

Utilizing and Evaluating of Virtual Tours in Art Exhibition Amidst Global Pandemic

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ABSTRACT

Covid-19 has sojourned the world as we know then into a cessation. It affects various disciplinary fields to a standstill which includes art and tourism. In Malaysia, to adapt to the global pandemic; new opportunities have emerged and dealt with it no longer becomes optional but rather a solution. Therefore, this research is mainly focused on implementing virtual tours to cope with the new norms; and evaluates its implication specifically in showcasing art exhibitions. The researcher uses the concept of Google Street View to capture virtual spaces; combining with Pano2Vr software as constructing tools; for audiences to interact and discusses its usefulness based on their ease of accessibility. Through the usage of this software, the researcher was able to reconstruct the actual gallery into series of interconnected images that trajectories within a web hosting server which are accessible over various platforms. The researcher purposely uses 360 panoramic images to maintain the ingenuity and actuality of the exhibition surroundings; due to most audiences are more complacent to the practicality compared to 3D digital replication. The advantages and disadvantages of this particular application of Virtual Tours (VTs) are then assessed through data collected based on the accessed devices, accessed locations, and total participation to see whether this concept can be used as a new alternative tool in showcasing art exhibitions in the effort of avoiding the pandemic widespread while still keeping the art activity at a sensible pace.

Keywords: *Virtual Tours, Art Exhibition, Pandemic*

INTRODUCTION

Art Exhibition, a rather familiar word to most local art enthusiasts, artists, and art collectors; known as a stage for displaying visual creativity through a wide range of ideas and implementations. It has become a norm of attraction, especially to those who appreciate it. Amidst the global pandemic of Covid-19 that spreads within our country; the government implements restrictions, lockdowns, and closure of borders (Osman & Heba, 2021). Hence, utilizing it physically has proven to be a challenge. As the world strives to find a cure, new

opportunities emerge; the opportunity to assimilate with changes without abandoning the usual practices. Thus, this research purposely tries to implement that opportunity in the form of Virtual Tours; as a means to substitute the physicality into virtuality that allows audiences to experience the gallery in the safety of their own home. Derived from Virtual Reality (VR), Virtual Tours (VTs) are by no means new to the world. The term has been coined back in 1994 from a 3-Dimensional 'walk-through' reconstruction of Dudley Castle of England as it was in 1550 (Lukesh, 1995). Tejal and Pharande (2019) state that the concept of touring in virtual spaces has already expanded as a marketing tool; shown in the Real Estate field through the usage of in-house technology presentation of selected properties as early as 2017. In general, VTs are defined as the reproduction of existing sites through composing videos or sequences of still images. This shows that VRs and VTs are long-existent before the pandemic, but their purpose is questionable especially in art showcases; due to audiences are much fond of being in the actual art spaces. The idea is to bring that environment into an interactive platform; a platform that allows anyone to engage at any time from anywhere.

Henceforth, utilizing the concept of Virtual Tours in a small-scale space is achievable, and it would be a waste if it is not been introduced to audiences. Referring to the current situation, its function without a doubt can ancillary the system that we used to know. The concept is applied in an actual Art Exhibition; a Solo Exhibition by Rozarina Johari entitled '(+)mind.time.lines' organized by Galeri Al Biruni, UiTM Perak, Kampus Seri Iskandar. This exhibition is the most appropriate route as it checks all the criteria in applying this concept; by introducing an indoor version of virtual tours that can suffice the intention of the actual art exhibition pragmatism.

LITERATURE REVIEW

Though the idea of virtual tours has taken the world by storm and has found its place among the trends amidst the pandemic; the market has already become packed and saturated. There are so many ways to utilize it in full-fledged. This research is to organize a combination of tools, software, and platforms suitable for making Virtual Tours specifically for Art exhibitions through 'Capture' and 'Construct'. The author hopes that through using these amalgamations of tools, new information; if not new gaps can be put into the limelight and the possibility of improvements can be made in the future.

