

Online volunteering at DigiVol: An innovative crowd-sourcing approach for heritage tourism artefacts preservation

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Abstract

In alignment with the theme of this special issue, this paper details a case study of an innovative, crowd-sourcing initiative of on-site and online volunteering for the preservation and documentation of heritage artefacts. Launched in 2011, the DigiVol program at the Australian Museum, Sydney, is a large citizen science program with over 60 on-site volunteers and 1,500 registered online volunteers working to digitise the museum's collections. The program has been recognised in Australia and internationally as a best practice 'volunteer digitisation service' model. This paper is based on the concept of 'recruitability' from the volunteering literature, which refers to the ability of volunteer organisations to recruit volunteers and retain them. Using a case study methodology, the study involved interviews and focus groups with program managers, on-site and online volunteers as well as document analyses of reports and websites. The paper provides key insights and recommendations as to the innovative elements of the DigiVol program that make it best practice in recruiting, retaining, and supporting on-site and online volunteers to digitise artefacts, resulting in preservation of heritage artefacts in an unprecedented scale supporting science, tourism and education.

Keywords: Museum volunteering, Online volunteering, innovation, volunteer management, heritage artefacts

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Introduction

As part of their adaptation in response to multiple changes in society, museums have become cultural and heritage tourism resources (Chhabra, 2009). The transformation from their traditional role as treasure houses, which curated and allowed limited access to curiosities of animal, plant, human or natural origins (Valdecasas, Correia, & Correias, 2006) was in response to several pressures: visitors' expectations shaped by entertainment-oriented experiences; a growing expectation of museums to generate revenue, and a significant reduction in public funding over time (McPherson, 2006). Furthermore, museums are increasing their adoption of new technologies (Pallud & Monod, 2010) and face growing public and government expectations to improve community access to museum collections (Lang, Reeve & Woollard, 2006). As a result, museums have responded by repositioning themselves as cultural and heritage tourism resources and by adopting a presentation style which provides 'edutainment': an experience of both education and entertainment for visitors (Balloffet, Courvoisier, & Lagier, 2014).

As part of this transformation, museums worldwide have increasingly been digitising their collections and making them accessible online to the public (Parry, 2010). This serves a dual purpose. On the one hand, digitisation conserves artefacts and protects their visual representation from physical destruction. On the other hand, it allows ubiquitous access to artefacts, transcending location, mobility states, and to a large extent, resources. As such, tourists, residents, educators and the science community can visit, study and learn from artefacts in perpetuity. However, the task of digitising collections requires financial and human resources (Parry, 2010), which are typically beyond the reach of most museums.

Addressing the need for additional human resources, there is a movement amongst museums to involve volunteers in digitally preserving heritage. Increasing volunteer numbers may be achieved by growing the ability of organisations to recruit volunteers, or their level of recruitability (Haski-Leventhal, Meijs, & Hustinx, 2010). Recruitability, which is fully detailed below, is a concept useful for volunteer-involving organisations as it proposes multiple pathways into opening up new volunteer opportunities. Additionally, recent volunteering trends such as online volunteering, which is usually done from home using one's computer (Cravens, 2014), can assist in increasing recruitability. Learning from positive case studies about how this is done successfully provides direction for this important research and practice.

This paper details a case study of an innovative, crowd-sourcing initiative of online volunteering for the digitisation of heritage artefacts. The case is of the DigiVol program at the Australian Museum, Sydney, which was launched at 2011 and is now Australia's largest citizen science program digitising the museum's collections. The program has been recognised in Australia and internationally as a best practice 'volunteer digitisation service' model (Flemons & Berents, 2012). Drawing on the recruitability concept, the paper provides key insights and recommendations as to the innovative elements of the DigiVol program that make it best practice recruiting, retaining, and supporting on-site and online volunteers to digitise artefacts, thereby supporting virtual and on-site heritage tourism experiences.

