IMPROVING VISITOR ENGAGEMENT

Creating Effective Training Tools for Engaging Audience Segments at Museums Victoria

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March 17th, 2021
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Abstract

The goal of this project was to create effective training tools for Museums Victoria (MV) staff to better understand and engage with each of the museum’s six visitor segments. To achieve this goal our team analyzed MV datasets containing segment visitation patterns and exhibit preferences, and conducted interviews about how resources on segments are utilized. Our final deliverables included infographics and a module-based interactive training course.
Acknowledgments

We would like to thank our sponsor, Museums Victoria, and their representatives from their Audience Insight Team, Carla English, and Carolyn Meehan. This project would not have been possible without their help.

We would also like to thank our advisors, professors Stephen McCauley and Esther Boucher-Yip for their support during this project. They provided us with guidance and gave helpful feedback on our work, and this project would not be nearly as complete without their help.

Authorship

This report was written collaboratively by all team members with editorial suggestions by Professors Stephen McCauley and Esther Boucher-Yip. Individual sections have greater influence from specific members, however, the entire report was written and edited by the group so it would be inaccurate to give individual credit.
EXECUTIVE SUMMARY

It has become increasingly important for museums to better engage with their audiences to improve the visitor experience as the original role of museums has transitioned from places to store and display collections of art and history, into the role of hubs of culture, entertainment, and education (Shaby, N., Assaraf, O. B.-Z., & Tal, T., 2019). Museums Victoria, an organization of museums located in Victoria, Australia, divides its audience into segments to better increase audience engagement. They use an audience segmentation approach to understand the tendencies and interests of visitors. Increasing the engagement of their visitors is a priority of Museums Victoria (Marshall, L., 2017) as higher engagement improves overall experiences and increases the return of visitors (Museums Victoria, 2019).

Audience Segmentation is the practice of dividing an audience into subgroups that share common characteristics is a popular practice among large companies and organizations. Museums utilize audience segmentation to better understand their visitors. The six segments used by Museums Victoria are Elite, Connected, Obligated, Curious, Easy-Going, and Informed. Museums Victoria provides staff training for their employees on how to better understand and interact with each segment. Because their audience segments are unique to Museums Victoria, training material used by museum staff needs to be updated as it is based on data collected prior to July 2016 (Beucler J., Comeford K., Paolucci A., Rooney., R., 2016).

Segments defined by their shared consumer driver
The goal of our project team was to analyze visitor data collected from 2016-2020 and create new training material that could be used by Museums Victoria staff to better engage with their visitors.

To achieve this goal Museums Victoria supplied us with the data they collected throughout the years 2016-2020. Their data consisted of several different surveys asking about various thoughts and opinions people have about Museums Victoria. The first survey was a consolidated concept sort survey (conducted by an outside agency) and the data gathered was based upon population surveys taken by the locals of Victoria. The survey consisted of people who have not necessarily been to Museums Victoria but were asked about which exhibits they would be interested in attending. The survey also asked questions relating to demographic and psychographic information. This survey was for business decisions regarding exhibition choices to appeal to specific segments, which allowed Museums Victoria to predict visitation outcomes for their museums based on the intent and interest of visitors. All findings from this survey’s dataset were compiled in a master spreadsheet which was given to Museums Victoria’s Insight Team and staff to use as a reference when determining and planning new exhibits or programs.

The other two surveys were conducted by museum staff with visitors as they exited exhibits. The Visitor Sentiment Index (VSI) asked participants to rank on a scale of 1-10 factors such as customer service, exhibition comfort, etc. These questions were subjective to how visitors felt about their experience. Similarly, to the VSI surveys, the Visitor Profile Surveys (VPS) asked questions pertaining to people’s preference on specific exhibits. The VSI and VPS surveys both asked about general demographic information as well, and their responses stored in two separate VSI and VPS datasets. All three of these datasets were analyzed using the statistical software SPSS, and the findings were compiled in an analytical report.

Key Finding from the VPS dataset
The next objective to achieve our final goal was to update and redesign previously existing infographics corresponding to the six segments. It was important to update these existing infographics as the information they contained was outdated. The last time Museums Victoria’s infographics were up to date was in 2016, and since then they have collected more data on their audience. Museums Victoria used the old infographics every day as they were displayed in staff break rooms and were used when deciding on creating new exhibits for museums.

The format of all the infographics were also reworked to make it easier for staff to read by reorganizing and de-cluttering the displayed information. The main takeaways from the datasets were displayed on the infographics in an easy-to-understand way. These infographics provided a way for the Museums Victoria staff to quickly access the information in a visually pleasing way.