Capture

To create images that can bring about the actual surroundings into a virtual world requires a tool that is capable of doing such a task. According to Wu et al. (2005), creating VT-capable images requires either three known steps; converting the environment into electric models, photo-stitching multiple pictures into a virtual format, or a mixture of both methods by conjoining 3d models with photographs. From hereafter, the process of selecting the tool has been prone to Google Street View (GSV) because of its suitability. It uses the concept of photo-stitching multiple captured images into a virtual environment; the most appropriate for producing indoor images. Curtis et al. (2013) describe Google Street View (GSV) as an observatory system that captures the environment through constructing photos remotely. It has the aptitude to entice its users to share their images globally; as it is user-friendly, cost-efficient, and easy to access. Considering the main focus is to 'capture' and 'construct'; this tool fits the main purpose of producing 360 panoramic photos into a universal format that can be uploaded instantly. Moreover, GSV's main purpose is to build an environmental audit; a virtual instrument that collects data specifically for outdoor sites that enables the viewer to access from any part of the world (Clarke et al., 2010).

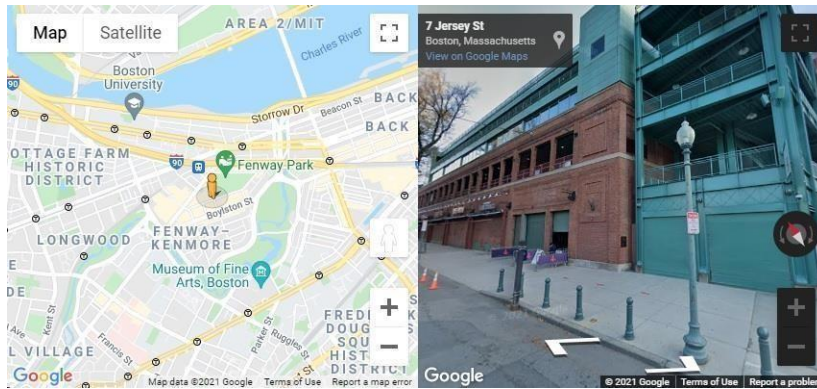


Figure 1. Street View side-by-side location

Figure 1 above shows a brief look at Street View features as seen in Google Maps. It shows the outdoor panoramic images at a pinned location as viewed by the public in the actual street. The researcher identifies GSV as a mechanism of capturing surroundings that can be used as data that are reachable wherever. Also, the app is available on most mobile devices without having to spend extensively. Therefore, the tool was identified as the most suitable 'capture' software because of its availability and the software are manageable. The only different take is to use GSV to capture indoor panoramic images.

Construct

Developing VTs that are interactable requires platforms that allow the host to construct all the collected resources into a single open channel. Generally, the idea is to connect each image, info, notes, and photo into one virtual space. Chen (1995) listed the requirements in making virtual tours are as such; photo stitching, node selection, hotspot marking, linking process, and dicing and compression. He explained that through the combinations of these five steps, VTs can be produced. In the market, this process can be accomplished by using Virtual Tour Software that is available in free or paid products. After a thorough inspection, a software called Pano2Vr had been selected; because the process of learning the software has proven to be undemanding. Pano2Vr was built to convert 360 or panoramic photos or videos into interactive virtual experiences. The software assists the user in constructing immersive virtual experiences which are integrated freely for a self-hosted website that can be viewed from multiple devices. Its outputs are in HTML-5 format for users to upload to a WordPress-supported website.