Volunteering in museums

Museums in Western countries involve large numbers of volunteers (Ashley, 2012; Holmes, 2003). Indeed, many small museums involve volunteers at all levels of operation (Holmes & Smith, 2009), or, even entirely volunteer-run, particularly in rural and regional areas (Johnson, 2010). Volunteering in museums continues to be popular. Groninger (2011) found

that UK volunteer-run museums grew exponentially in the 1980s and numbers continue to rise.

Without volunteers these museums would simply not be able to operate on their current budgets, or offer a wide variety of tourism and education experiences due to funding cuts from government (Edwards & Graham, 2006; Howlett, Machin, & Malmersjo, 2005; Museums Association, 2017). In many museums, employing paid staff is a more recent development as illustrated by the Canadian experience (Ashley, 2012) where the professionalisation of museum work and the adoption of managerial practices led, in certain instances, to the marginalisation of volunteers.

Such marginalisation was a by-product of the growing complexity, growth and change experienced by museums in uncertain environments. The threat of funding loss is ever present and can be due to economic crises or changes in government policy (Lindquist, 2012) over which museums have little control. This can sometimes lead to unfortunate outcomes, such as exploitative practices and replacing paid staff with volunteers (Museums Association, 2017).

The reasons people choose to volunteer in museums are varied and nuanced. Volunteering is acknowledged as a legitimate avenue of work experience leading to paid employment (Holmes, 2003). Certainly, volunteering offers people the opportunity to be active in the public arena, building confidence and skills (Baines & Hardill, 2008). Volunteering in museums is also often perceived as ‘serious leisure (Stebbins, 2013) and Holmes (2003) explored the nexus of volunteers as ‘active visitors’ due to the similarity of motivations for both volunteers and museum visitors to engage with museums.

In the past, museum volunteering was mainly done on-site and in certain times (Holmes & Edwards, 2008), which limited the ability of people (such as non-locals or people with disabilities) to access these volunteer opportunities. However, museums have recently

become aware of the opportunities technology provides for engaging a new cohort of volunteers online and off-schedule. Cravens (2014) found that online volunteering roles were performed off-site and could last for just a few minutes or for a few hours, with no ongoing commitment, or may be a leadership or expert role, which requires commitment for several weeks or months.

Online volunteering

Online volunteering (also known as *virtual volunteering*, *e-volunteering* and *micro volunteering*) is defined as ‘unpaid labour undertaken for the benefit of a non-governmental organisation (NGO), charity, school, community organisation, etc., or those served by such, where an online system (accessed through a computer, a mobile device, etc.) plays a key role in volunteer recruitment, in facilitating access to tasks, and in the volunteer conducting that task’ (Cravens, 2014, p. 5). While success factors and challenges associated with online volunteering may be similar to those of traditional on-site and on-schedule forms of volunteering, there are specific challenges related only to online volunteering including fear of negative online behaviour and lack of understanding or awareness regarding online volunteering opportunities (Amichai-Hamburger, 2008). A US-based study found that active online volunteers were also active offline volunteers, and suggested that volunteering in one space can complement volunteering in the other (Ihm, 2017).

Recent studies of online volunteering have examined the motivation for this form of volunteering and factors contributing to retention. A longitudinal empirical study of three different citizen science projects found that collective motives, norm-oriented motives, reputation and intrinsic motives affected the quantity of contribution, whereas the contribution quality was positively affected only by collective motives and reputation (Nov et al. 2014). Baruch, May and Yu (2016) found that the motivation for online volunteering is

mostly altruistic and that retention of online volunteers is greatly supported by feedback on the quality and impact of contributions.

Online volunteering offers an alternative to traditional volunteering and experiences that might not be physically possible otherwise due to location, ability or time constraint. Mukherjee (2011) found that for older volunteers that emphasised a ‘mind over body’ attitude towards aging and health, online volunteering assisted in countering negative stereotypes of aging through the opportunity to display wisdom, computer skills and dedication to volunteering.