Whereas the infographics were meant to be a quick method of revising the most important aspects of each segment, the team also designed a module-based training course. These modules were intended to be a fun and captivating way to keep the staff focused on learning about audience segments while also testing their knowledge as they progress throughout the training. This involved the user clicking through readings, videos, pictures, quizzes, or other interactive assessments to complete the modules.
For structural purposes, each segment training was designed and organized in the same way. It starts off with a background introduction of each segment, followed by an initial video with pre-course questions embedded into the video. The course then transitions into a segment-descriptor word association game that keeps the trainee engaged while also learning about what words are associated with each segment. Trainees can also compete with other coworkers who have also taken the training. The next section dives into statistics related to each segment as they correspond to each individual museum.

The user is then shown which exhibits each segment favors by museum, and finally guided to review the infographics related to that segment. The last portion of the training is a post quiz that contains multiple-choice questions relating to various topics covered in the course as well as scenario-based questions.

The training module site, as well as online versions of the infographics, were handed off to Museums Victoria's Audience Insight Team to allow them to make changes without having to start from scratch. This is important as the museum will likely wish to make changes or edits as new data is collected. The team recommends that Museums Victoria begins to use the training tools given to them as soon as possible. The project team suspects that the use of these training tools will increase the understanding museum staff have of the audience segments, their needs, and motivations. This in turn will allow for greater engagement with visitors resulting in improved visiting experiences.
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It has become increasingly important for museums to better engage with their audiences to improve the visitor experience as the original role of museums has transitioned from places to store and display collections of art and history, into the role of hubs of culture, entertainment, and education (Shaby, N., Assaraf, O. B.-Z., & Tal, T., 2019). Museums Victoria, an organization of museums located in Victoria, Australia, divides its audience into segments to better increase audience engagement. Increasing the engagement of their visitors is a priority of Museums Victoria (Marshall, L., 2017) as higher engagement improves overall experiences and increases the return of visitors (Museums Victoria, 2019).

Audience Segmentation, the practice of dividing an audience into subgroups that share common characteristics is a popular practice among large companies and organizations. Many museums utilize audience segmentation to better understand their visitors however, the six segments used by Museums Victoria are unique to them. The segments used by Museums Victoria are based on motivations for visiting and are Elite, Connected, Obligated, Curious, Easy-Going, and Informed. The staff of Museums Victoria are trained to recognize and understand the needs of each of these segments so they are better prepared to recommend exhibits and engage with visitors (Beucler J., Comeford K., Paolucci A., Rooney., R., 2016).
Due to the unique audience segments Museums Victoria uses to divide its audience, all relevant data on these audience segments must be collected and analyzed by the museum itself. Because of this, training material used by museum staff needs to be updated, as it is based on data collected prior to July 2016 (Beucler J., Comeford K., Paolucci A., Rooney., R., 2016).

The goal of our project team was to address this issue by creating new training material that could be used by Museums Victoria staff to better engage with their visitors. To achieve this our team analyzed survey data provided by the museum to identify patterns between the audience segments and determine how they respond to various aspects of museum interactions.

Along with this research, we conducted interviews with museum staff to assess the effectiveness of pre-existing training tools to determine where improvements could be made. Pre-existing training tools such as infographics were then updated to better reflect the new data acquired. Finally, the new data and updated pre-existing tools were organized and compiled into the form of interactive training modules. The compiled findings, infographics, and web-based training modules were then given to Museums Victoria to better help them train their staff.
This section begins by presenting information about audience segmentation, infographics, and training modules in Melbourne, Australia. It then presents segmentation case studies to showcase segments and their impact on museums. The section then discusses data collection on segmentation by Museums Victoria, as well as a 2016 Worcester Polytechnic Institute (WPI) Interactive Qualifying Project (IQP) project about segments carried out in conjunction with Museums Victoria. Furthermore, this section explores the role of audience segmentation in developing effective training tools for museum staff members who interact with visitor segments.

**Museums Victoria**

Museums Victoria is Australia’s largest public museum organization, responsible for the operation of three major state-owned museums, located in Melbourne, Victoria, Australia. The three museums are the Melbourne Museum, Scienceworks, and the Immigration Museum with about 1 million, 500,000, and 125,000 annual attendees respectively (Museums Board of Victoria, 2020). Along with the three museums, Museums Victoria also manages the Royal Exhibition Building, which is a World Heritage-listed building, also located in Melbourne.
The Museums Victoria staff responsible for the analysis of attendees, specifically the motivations behind attendee visitation to the museums, is their Audience Insights Team. The team analyzes visitor patterns to assist the museum in designing programming and exhibits that cater to better engagement with attendees, resulting in higher attendance, as the needs and expectations of each visitor differ (Recupero et al., 2019). In order to ensure that most visitors, have an enjoyable experience, the Audience Insights Team seeks to understand the driving factors that lead visitors to the museums. With this knowledge, museum staff can create content that the wide variety of attendees will find engaging.