Figure 2. Pano2Vr Default Interface

Related Projects

In Malaysia, there are several projects inspired by VTs that have already been realized. These projects were jet-propelled after the country was struck by the pandemic outbreaks as individuals and companies searched for alternatives to virtualize Malaysia's favorite hotspot. Puvaneswary (2021) states that the nationwide lockdown sets him on a voyage of domestic sightseeing through a virtual heritage walk organized by Jane Rai. The projects purposely intended to draw-out locals into a journey that dubs as Old Kuala Lumpur East-West Connection. It brings out the old mining past of the 19th Century that referred to early settlements that converge between two rivers. Moreover, a company like LokaLocal has even used the Travel tech platform to unveil the new age of tourism by providing plentiful destinations for globetrotters to access around the world to encourage them to visit Malaysia after the restrictions are lifted (Bansal, 2020). Hence, VTs have become one of the trends during the outbreak as people gasp for more, companies are struggling to keep filling on such demands.



Figure 3. 40 Years of Yusof Ghani VTs

With most of the peoples' idle time spent sitting around in their homes, these projects show that landmarks, cities, local hotspots still can be relished through VTs. Simulating the actual locations whilst keeping everyone yearning for travel employed. Though most tours are constructed outdoors, some companies even operate it indoors. For instance, '40 Year of Yusof Ghani' (Figure 3), a virtual tour created by Plush Global Media; a sales tool for virtual property. The tours take art lovers into an expedition inside TAPAK from the main gallery, collection room, studio alley, and the owner's house itself. Audiences can venture inside as they would do in the actual gallery, they can even access the displayed artworks' information through nodes. The VTs concept in TAPAK is a tour of the property rather than an art exhibition; the artworks displayed are pre-existed and had been exhibited before. From here, the researcher was inspired to do a similar concept of gallery tour; whereas applied it into an actual art exhibition.

RESEARCH METHODOLOGY

This study utilized the experimental methodology by hosting an online virtual tour for anyone to participate. The participants are then observed through their activities and involvement. The duration of the researches is based on the full duration of the art exhibition. This is to find whether audiences are partaking in the VTs during the exhibition. The results are then analyzed to identify whether VTs can be used as an alternative to physical attendee depending on the collected data statistics.