Recruitability and online volunteering

Recruitability is defined by Haski-Leventhal et al. (2010, p. 142) as the ability of volunteer organisations to recruit volunteers and maintain them. The authors determined that three main components constitute an organisation’s recruitability: accessibility, resources and networks. Accessibility refers to the public awareness of, and ability to access (physically, technically and geographically) the organisation. Resources are financial and human resources required to recruit and manage volunteers. Networks are current and potential partnerships with other organisations that create new opportunities to recruit volunteers (e.g., using corporate partnerships to recruit corporate volunteers).

Online volunteering can help in increasing volunteer-involving organisations’ recruitability. Arguably, the most important aspect here is accessibility, or the degree to which the organisation is accessible to potential volunteers (Haski-Leventhal et al., 2010). Allowing people to access the organisation from anywhere in the world, at any time, using their own computers, can create an ultimate level of accessibility, and as such, it can influence people’s potential to volunteer. Additionally, organisations that find creative ways of involving volunteers online, may require less resources and networks compared to those who need volunteers to be physically present.

Recruitability can also be used to better understand museum volunteering. Museums can use their networks and resources to attract volunteers, and online volunteering can assist them in increasing their accessibility to achieve this goal. Doing so can help museums to achieve their goals, including digitisation of heritage artefacts. Understanding is therefore required of how a museum might foster high levels of recruitability through their volunteer recruitment and retention efforts.

Therefore, this study examines an exemplar volunteer-involving organisation in Australia, the Australian Museum in Sydney. As Australia's leading natural history museum, it received 440,000 visitors onsite during the financial year 2016/2017 (Australian Museum, 2017). Additionally, the Museum stores thousands of scientific items (some of which are 200 years old) and digitises the knowledge about these, making the collection available for the scientific community worldwide. To assist this process, the Museum initiated a program called DigiVol (Digital Volunteering) in 2011. Informed by this case study, our research questions include: what are the key success factors of the DigiVol program that have assisted the museum in digitising its artefacts? What volunteer management practices have helped to enhance the high levels of recruitability associated with the DigiVol program in terms of attracting volunteers? And what can other museums learn from this case study?

Methods

This study aimed to understand the key success factors driving the popularity of a combined on-site and online volunteering program for heritage artefact conservation. For this purpose, the case study method was chosen (Yin, 2009). Case study research is an increasingly popular approach among qualitative researchers (Hyett, Kenny, & Dickson-Swift, 2014; Thomas, 2011). Case studies are based on data collected from a variety of sources and therefore provide a detailed and in-depth description of the subject (Eisenhardt & Graebner, 2007). Case study research enabled the researchers to gain a deep understanding of the

elements which generated the program's success. It is particularly valuable when the intention is to examine singular and unique museums (Oren & Shani, 2012), and it is a powerful approach that can provide a rich set of data on real-world practice (Denzin & Lincoln, 2011; Dueholm & Smed, 2014).

Selected case overview

The case selected was the Digital Volunteering program (DigiVol) at the Australian Museum. This program is considered by many, both in Australia and internationally, as best practice (Flemons & Berents, 2012) in assisting cultural institutions to digitise and preserve their vast collections. This volunteer-based project was established in 2011 by the Australian Museum in collaboration with Atlas of Living Australia (ALA). The DigiVol management team initiated, developed and implemented a volunteer digitisation service model, resulting in the largest citizen science program in Australia (Australian Museum, 2018). The program has won several national and elements of DigiVol's innovative approach to volunteering have been adopted by the Smithsonian Institute, Kew Gardens, Hawaii University, New York Botanical Gardens and many other leading tourism institutions which also involve online volunteers.

The collections of the Australian Museum are a rich source of scientific information, which include not only objects, such as samples of wildlife or researchers' notes, but also data attached to these objects. The data, usually in the form of a label, are as important as the objects themselves, detailing what the object is, where it was collected, collection date, collector name, etc. The digitisation of these elements, as well as the collections' artefacts, allows their conservation and sharing with the public.