The creation of museum content with wide-reaching audience engagement also serves to increase the number of people who choose to visit the museums each year, ultimately increasing profits (Taheri et al., 2014).

**Audience Segmentation**

Audience Segmentation is the recognition of subgroups that share common characteristics which are often done by large companies and organizations. There are a few different types of audience segmentation including geographic, demographic, psychographic, and behaviors, with each of these subgroups having defining criteria and characteristics. Geographical criteria are rural, urban, regions, communities, and neighborhoods. Demographic criteria involve age, income, gender, family size, language, and occupation. Some behavioral characteristics are loyalty, frequency, consistency, relevance, and habits. Psychographic traits include personality, lifestyle, values, opinions, and social class (Del Chiappa, G., Andreu, L., & G. Gallarza, M., 2014).
In order to create audience segments, the most common approach involves data being collected by conducting questionnaires or surveys. The data gets analyzed based on the criteria the audiences fall in. The criteria, in this case, are behaviors, geographic, demographic, and psychographic. The most prominent criteria categories are then used to create segments. Then, an audience profile will be created for each segment which will then help to cater to segments accordingly. These profiles can contain audience motivations, demographics, personality traits, or specific on how to cater to that segment (Beucler J., Comeford K., Paolucci A., Rooney., R., 2016). Museums Victoria used these processes to develop their own audience segments that are particular to them.

Museums Victoria hired Colmar Brunton Co., a market research agency in 2003, to analyze the museum’s visitors. Colmar Brunton Co. grouped the audience into four segments, Easy-Going, Connected, Informed, and Curious. Again, in 2013, Colmar Brunton Co. was hired to reevaluate the visitor segments and determined there are six segments rather than four, Easy-Going, Connected, Obligated, Elite, Informed, and Curious. Along with identifying the six segments, Colmar Brunton Co. also developed a tool that utilizes a custom-built algorithm to assist Museums Victoria in identifying the audience segment to which a visitor belongs.

In order to define the segments, they are categorized and describe through consumer drivers. Consumer drivers are a visitor’s intent for attending a museum. The consumer drivers used to identify the segments are absorb, stimulate, themselves, others, expressive, belonging, personal growth, and entertainment. People who attend museums with the motivation to absorb, are there for themselves and to deeply reflect and discover, while people who are there to stimulate go for the active participation and entertainment. People who go to the museum to be social prefer to engage in the shared experience while individuals who are more independent go for a more personal experience to gain what they want from the museum.
Expressive and Belonging are dimensions that are about an individual’s social development and identity which alters as the community changes. Personal growth and entertainment are based on the experience people want to gain from going to the museum.

The segments that Museums Victoria had developed are complex and unique to their wide range of visitors. Understanding the needs of each individual segment of the visitor population is crucial as it directly impacts the quality of visitors’ experiences and ultimately the success of the museum.

Easy-Going people desire to be entertained by social connections as they are there casually, and they need to be stimulated by their surroundings. An Easy-Going person needs not to be too challenged in the activity but rather entertained in what they are engaging in. They prefer surface-level information that does not contain many details. They also crave excitement and social interactions, but they need not feel pressure, constricted, or claustrophobic. Giving a lot of space for Easy-Going people to move around is important and adding other experiences like cafés and shops promotes the freedom they want. Generally, Easy-Going people are usually children or people going in groups.
A **Connected** person wants to be entertained by others for a relaxed joint experience and feel belonging in a comfortable atmosphere. A person wanting to feel Connected also needs to be social and creating spaces for people to do that is crucial. Another key factor for catering to Connected people is familiarity. Creating familiar surroundings allows them to be immersed in their activity by recreating relatable experiences. Similarly, to Easy-Going, it is important to keep the difficulty low. A Connected person also prefers content that is culturally and historically notable. Connected people have a wider demographic and are dependent on the type of museum they attend.

**Obligated** visitors are there to absorb information and find deeper meaning, but they also want to feel belonging when they are experiencing the museum with another person. They also need an emotional personal connection through storytelling and vocals. They also want to feel nostalgic through their personal memories to help achieve an emotional response. Opportunities for time to reflect and discover the deeper meanings behind the content in an exhibit without feeling guilty will increase their likelihood of returning to the museum. Obligated visitors are present and want to be taken on an emotional journey to help discover themselves.

People who want to be **Informed** want personal growth through enriching experiences and wish to absorb with the intent for a serious comprehension of new knowledge. Wanting to be Informed requires detailed content in quiet places where people can dive into the information. After leaving the museum, an Informed person wants to feel like they accomplished something and grew as a person. Informed people want to be reminded that their experience is “worth it” and that their time spent at the museum was useful for themselves. An Informed person will be informed best at traditional and historical museums as not all museums can fulfill their needs.