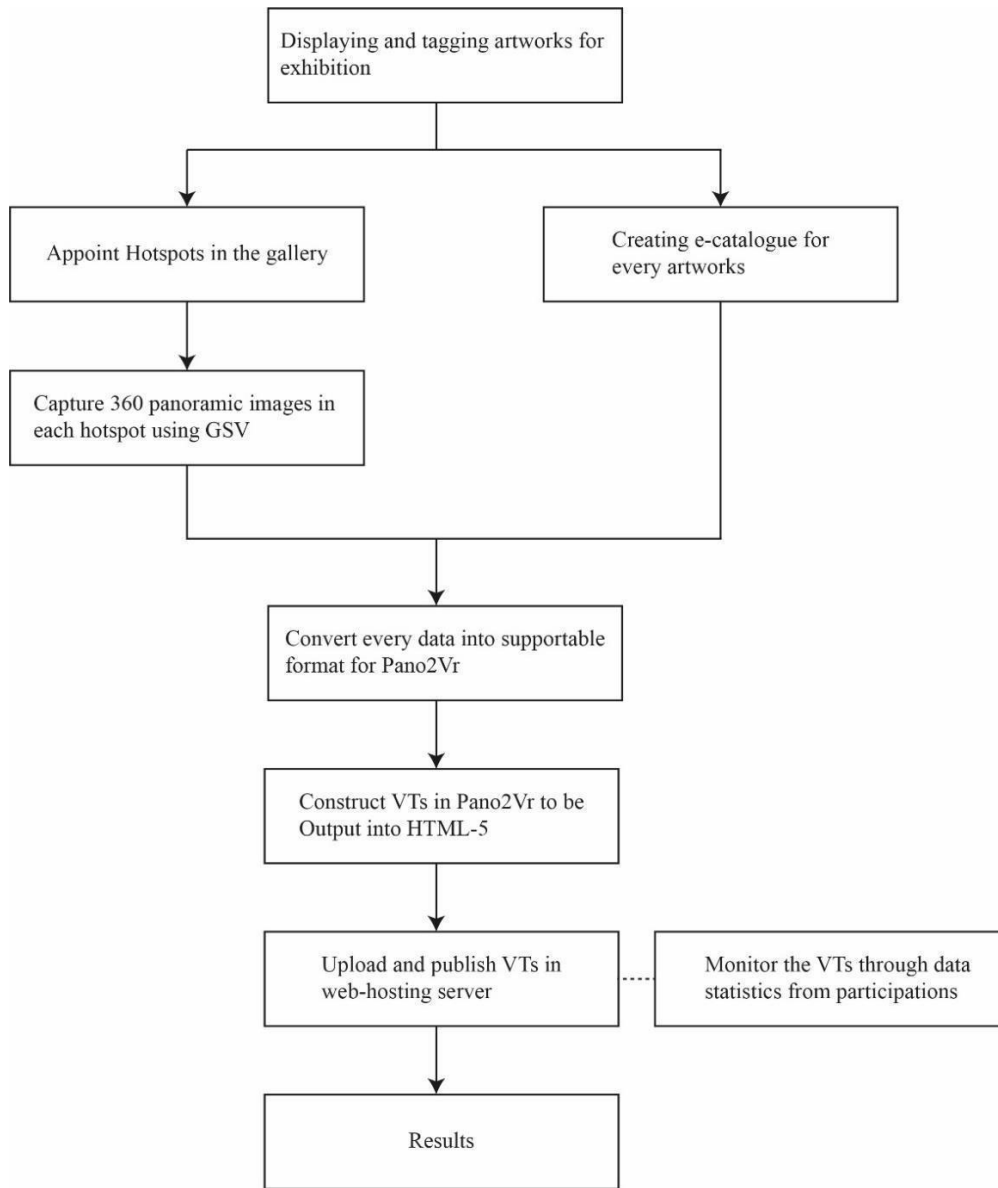


Figure 4. Flowchart of the Research

Figure 4 shows the flowchart process for this particular research. It starts with displaying and tagging artworks for exhibitions. This process involves site planning and organizing artworks for presentation. Next, is to produce an e-catalog for every artwork and appoint a hotspot in the gallery. Then, 360 panoramic images are taken on each hotspot appointed using GSV and supported mobile devices. The method used for capturing panoramic images using GSV is photo-stitching.

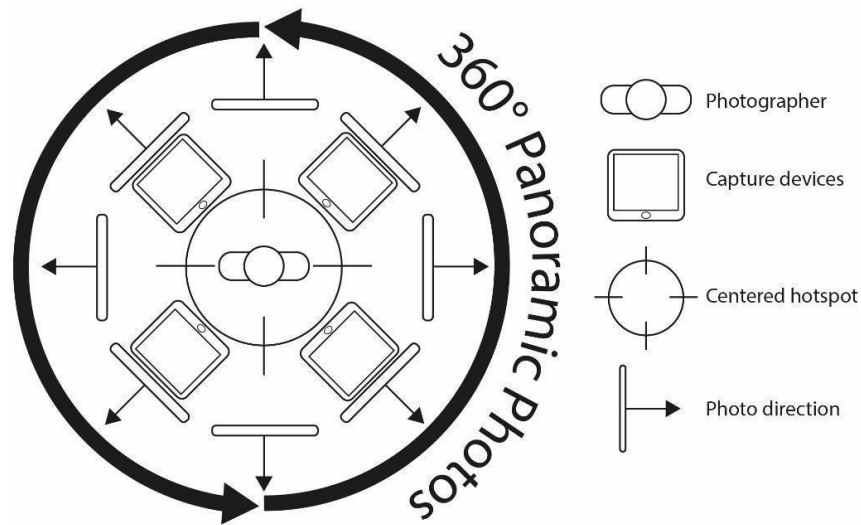


Figure 5. GSV 360 Panoramic Image Capture

Figure 5 above shows the diagram of the GSV software usage mechanism. It captures a single photo on a centered hotspot and revolves around every photo direction. The multiple photos are then stitched to complete one 360-compatible panoramic photo.