The demographics of the on-site volunteers can be divided into three main groups: young students/people; parents of young children (typically mothers); and retirees. At the time of this research (2016), there was a core group of 30 long-term committed volunteers,

who have volunteered for three years or more, for an average of 600 hours in total per volunteer. Many of these volunteers have further contributed to the DigiVol community by drawing on their existing knowledge and skills in photography, producing videos, database development and documentation. In addition, the program has 1,500 volunteers registered online.

Procedure

The purpose of this study was to identify key success factors of the DigiVol program that facilitated digitisation of the Museum's artefacts on unprecedented scale. For this purpose, a triangulation approach was employed (Bowen, 2009; Denzin & Lincoln, 2011), examining multiple sources of evidence in search of a comprehensive understanding of the program's practices. Data were collected in five main forms: field visits, interviews, face-to-face focus groups, online focus groups, and document analysis. Table 1 details the methods used in this case study.

Insert Table 1 about here

The field visits were conducted by two researchers with the aim of conducting on-site participant observation. A field guide was developed to guide these observations. It included noting items such as general impressions of the place and its atmosphere; number of volunteers; physical aspects of the place; artefacts of volunteer recognition, etc.

The focus groups were guided by a focus-group protocol. Two focus groups were conducted at the Museum with on-site volunteers. For each focus group, participants were gathered in a quiet room and their discussion was facilitated to encourage diverse and deep input. In addition, a focus group was conducted online with online volunteers, their manager and two researchers. Despite the availability of voice and video participation, most participants preferred to contribute to this online forum by typing their responses. After the

focus groups, the researchers summarised the input in notes, and identified themes and gaps. The focus groups were transcribed and analysed.

In addition to the focus groups, three interviews were conducted with the managers of DigiVol, including the managers of the on-site volunteers and the online volunteers. Managers were asked about the program, its history, key success factors, recruiting methods, accessibility of volunteers, networks, resources and volunteer motivation and retention.

Triangulating was achieved based upon the information obtained through the focus groups and interviews, key reports and documents relating to the program. The data were analysed by writing a case study report to bring together all the different forms of data and answer the research questions (Yin, 2009). Generally, there was a high level of consistency between information obtained from participants and document analysis, with the document analysis providing details and examples to support statements made in focus groups and interviews.

Results

The case study analysis identified an innovative pathway into heritage artefacts' digitalisation and conservation. Through the involvement of two types of volunteers (on-site and online), the program managed to digitise, conserve and share hundreds of thousands of artefacts over six years. The success of the program is mainly a result of successful volunteer recruitment and retention practices, demonstrating the value of the concept of *recruitability*.

The program volunteers are exclusively responsible for digitising the museum's artefacts. Two types of volunteers are involved in this process: a small team of on-site volunteers (about 60 individuals), and a large pool of online and off-schedule volunteers (over 1,500 individuals). Digitisation of heritage artefacts is done in three stages: 1. on-site volunteers photograph objects and their labels at the Australian Museum; 2. online volunteers transcribe the photographed data; and 3. senior online volunteers enter the transcribed data

into the Museum's database. The data is then harvested into data sharing portals such as the ALA and made available to the public online.

Out of the 1500 online volunteers, 60 online volunteers have been with the DigiVol program for more than three years and have contributed to over 90,000 completed tasks. The online volunteers are free to work at a time and place of their choosing. Using an online forum, DigiVol online volunteers support new volunteers with advice and help from experienced transcribers, thereby fostering online friendships.

Table 2 summarises the main volunteer management practices provided by DigiVol and the Australian Museum to each of these two volunteer groups. The comparison can assist in understanding their offerings to both groups and the need to tailor them specifically to the needs of each cohort.

Insert Table 2 about here

Volunteer recruitment

On-site DigiVol volunteers come through three main streams: museum visitors (recruited through the museum's newsletter and website); natural scientists and university students who seek employment in the field; and general volunteers (mothers of young children and retirees). Potential volunteers can find DigiVol in their search of general volunteering opportunities.