**Curious** guests go to museums for themselves to become cultured and expand upon their knowledge in specific subjects. A Curious person requires content that activities the mind rather than just having facts. Broader topics are better for generating interest and having dedicated forms of communication helps keep the person engaged. Nontraditional museums are best for a curious person to absorb new insight.

Although a smaller percentage of people, **Elite** visitors want to be stimulated by the environment and are expressive about what they have achieved. Keeping an Elite person involved requires giving them special treatment when at the museum. Some examples of that include dinners, one-on-one conversations, and exclusive invitations not offered to the public.
They need to be made the top of the list to feel prioritized and need their own space where they can showcase personal experiences. Also, keeping information concise and easy will make sure they stay engaged, but they still want opportunities to be challenged. Maintaining sophistication and class at all times is their goal.

**Bringing Audience Segmentation to Life (2016)**

Our project is a continuation of a project completed in 2016, also done in collaboration with Museums Victoria, titled Bringing Museum Audience Segmentation to Life (Beucler J., Comeford K., Paolucci A., Rooney., R., 2016). This project worked on trying to understand the audience segmentation used by Museums Victoria and designed engaging training material for their staff, specifically museum educators who are staff members responsible for informing the public about exhibits at the museum and answering any questions.

Museum educators are well educated, typically with degrees in science or art depending on the type of museum and exhibit they are working with (Ambrose, T., & Paine, C., 2018). The 2016 team created six sets of videos and infographics for the segments used by the museums, to be used as educational resources implemented in staff training sessions (Beucler J., Comeford K., Paolucci A., Rooney., R., 2016). These videos and infographics are published and available to view on the Worcester Polytechnic Institute digital commons.

Each of the six videos covered a different segment but followed the same format. A brief definition of the segment was given, followed by an interview conducted with a volunteer museum attendee. The interviewees had previously been determined to be a part of the segment corresponding to the specific video. The questions asked in these interviews aimed to highlight the different needs and perspectives of individuals in different segments.

![Figure 6: Museums Victoria Audience Segments Timeline](image)
The infographics designed by the team described the characteristics of each segment, highlighting the most interesting and relevant information, and are based on data collected from internal reports within Museums Victoria. These outdated infographics are readily available for staff to view in locations such as break rooms, so they can quickly review the segments. Aside from displaying out-of-date information, there are several issues with the design of the 2016 team’s infographics, one of which being the size. Museums Victoria is unable to fit any of the six segment’s infographics on a single piece of paper, creating complications in displaying them around. There are other design choices the 2016 project team made, that Museums Museum wanted to change to better reflect their current views, such as the removal of explicitly male-female icons.

Conversations with Audience Insights staff revealed that these videos are still being widely used and appreciated by the staff of the museums. The work done by our group is not meant to entirely replace the work done by the 2016 project group, but instead, update and add to the available training tools to better reflect new data acquired since 2016.

Figure 7: 2016 Project Team Informed Infographic
Audience Segmentation Approaches at other Museums

Visitor segmentation is common in the art, science, and history museums, with each museum type applying various methods of analyzing and grouping their audiences. Many museums rely on the emotions and motivations of the visitors when grouping audiences to create segments, while other museums will base their audience segments on demographics. There is a wide range of segments that were determined for the museums, Museum of Archaeology in Bolzano (ÖTZI), Museum of Modern Contemporaneous Art of Trento, and Rovereto (MART), and National Museum of Archaeology by using questionnaires and cluster analysis. Below we describe two case studies of the implementation of visitor segment analysis in museums.

In the first case, two different museums were investigated, the first one being the South Tyrol Museum of Archaeology in Bolzano (ÖTZI) and the second being Museum of Modern and Contemporaneous Art of Trento and Rovereto (MART) both in Northern Italy. The purpose of this research was to improve marketing strategies targeted towards museum visitors.

Usually, visitors are thought to be one homogeneous group of people meaning only one market, but they can instead be thought of as a heterogeneous market due to the variety of visitors with different characteristics, perceptions, and needs. (Brida, J. G., Disegna, M., & Scuderi, R., 2013)