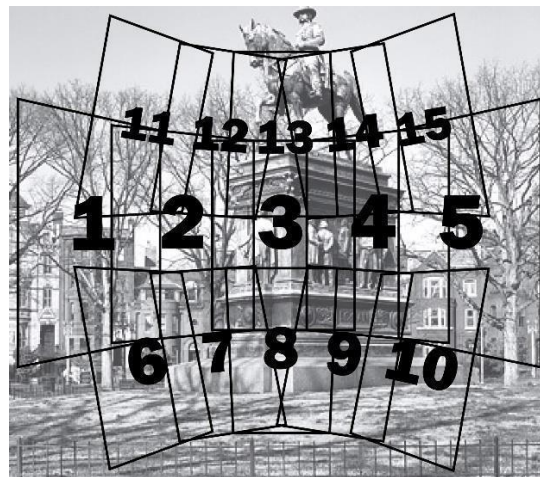


Figure 6. Photo-stitching of single photos

Figure 6 shows the mechanism of photo-stitching; it utilizes every single photo that was captured and stitched together to form 360 panoramic images. This concept is pre-applied into GSV and it operates in such a way to ensure the viewer can experience a full view of the surroundings it was used on. After that, every data is converted into Pano2Vr to be constructed into VTs. Pano2Vr uses an HTML-05 output format that is capable of being presented on the World Wide Web.



Figure 7. (+) *mind.time.lines* VT in web-hosting server

The completed VT project is then uploaded to the web hosting server (Figure 7). The data of participation is then monitored by third-party websites for the full duration of the exhibition. The monitoring websites are mainly to safely keep the results for analysis.

FINDING



Figure 8. (+) *mind.time.lines* VT access link poster

The overall outcome of this research is analyzed through several results that were collected after the duration of the exhibition was concluded. The access link (Figure 8) was delivered to multiple platforms on 4th April 2021 for audiences to participate. The results were then collected on 23rd April 2021 to be analyzed. The analyzed results will mainly be focused on total participants, accessed devices, accessed platforms, and geo accessed points.

