifty-one that include both verbal and non-verbal results. To make the comparison easier, values from both methods have been combined into a single graphic.

Analysing the results (Figure 16), one of the main findings is that both methods display visible differences regarding the recorded values. In fact, the physiological arousal measuring method registered significantly higher values towards the end of the experience, while the verbal one display a less defined pattern.

Equally, measurements at the same points also did not record similar values. Actually, two of the lowest verbal measuring arousal values coincide with some of the highest physiological arousal measuring ones.

Figure16 : Comparison of the verbal and non-verbal measurement results.

Source: own elaboration

Similarly, some of the lowest non-verbal measurements happened synchronously with other highest verbal ones.

Therefore, differences between results from both methods are evident, suggesting the non-existence of a corresponding pattern. It has to be taken into account that verbal results are always expressed after a cognitive process by the individual, in which sensations are transformed into perceptions, adapting the physiological objective responses to the pre-existing background that might result into more lasting memories.

Conclusions and further implications

If tourism is highly based on sensations and emotional situations of the individuals, this fact is even more important from the perspective of religious tourism and pilgrimage, since these activities are founded on the fulfilment of expectations for inner experiences and feelings of peacefulness and happiness. Consequently, the identification of emotional situations generated by locations within this framework has become significantly important.

Results presented in this paper reflect the first fully operative test of a holistic system of emotional measurement performed during Easter 2015 in Jerusalem. In order to better understand the emotional

experience of the selected participant, who stated pilgrimage motivations for the trip, the system registered results from both verbal and non-verbal measurement methods. Being a first test out of the laboratory, according to the obtained results, the system proved its suitability and validity to reach the abovementioned objective. However, no extrapolation of the results should be done, because, as a first out of the laboratory test, their representativeness is limited to the analysed single case.

Combining the results of the measurement with timestamp and geolocation information, the analysis has been able to identify and represent an emotional cartography of Jerusalem during the pilgrimage experience of the analysed subject. To better adjust results to the reality of the trip, the participant was asked to provide a brief post-experience account. This report has been later utilised to enrich results giving them some contextual information. The most visible result of this whole process has been the creation of an emotional cartography of the epitomic religious destination during Easter holidays.

Attending to the results, the research has identified that the emotional experience of the user varied according to some external influences. In this sense, the analysis of the registries from the measurements allows the identification of at least three influential factors for the pilgrimage experience.

- Religious and pilgrimage emotional experiences present content related differences. In fact, analysed results suggest that locations not presenting an evident relation to the Biblical account of the passion and crucifixion evoked lesser engaging responses. In other words, locations such as the Western Wall or the Tomb of the Kings were less arousing for the analysed subject than other ones such as Lazarus' Tomb, the Mount of Olives or Saint Peter in Gallicantu, among others. Consequently, findings suggest that content associated with locations influences the emotional responses of individuals.
- Religious and pilgrimage emotional experiences present context related differences. Based on obtained results, the same locations elicited different emotional experiences depending on the contextual information of the measurement moment. In fact, registries displayed diverse emotional situations of the analysed individual linked to whether the location in which they were recorded presented content related to the day of the measurement. In other words, some locations provoked different arousal levels depending on the temporal coincidence with the Biblical account. This way, Kidron Valley or the Church of the Holy Sepulchre registered different arousal levels during the days that the Bible reported any event happening there. Even Via Dolorosa displayed an evolution of emotional experience, depending on the proximity of the procession. Consequently, findings suggest that the context of Biblical passages associated with time and space parameters influences the emotional responses of individuals.
- Situations directly answering to the motivation of the individual elicit more arousing emotional situations. The participant reported pilgrimage motivations for the trip and events related to that fact are related to higher arousal levels. In fact, Lazarus' Tomb, the descent of the Mount of Olives, the inner experience in Gethsemane, the procession of Good Friday, the Church of the Holy Sepulchre and the Garden Tomb registered the highest values of the experience. Consequently, findings suggest that the link of events to the motivations of the trip influence the emotional responses of individuals.

Accordingly, the emotional cartography of Jerusalem performed by the research has verified the existence of some influential parameters. This fact could help to better manage religious tourism and pilgrimage experiences.

Although the described experience was a first fully operative test, further implementations are required. The sample of this research consisted of a single case and, therefore, the current sample should be expanded to generate some more generic inferences. One of the most evident extensions would be an increase in the number of participants, adding more participants with similar or different profiles. This way, findings could be generalised in relation to the emotional cartography of Jerusalem.

Similarly, measurements should be performed in other locations in order to be able to compare results from different places in religious tourism and pilgrimage terms. In this sense, findings from different locations could be compared and general conclusions highlighted.

Finally, the sample could be extended with participants belonging either to other Christian denominations or to other religions. Jerusalem is a sacred city for the three monotheist religions and the measurement of diverse individuals belonging to them could create a multi-religious emotional cartography of the city. Hence, different emotional experiences linked to places specific to some religions could be identified and help for a better management of them in an intercultural environment.

To sum up, this paper presents results obtained during a first fully operative test of a holistic, emotional measuring system, to create an emotional cartography of Jerusalem during a pilgrimage experience during Easter 2015. The cartography of the emotional situations of the participant demonstrates the influence of the religious context in the whole experience, opening up great possibilities for further application in the future.

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