Identifying the clusters of visitors is important for developing strategies to cater to the needs of the museum’s guests. In order to develop the clusters, the Bagged Clustering method is used, which combines both hierarchical and partitioning methods. Hierarchical methods involved combining and/or dividing up clusters based on similar observations. The partitioning methods included a base number of clusters around a central idea that finds segments around observations. This study measures the motivations for each segment using binary variables, i.e. Yes/No. Binary data is best for clustering observations as this corresponds to hierarchical methods. Bagged Clustering is useful because it can integrate already existing binary data with overcoming the limitations of traditional segmentation methods (Brida, J. G., Disegna, M., & Scuderi, R., 2013). It was concluded that the MART museum was grouped into three clusters while the ÖTZI museum was grouped into two clusters. They found that the segments of Knowledge Seekers and Interested overlapped for both museums but had different demographics.
The MART had a third segment of Non-motivated visitors, the smallest cluster, as they preferred to see temporary exhibits and shop at the museum. Non-motivated visitors were more present at the MART museum as it consisted of people who are obligated to attend or have already attended. (Brida, J. G., Disegna, M., & Scuderi, R., 2013)

Figure 8: Archeological Museum of South Tyrol, Bozen (Berberich, H. 2008)

The second case study was done at the National Museum of Archaeology in Sardinia, Italy. This study investigated emotions as a segmentation tool to help cater to visitors’ satisfaction when attending museums. Emotions are believed to be the key driver in understanding a consumer’s behavior. When a visitor is feeling positive, they tend to have greater satisfaction after leaving the museum and are more likely to return to museums. (Del Chiappa, G., Andreu, L., & G. Gallarza, M., 2014)

In order to collect data on the museum’s visitors, questionnaires were distributed to a sample of visitors about their emotional motivations to attend the museum. The survey consisted of four main categories; socio-demographic variables, emotional variables, perception of the museum, and overall satisfaction. The first part was general demographics, the second part was ranking emotional variables, the third part was yes or no questions about the visitor’s perception of the museum, and the fourth part was one question ranking the visitor’s satisfaction from the museum (Del Chiappa, G., Andreu, L., & G. Gallarza, M., 2014). The 12 feelings were used to conduct a hierarchical and non-hierarchical cluster analysis. There were two segments identified, the first one having higher levels of attractiveness and uniqueness and were overall more satisfied with the museum, while the second one more dissatisfied with a lower population of the people surveyed. The two segments determined were based mainly on parts two through four of the questionnaire proving that emotions factor into the satisfaction of a visitor when attending a museum (Del Chiappa, G., Andreu, L., & G. Gallarza, M., 2014).
Museum Training

An important goal for this project was to create effective training modules for the Museums Victoria’s staff to better identify and engage audience segments. A training module is one structured section of a course that focuses on informing the trainee about a single subject. Assembling multiple modules together is used to create step-by-step learning with each module forming only one part of an overall topic (McGarry, 2019). This enables employees to gradually progress through a course, module by module, to reach their training goals (McGarry, 2019). The module method of presenting information includes proof of completion for the employer, assuring their staff is prepared to progress to the next stage of training or begin working.

Technology has developed to the point where multimedia has become widely used in all aspects of life, including education (Guan, N., Song, J., & Li, D., 2018). Multimedia learning refers to a combination of text, videos, sounds, and graphics used to display information. Studies have shown that immersive multimedia learning, when implemented correctly, leads to an overall higher information retention rate than traditional education techniques such as oral speaking, and reading (Muslem, A., & Abbas, M., 2017).

Other studies have shown that interactive multimedia can improve critical thinking, an important skill for museum staff to have (Djamas, D., Tinedi, V., & Yohandri., 2018). Multimedia learning is most effective when several different forms of media are used in conjunction with another to convey the same point.

Our modules were designed to be interactive, visually pleasing, and easily accessible to the staff whenever needed. The modules for each segment needed to be practical, so the trainee can adapt what they have learned to situations they may face when interacting with museum visitors (Robotham, 2003). When a staff member of Museums Victoria utilizes our training course, they should not only understand the information that was provided to them but be able to translate the newly acquired knowledge to improve their engagement with visitor segments. The information presented within our course was based on the findings of our analyzed data and interview responses.
Museum educators play an important role in the amount of engagement between museum visitors and the museum. These staff members act as one of the interfaces used by visitors to interact with exhibits and collections. However, despite their importance to the overall engagement of visitors and the success of the museum, there is a lack of standardization in their training and experiences, as each educator’s exact role is largely determined by the needs of the museum and the specific exhibits and collections they interact with (Piqueras, J., & Achiam, M., 2019).

Training for museum educators is specific for each exhibit but is heavily focused on how best to engage with visitors in a meaningful way given limited time. Museum educators focus on techniques such as gallery teaching, which emphasizes finding a balance between providing information and leaving open space for visitors to explore at their own pace (Shaby, N., Assaraf, O. B.-Z., & Tal, T., 2019). Other factors are involved in the training of museum educators, but for the purpose of this project, we will be focused on training related to bettering visitor engagement.