There is high supply of volunteers for this program, as evident in a waiting list: the on-site program has about 60 volunteers and a waiting list of approximately 50 who have registered their interest in volunteering. Volunteer annual turnover is only 11 percent, and typically occurs when volunteers take up paid work and become unavailable. These figures support the organisation's high level of recruitability for its DigiVol program.

Online DigiVol volunteers are recruited from the Australian Museum members' newsletter and direct emailing. In addition, many volunteers access the program through the

ALA site, general volunteering opportunity platforms, as well as through higher education courses in natural sciences, the Museum's website, social media publicity of the volunteering program and through other institutions which use the DigiVol platform. The program is also advertised through a third party - The Centre for Volunteering NSW – the peak body for volunteering in the Australian State of New South Wales - which has led to Centrelink (unemployed) volunteers using the program to complete their volunteering hours and receive their government supported employment benefits. For example, on the Australian Museum website it says:

Online volunteering with DigiVol is important and has created many opportunities for many people who are unable to travel or live too far away to participate in volunteering at the Museum. This volunteering opportunity can be completed anywhere and at any time and is ideal for dedicated, detail-oriented people who are willing to join the DigiVol online community of volunteers (DigiVol page on the Australian Museum Website).

The selection criteria for DigiVol volunteers are specified on their website, including: a respect and interest for natural history collections and archival material; an interest in learning new skills to handle specimens and archival material; and a respect and interest in working cooperatively with other volunteers and being supportive of their contributions. As such, most of the selection criteria are about attitudes, not about skills. The volunteer managers explained that their volunteer management approach was hedged in terms that anyone can volunteer if they have the right attitude and skills can be developed subsequently.

Socialisation and training

For on-site DigiVol volunteers, the volunteer manager spends half a day personally training each volunteer, once they commit to a specific week day for participation. Training includes engaging with resources developed over the years by the DigiVol management team (manuals, videos, and documentation). As explained by the DigiVol Manager:

The reason we do need the induction process is we want to make sure people are both suit the type of work we do here and they're really serious about doing it because we put a lot of effort into the training (DigiVol manager).

During this socialisation process, the manager communicates expectations to volunteers clearly and explicitly. The culture of the program is also explicitly described, as discussed in the next section on volunteer management.

Online volunteers are not trained individually. Instead, they have access to online manuals, which the focus group respondents found useful. The self-pacing nature of the work allows them to learn as they go, from their own experience. Each project on the site has a tutorial attached to it, which the volunteer must read before transcribing the tasks. With further resources, DigiVol is also planning to develop a set of training videos.

Benefits, recognition and satisfaction

In response to the DigiVol program managers' initiative, the Museum has started issuing certificates of acknowledgment for DigiVol volunteers in the last three years. Unlike the rest of the museum's volunteering programs, which recognise 10 years of volunteering, the relatively new DigiVol project recognises 3 and 5 years. The certificates are awarded to onsite volunteers during morning tea and Museum's collection managers are invited to participate and express their appreciation of the volunteers' contribution. In addition to the individual certificates of acknowledgement, DigiVol volunteers celebrate their collective achievements. For example, when DigiVol volunteers completed digitising a whole room's collection, this milestone was celebrated with a lunch organised and paid for by the Museum.

Online volunteers' contributions are recognised by keeping a tally of their accomplishments. Volunteers are informed how many online tasks they have completed, and the completion of 10,000, 20,000 and 30,000 tasks results in an award of acknowledgement. This tally is also publicly available, so volunteers can see the top achievers, who complete

hundreds of tasks per day. Volunteers are also encouraged to view feedback on their work sent to them as an email by the DigiVol manager, to increase the accuracy and quality of their work. These benefits may seem small, but they mean a lot to the volunteers:

The award was sent by DigiVol for transcribing 10,000 items. I'm up to 20,000 now. It's just a simple thing but it means a lot to me (Online volunteer).