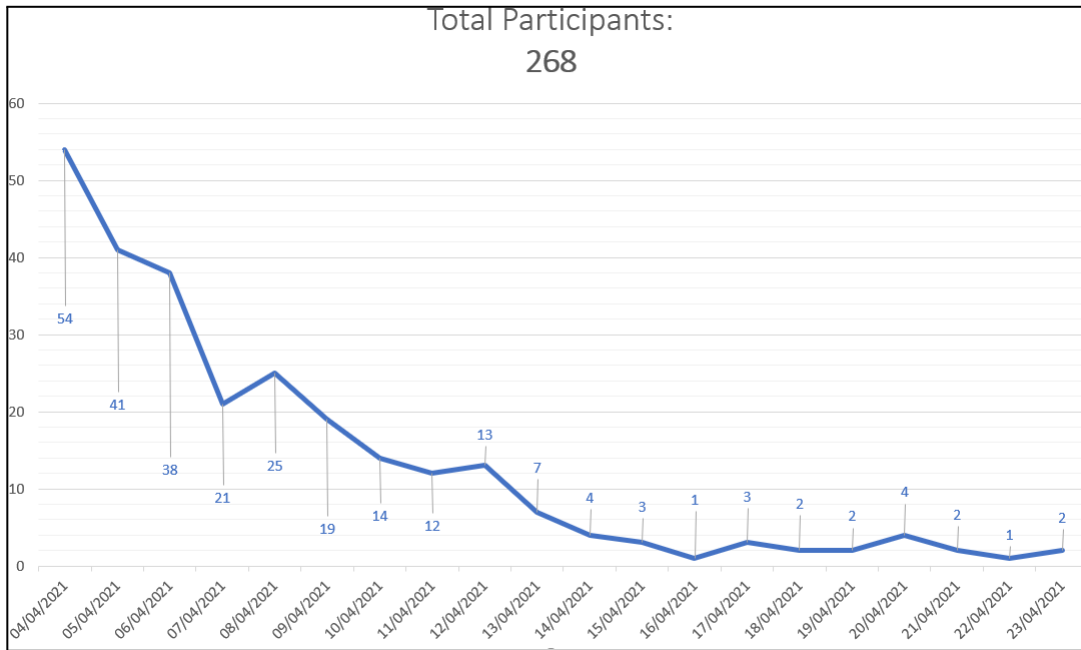


Figure 9. Total Participants

Figure 9 above shows the total number of participants per click daily. The statistics show how many participants accessed the VT from the date it was launched (4th April 2021) until the date it was closed (23rd April 2021). Referred to the data, 268 total unique participants have accessed the VT. The numbers start high and slowly drop by the end of the exhibitions. The results reflect the actual physical art exhibition in which audiences are usually utmost at the moment it was launched and degraded over time.

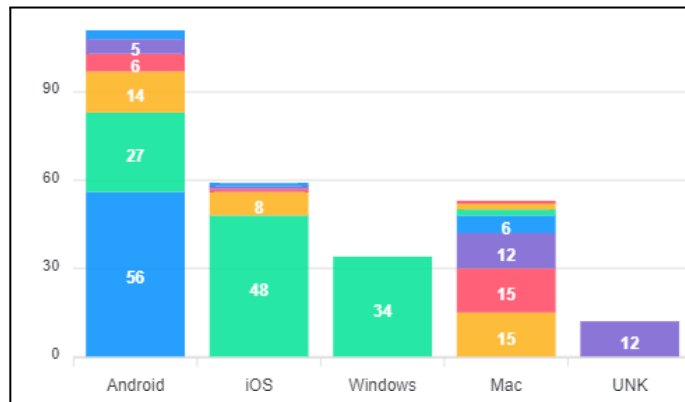


Figure 10. Accessed devices ratings

The figure above (Figure 10) displays the total participants based on the system types it was accessed on. There are 170 total audiences accessed from mobile devices (Androids and IOS), and 98 audiences accessed from computers (Windows, Mac, UNK). This data indicates that audiences are inclined to use mobile devices as their way of accessing this exhibition.

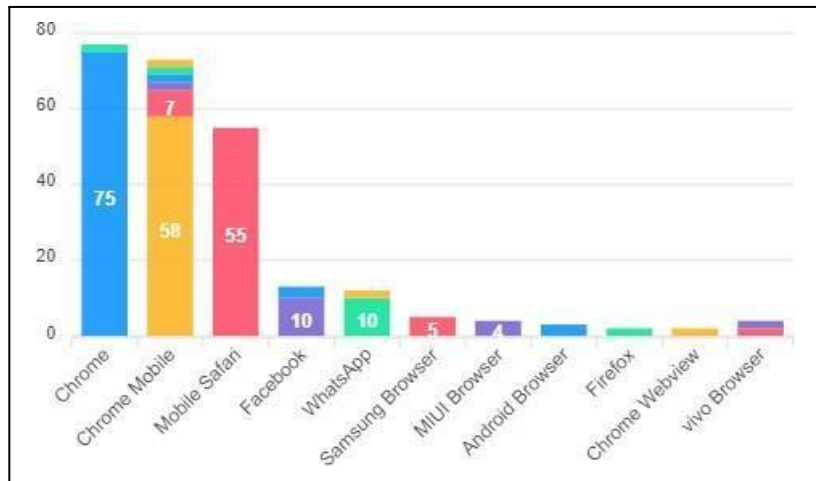


Figure 11. Accessed platforms ratings

The figure above (Figure 11) shows the platforms that the audiences use to access the VT. From the results, it can be seen that Chrome browsers are the most used platforms compared to others.