Currently, Museums Victoria staff attend one training session led by members of the Audience Insight Team, related to the topic of audience segmentation. In this session, new staff or existing staff interested in learning about audience segmentation watch a PowerPoint where each segment is explained in-depth and is followed by a corresponding video on the segment. This training session is interactive as after viewing the PowerPoint and videos, staff are sent into the museum to identify exhibits that would appeal to specific segments (English C., Meehan C, 2020). The Audience Insight Team then uses the exhibits chosen by staff members and the reasoning behind the choice to evaluate the comprehension of the training course.
OBJECTIVE 1: DATA ANALYSIS

Rationale

In order to successfully complete the rest of our project, it was imperative that we first establish a strong, data-based foundation on which to base the rest of our project on. This foundation served to guide the creation of the later components of the project, as well as become a large portion of the content housed within the subsequent parts. Museums Victoria had continuously collected data on their visitors since the previous project from 2016. This data was comprised of three different sets of data, first of which being the Visitor Sentiment Index which contained subjective information about the visitor’s experience. The Visitor Profile Surveys contained objective data regarding the exhibits visitors saw and some demographic information. Finally, a consolidated concept sort survey among the local Melbourne population was conducted by an outside agency.

Methods

To analyze the data, we used the software Microsoft Excel, as well as Statistical Package for the Social Sciences, also known as SPSS. Our first goal in analyzing the data was to establish basic demographics for each of the segments as well as each of the museums. We looked at the segment distributions for each museum, as well as the age, group composition, and origin distributions for each segment and museum. Next, we looked at a slightly more in-depth analysis by correlating the visitations of each segment over time with the dates of temporary exhibits. We then calculated the Net Promoter Score for every segment at each museum. Finally, we found which exhibits each segment favored the most at each museum.
Findings

The Melbourne Museum demographic followed a nearly identical distribution when compared to Museums Victoria as a whole. When looking at what segments each museum attracted, we found that the Melbourne Museum had an even distribution between all of the segments. Scienceworks had a much larger proportion of visitors identified as Easy-going and Connected with 28.43% and 21.01% respectively. In contrast, the Immigration Museum had the majority of its visitors identifying with the Informed and Curious segments with values of 23.09% and 34.47% respectively.

The overall segment distributions had a few major differences between 2016 and 2020. Curious visitors increased by 10% (15% to 24.85%). Informed visitations decreased by 7% (23% to 15.8%). Easy-Going visitations decreased by 3.5% (20% to 16.54%). The rest remained fairly constant.

<table>
<thead>
<tr>
<th>Segment</th>
<th>July 2016</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Curious</td>
<td>15%</td>
<td>24.85%</td>
</tr>
<tr>
<td>Elite</td>
<td>6%</td>
<td>5.77%</td>
</tr>
<tr>
<td>Obligated</td>
<td>19%</td>
<td>18.43%</td>
</tr>
<tr>
<td>Informed</td>
<td>23%</td>
<td>15.8%</td>
</tr>
<tr>
<td>Easy-Going</td>
<td>20%</td>
<td>16.54%</td>
</tr>
<tr>
<td>Connected</td>
<td>17%</td>
<td>18.62%</td>
</tr>
</tbody>
</table>
The table below shows the most popular exhibits for each segment, regardless of the museum. The two most popular exhibits were the Sportsworks exhibit favored by all segments while the Immigration Exhibit is favored by the segments Informed, Obligated, Curious, and Connected. This coincided with the Easy-Going family to adult ratio and younger age range present as the Scienceworks Museum was geared towards children. Easy-Going and Elite had the same exhibit preference but with different rankings with all of their favorite exhibit coming from the Scienceworks Museum. Segments Informed and Curious had the same favorite exhibit in the same ranking order with preference to exhibits relating to the history of immigration and indigenous people of Australia. Both of those segments have similar motivations for visiting museums which explains why they enjoy the same exhibits.

<table>
<thead>
<tr>
<th>Segment</th>
<th>Favorite Exhibits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2. Identity: Yours, Mine, Ours (IM)</td>
</tr>
<tr>
<td></td>
<td>3. First Peoples Gallery, Bunjilaka (MM)</td>
</tr>
<tr>
<td>Easy-Going</td>
<td>1. Sportsworks (SW)</td>
</tr>
<tr>
<td></td>
<td>2. Childrens Gallery (MM)</td>
</tr>
<tr>
<td></td>
<td>3. Think Ahead (SW)</td>
</tr>
<tr>
<td></td>
<td>2. Identity: Yours, Mine, Ours (IM)</td>
</tr>
<tr>
<td></td>
<td>3. Dinosaur Walk (MM)</td>
</tr>
<tr>
<td></td>
<td>2. Identity: Yours, Minem Ours (IM)</td>
</tr>
<tr>
<td></td>
<td>3. First Peoples Gallery, Bunjilaka (MM)</td>
</tr>
<tr>
<td>Elite</td>
<td>1. Sportsworks (SW)</td>
</tr>
<tr>
<td></td>
<td>2. Ground Up: Building Big Ideas Together (SW)</td>
</tr>
<tr>
<td></td>
<td>3. Think Ahead (SW)</td>
</tr>
<tr>
<td>Connected</td>
<td>1. Sportsworks (SW)</td>
</tr>
<tr>
<td></td>
<td>3. Ground Up: Building Big Ideas Together (SW)</td>
</tr>
</tbody>
</table>