The benefits to the volunteer, however, go beyond a certificate or a T-shirt. The on-site volunteer manager explained how the Australian Museum creates a culture for volunteers that is unique and engaging:

The volunteers' time is valuable so we have to give them a role that makes a difference. We would not be able to digitise our collection without them. This creates a sense of meaningfulness. The volunteers are all capable in their way. [...] The DigiVol team tries to develop the volunteers, give them 'extension' (promotion to new roles). It is a fun environment, with lots of laughter and conversation, we have a DigiVol sense of humour, and yet the error rate is very low. (On-site volunteer manager)

These practices lead to high levels of volunteer satisfaction. An internal survey of the Australian Museum collection managers conducted in 2015 showed a high level of confidence in DigiVol volunteers handling and digitising collections. This high confidence level resulted in a significant increase in the number and range of digitising requests by Museum staff over the years of DigiVol's operation. In a survey conducted by DigiVols in 2015, all volunteers reported high levels of satisfaction with DigiVol, and over 90% of the respondents reported feeling very valued.

Recruitability

DigiVol presents excellence in all components of recruitability: *accessibility, resources*, and the program's *networks and collaborations*. DigiVol's practices which demonstrate excellence are discussed next.

Accessibility

An organisation's accessibility to volunteers requires potential volunteers to be aware of the volunteering opportunity and of the kind of volunteers that are needed. In this sense, DigiVol's accessibility results from the information provided to visitors, students, and potential volunteers about DigiVol's need for volunteers. Being a cultural icon in Sydney, Australia, there is no shortage of people who wish to engage with the Australian Museum. As a result, DigiVol's on-site volunteer capacity is full and has a long waiting list, and DigiVol online is consistently growing. Online volunteers also report on high levels of accessibility, due to the easy access to the program online and enrolment:

I am a retiree with partial disability. Can't do much outside so spend time on computer. I have an online business which takes heaps of time. I like to spend evenings on DigiVol because I hate TV (Online volunteer).

In addition to high level of awareness, volunteers' ability to reach the organisation, (physically, technically or geographically) is another important part of its accessibility. While the on-site volunteering is limited to people who are in close geographical proximity to the Australian Museum, the online program is not geographically or temporally limited, and offers high levels of accessibility. People located anywhere in the world who are computer-literate and have internet access can volunteer for the program at their own schedule. Moreover, DigiVol online gives people with physical limitations, such as hearing or mobility impairment, an opportunity to volunteer, which they may otherwise not have. When mental disabilities are identified with on-site volunteers, the volunteer managers make a personal

effort to address specific needs in pairing volunteers for the day. Other volunteers notice this commitment to inclusion, and some make an effort to accept, engage with, and accommodate the variety of volunteers involved:

We don't know who's going through that door and that is always a challenge so when we are confronted with people who might have significant mental health issues. [...] There is one person currently who has mental issues and intellectual disabilities [...] so I took him around [...] to see if we could find something more appropriate for him. (Onsite volunteer manager)

Resources

DigiVol has limited financial resources and the management team makes sure that these resources are used effectively. The program was initiated by a manager at the Museum, who hired two volunteer program managers on short-term contracts, to manage on-site and online volunteers. These short-term contracts continued for five years before permanent funding for the team was secured, after constantly demonstrating to the Museum the value of this program. These human resources are key to the program's success and the three managers work closely together to ensure alignment between volunteers' experience and the museum's needs.

DigiVol's funding allows managers to provide on-site volunteers with tea and baked good, however the remainder of the benefits that volunteers receive do not require financial expenses. Volunteers participate in 'behind the scenes' tours with the museum's staff, which supports their sense of connection to the Museum (online volunteers can access videos of these tours). In addition, DigiVol's managers organise a mid- and end of the year lunch for all volunteers, which further reinforces their sense of belonging and connection to the program:

All those behind the scenes tours and the extra activities do make you feel both valued and special, like you're on the in-crowd. Because nobody gets to go on those tours. We get to see

things people don't get to see. You also get a better understanding of where you fit in the organisation. (On-site volunteer).