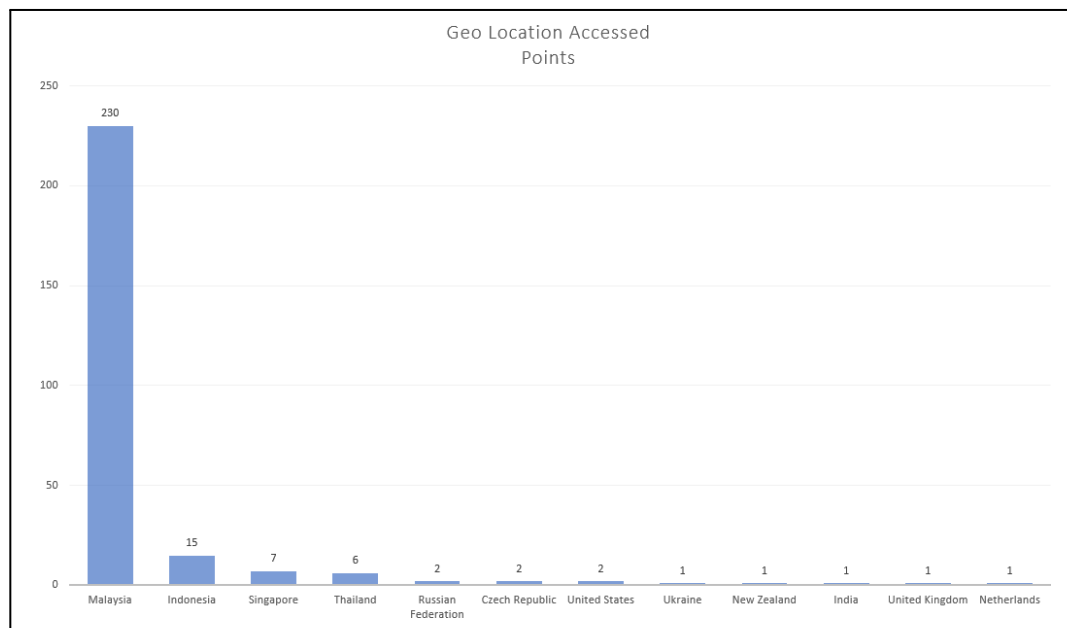


Figure 12. Geo accessed points graphs

There is a total of 12 participants accessed from different geolocation throughout the exhibition (Figure 12). The results show that 230 audiences are from Malaysia, 15 are from Indonesia, 7 are from Singapore, 6 are from Thailand, 2 are from Russian Federations, Czech Republic, and the United States respectively; and 1 are from Ukraine, New Zealand, India, United Kingdom, and the Netherlands respectively.

CONCLUSION

Based on the results (Figure 9), 268 total participants have accessed the VT during the first 20 days of its launch. This number is higher compared to a physical attendee of Galeri Al-Biruni before the covid-19 pandemic which averages 150 total participants. Other than that, most participants preferred mobile devices as their way of accessing the VT (Figure 10). It suggests that they consider portability when discoursing ways to view the web-hosted VT. Also, most participants chose Chrome browsers as their platforms for accessing the VT exhibition (Figure 11). The results prove that chrome is the most common web browser uses by participants due to its ease to use and user-friendly. Lastly, 12 countries have been detected as the geo accessed points of all the total participants (Figure 12). Considering the exhibition was conducted locally; the results are intriguing as it shows the possibility of expanding our art exhibition globally. This is only achievable through VTs because physical exhibition usually gathers only local participants whereas virtual can gather participants from a different part of the world. In conclusion, the data results show that virtual tours can be used as alternatives to physical art exhibitions amidst the global pandemic. Moreover, the opportunities to expand it to the global market can even be accomplished if it were to be promoted in such ways. Hopefully, the results can open up space for improvements on this topic in the future.

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