*Note: Melbourne Museum indicated by MM, Scienceworks by SW, and Immigration Museum by IM*
In the surveys, visitors were also asked where they are generally visiting from. The Melbourne Museum had about 59% of its visitors from the Melbourne metropolitan area. The majority of the visitors are local, but they still get a notable amount of interstate and overseas visitors totaling around 35%. The Scienceworks Museum had a large percentage of Melbourne metropolitan visitors at around 80%. This museum is directed more towards families and children which is why there are more local visitors rather than international visitors. Immigration Museum had more varied responses to where the visitors are located. 59% of the visitors are either interstate or international while 31% of the rest of the visitors are more local. This museum attracts more tourists as they want to learn more about Australian history and immigration while locals were more likely educated about the topics through schooling.
Another form of data analysis we did was the Net Promoter Score (NPS), which is a measure of how likely visitors are to recommend visiting the museum to a friend or family member. It is calculated by first asking visitors to rate how likely they are to recommend visiting the museum to someone else on a scale of one to ten. All responses six or below are counted as detractors, any responses of seven or eight are counted as neutral, and finally, responses of nine or ten are known as promoters. Then, the percentage of detractors is subtracted from the percentage of promoters to give the final net promoter score.

When looking at Melbourne Museum and Scienceworks, you can see that the Easy-Going and Connected segments tend to have the highest NPS. This is largely due to the fact that these two segments are the most socially driven of all the segments. In contrast to Easy-Going and Connected, the Informed segment is the most individual of all the segments, with generally lower scores. The Immigration Museum’s distribution is swapped with Informed and Curious giving much higher NPS, while Easy-Going, gives by far the least. This is due to the Immigration Museum’s focus on more informational and educational experiences, which Informed visitors are particularly interested in.

Figure 14: NPS Score at each museum by segment
More analysis includes correlating the number of visitations through which is useful to staff responsible for designing the exhibits. The scatter plot below shows Obligated visitations at Scienceworks over time. There is a peak in visitations around April 2018 and April 2019. During this time, two temporary exhibits were on display, Above and Beyond, as well as Museum of the Moon. These exhibits are likely the cause for the visitation spike as they were also some of the most favored exhibits for Obligated visitors. Exhibit designers can then use these exhibits as a reference for designing future Obligated-visitor intended exhibits.

Using newly collected data versus older data is more reliable when trying to communicate large amounts of statistical information (Krauss, J., 2012). We looked for patterns, easy to see trends, and outliers in the data to find the main takeaways to be addressed in our infographics and training modules (Smiciklas, M., 2012). Some of these patterns and trends included an increased number of responses around the time of temporary exhibits which can sway the percentage of a specific segment.
Rationale

Updating the existing infographics was important as the information they contained was outdated. The last time Museums Victoria’s infographics were up to date was 2016 and since then they have collected more data on their audience. Museums Victoria used the old infographics for every day as they were displayed in staff break rooms and were used to help when deciding on creating new exhibits for museums. Infographics are better for retaining facts and figures in comparison to reading informational reports and are simple to share and spread digitally making it easier to present to Museums Victoria staff. There were six infographics, one for each audience segment that were previously made by the 2016 project group.

The objective was to update and redesign the previously existing infographics to give the museum staff a clearer takeaway how to better engage with the different segments. To have accurate statistics on infographics, datasets focused on survey collection from the Museums Victoria through the years 2016-2020 were used. The datasets needed to be presented in an evident way through graphs and tables which can then be used to create visually engaging infographics. The format of the infographics was reconstructed to make it easier to read for the staff by reorganizing and de-cluttering the infographics. The main takeaways from the datasets were displayed on infographics in an easy to understand way for the Museums Victoria staff.
**Methods**

For the infographics, we also focused on age distribution, family attendance, visitor’s origin, and the last time they visited dependent on specific museums. Important patterns and trends from the data were extrapolated into various types of graphs to be easily displayed on the infographics. There also was one main learning objective from each infographic for the museum’s staff to focus on, which the data support.