Networks and cooperation

DigiVol has a strong relationship with two peak volunteering bodies: Volunteering Australia and the Centre for Volunteering, who both assist with recruitment of volunteers. The program's information is also hosted on other volunteering opportunities platforms, such as Scistarter (an online citizen's science projects advertising platform). In addition, DigiVol's online work is hosted on the website of the ALA website. The ALA not only hosts the portal for the activity of online volunteers, but also programs and modifies software and website features to suit DigiVol's needs.

As detailed above, many other organisations in Australia and overseas run their own DigiVol programs, and use DigiVol and its volunteers to get their own museum specimens transcribed. These institutions share knowledge and volunteers with DigiVol, posting their tasks online, and volunteers can choose to complete them regardless of their physical location. In addition, all these organisations participate in a joint online forum, which volunteers at all institutions can access and post queries.

Discussion

This article offers insights from a successful case study of the volunteer management in pursuit of the digitisation of heritage artefacts. The case study offers positive learnings that can be implemented by other organisations and lead to better volunteer management and heritage digitisation in the future. The case study demonstrates several important elements that contribute to the Museum's capacity to not only digitally preserve artefacts, but also broaden the audience involved in heritage tourism experiences. By combining two volunteer cohorts (on-site and online), and offering an innovative format of volunteering, DigiVol

draws on an unprecedented pool of human resources, and therefore continuously digitise on a large scale its collection of artefacts. The main lessons from this case are discussed next.

The program's volunteer management practices increased *recruitability* in ways that improved its accessibility, resources and networks. First, the program is advertised among museum visitors, resulting in exposure by interested individuals to the potential to volunteer (Haski-Leventhal et al., 2010, 2017). Second, the program increases its accessibility by offering opportunities in the forms of online or micro volunteering (done in short periods of time, usually using a hand-held device, see Bernstein et al., 2013). Importantly, rather than drawing on volunteers' free time, the program thus makes use of *spare* and *idle* time (Bernstein et al., 2013). The program's accessibility is enhanced by reaching out to individuals who are willing to contribute, but are unable to physically access the Museum location (Balandin, Llewellyn, Dew, & Ballin, 2006) or are potentially excluded from the on-site form of the program with it being at full capacity.

It is important to note that this form of online volunteering draws on human resources that would not otherwise be involved in the digitisation of artefacts or even volunteer at all. Possibly, individuals who seek face-to-face volunteering opportunities would find such opportunities elsewhere, but many people who would not otherwise volunteer, find that these high levels of recruitability and accessibility increase their availability and willingness to volunteer (Haski-Leventhal et al., 2010; Meijs et al., 2006).

There are some critical success factors in the case of DigiVol that need to be considered. DigiVol's on-site volunteer management practices, which are supported by a low budget but strong personal support from the managers, provides an effective result. The program uses shared meals as a means of creating and maintaining social cohesion. The communal ritual of sharing food promotes a group cohesion and belonging (Plester, 2015).

Volunteers independently increase this cohesion by participating in theatre and dinner groups, bringing birthday cakes for morning teas, etc.

In terms of volunteer management and recognition, the emphasis on inclusion, diversity, accommodation and respect for on-site volunteers' needs and personal circumstances create a sense of a welcoming environment to volunteers (Edwards, Onyx, Maxwell, & Darcy, 2012; Onyx, 2014). DigiVol reinforces volunteers' sense of identification with, and affiliation to, the program by expanding volunteers' roles and contributions, issuing certificates of acknowledgment, and celebrating accomplishments. DigiVol further contributes to a sense of belonging and identification with the Museum by connecting volunteers to paid employees and providing them with some of the same benefits (Dutton, Dukerich, & Harquail, 1994).

DigiVol acknowledges the contributions of online volunteers by providing badges and awards for task completions and anniversaries. Although developing and maintaining a sense of identification and belonging among this cohort is less intuitive than among the on-site volunteers, DigiVol provides online volunteers a platform for awareness and connection. The individual task feedback and online forum maintain a sense of connectedness to the program, rather than a sense of operating in isolation.

Implication for practice

At a time in which many museums are facing a lack of funding (McPherson, 2006) to digitise heritage artefacts and support museum volunteering programs more generally, this case study offers several implications for practice to assist institutions in using volunteers to achieve their digitisation agendas. Combining on-site and online volunteering, with specific tasks for each group can be useful. While each group had distinct volunteer management practices applied to it, resulting in a more complex program to implement, the combination of the two led to successful results. Museums and other institutions that only have on-site volunteers,

may consider an online program to expand their reach, increase the work load completed, and assist in addressing large-scale tasks.

In addition, this case study shows that when done right, online volunteering can increase an organisation's recruitability and accessibility. To achieve this, organisations need to use their networks and resources to increase the visibility and reach to people who care about the work of the organisation, but do not consider volunteering due to a lack of time or accessibility. Working with other organisations implies reaching a larger pool of potential volunteers and increasing their recruitability overall.

Conclusion

The case study of DigiVol exemplifies the ways in which high levels of recruitability can be achieved to assist in digitisation of heritage artefacts. Successful management of both on-site and online volunteers by a dedicated team of volunteer managers, has led to outstanding results leveraging off their efforts, which in turn, opens up previously geographically confined artefacts to the scientific community and other audiences. This paper aimed to use this case study to promote positive learning and replications by other similar organisations in the future. It highlights how technology can support people to volunteer in their own time and in locations of their choosing and how heritage and cultural organisations can take advantage of this model to either complement their on-site operations or create standalone programs. It is beyond the scope of the study to support the contention that virtual museum experiences may affect physical visitation to museums (Hume & Mills, 2011) however this is a worthwhile topic for future study to establish whether the good work of volunteers in digitising artefacts and making them available to broader audiences creates negative impacts for on-site museum visitation.

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Tables

Table 1. Case study methods and details

Method	No. participants	Details
Field visit	11	Observation of on-site volunteers and guided tour by volunteer manager
Interviews	3	Semi-structured interviews with program managers
Face-to-face focus group	9	Participants: on-site volunteers
Online focus group	7	Participants: six volunteers and online volunteer manager
Document analysis	-	Examining DigiVol in the Lab Volunteer Evaluation Report (May 2015) DigiVol Induction Handbook (January 2016) DigiVol website (https://volunteer.ala.org.au/); and DigiVol Online Video (Australian Museum 2015)

Table 2. The volunteer recruitment, retention, and management practices of the DigiVol program

	On-site Volunteers	Online Volunteers
Recruitment	<ul style="list-style-type: none"> • Museum visitors - museum's newsletter and website • Museum Studies' university students - networks with academic institutions • General volunteers - general volunteering seeking platforms, mainly students, parents and retirees 	<ul style="list-style-type: none"> • Australian Museum members' newsletter • The Atlas of Living Australia (ALA) website • The Australian Museum website • Social media • Volunteering organisations • Networks through institutions around the world
Socialisation and training	<ul style="list-style-type: none"> • Personal induction with the volunteer manager • Ongoing peer support, training and supervision by the volunteer manager • Clear and explicit communication of expectations • An introduction to the organisational culture 	<ul style="list-style-type: none"> • No formal induction process • Online videos and tutorials • Ongoing support through the site's forum and emails • Feedback on task quality
Recognition and satisfaction	<ul style="list-style-type: none"> • Work in rotating pairs • Social events • Respect and accommodation of volunteers' needs • Access to 'behind the scenes' tours of the museum • Branding: DigiVol t-shirts • Certificates of acknowledgment of service (3 and 5 years) • Recognition from museum staff • Celebration of collective accomplishments 	<ul style="list-style-type: none"> • Volunteers' contributions are tallied and publicly displayed • Award for 10,000, 20,000 and 50,000 transcriptions (e.g., books and DigiVol t-shirts) • Certificates of acknowledgment of transcription milestones