A good infographic is 1-2 pages, has text and visuals, and the desired goal that is easy to understand and consume. The infographics we designed to tell a story by supplying context like pictures, titles, legends, or questions. As we compiled our infographics, it was important to keep thinking about relating the datasets in visually appealing ways so that our presented information connects. We created infographics for our audience that are more condensed in size but hit on the same points as the previous infographics from 2016.

We also added an additional feature, a QR code with links to PDF versions of the infographics. Interviews were conducted to help up gain information on which parts of the 2016 infographics Museums Victoria’s staff liked and disliked. The free software program Canva was used to design all the infographics.
Developing Infographics

Infographics serve as an effective training material as they summarize key points about each segment in a visually effective and efficient way. They are useful as a quick and clear reference to data and information. Infographics were designed for each segment to broadly reflect the three museums across Museums Victoria.

After compiling our new findings, we were able to update the information for the new infographics to reflect the more recent data sets given to us by Museums Victoria. Many of the changes made to the infographics came as a result of consolidating with the Museums Victoria Insight Team. We concluded that the new infographics should include content that reflected the new post-2016 datasets and contain overall content that can be applied to all three museum locations. The overall design of the infographics was reformatted to be more concise and visually pleasing, while still keeping in consideration the same color schemes from the old 2016 versions in order to create this effective training material. We also kept the coloring monochromatic rather than multicolored and designed it to be read from top to bottom. Statistics such as gender that were deemed irrelevant were removed.

Figure 17: New Infographics for Easy-Going
Infographics Breakdown

The top part of the infographic contains the symbol to represent the segment and the consumer driver for that segment. It also contains a QR code that links to the PDF versions of the infographics for digital viewing.

The last section includes the top four exhibits that were favored by the segment regardless of museum. There also are data sources on the bottom to say where the information came from.

Figure 18: Part 1 of Infographics

The next part of the infographics is the data. This includes statistics regarding at specific segment. It include age distribution, segment percentage, visitor origin overview, family distribution, and last time visitation.

Figure 19: Part 2 of Infographics

The following sections contains five examples of that segments motivation for attending the museum and how to cater to them.

Figure 20: Part 3 of Infographics

Figure 21: Part 4 of Infographics
To complete our research, our team conducted interviews with the purpose of gaining more insight on how to construct our training material. The first segment of people interviewed was with an instructional design professional from WPI’s Academic Technology Center (ATC). Their background encompassed the design, development, and implementation of online, blended, or technology-enhanced courses and faculty training at WPI.

Some of the main takeaways from this interview were to:

- Work backwards. Establish what our end goal for the user might be, and design our content accordingly.

- Model the new training similar to what their previous training was. This enables us to not have to start from scratch and gives a sense of familiarity to the staff undergoing the training.

- Google Sites and EdPuzzle plug-ins are excellent resources to create instructional training programs.

Other interviews were conducted with the technical staff at museums Victoria who use the concept of engaging with visitor segments daily. These staff members provided vital feedback on how often they used the existing training materials, their understanding of motivational segmentation, and what they would like to see in the new training tools. We also created a text version of each infographic for the purpose of quickly copying information, as requested by staff members.
OBJECTIVE 3: TRAINING MODULES

Create interactive training modules to strengthen Museums Victoria staff engagement with visitor segments

Rationale

We develop an interactive training module course to help the Audience Insights Team train Museums Victoria staff on how to better identify and engage with visitor segments. Our team came to the conclusion to design training modules after receiving full creative autonomy to design our own training program that was different from the Bringing Museum Audience Segmentation to Life. This training was intended to be a fun and captivating way to keep the staff focused on learning about audience segments while also testing their knowledge as they progress throughout the training.

Methods

Our team conducted research to understand the best practices for creating effective training modules and identifying the best software to use to develop the courses. It was determined that Google Sites best fit our needs as it is free, accessible, and easy to edit. We discovered and examined existing training modules courses to better understand how to build them. We also interviewed an instructional design expert at WPI, to learn from their experience in designing and creating effective training programs for staff and students.
We aimed to construct modules that effectively communicated our findings while remaining visually pleasing. The modules contained interactive elements to keep the staff engaged throughout the training process. This involved the user clicking through readings, videos, pictures, quizzes, or other interactive assessments to complete the modules. We also sent Museums Victoria staff the early versions of the modules to gain feedback on how to improve the information presented.

While creating the training modules, we adhered to the following five-phase process (Huang, 2005):

- **Phase 1.** Understand — understand who will use the module (target group) and address how the module will help the users learn (educational challenge, needs assessment).
- **Phase 2.** Design — Design the module for your user (learning design), from a user’s point of view (user-centric).
- **Phase 3.** Build — Build interactivity and multimedia components using best practices (media development).
- **Phase 4.** Test — See how well your users respond to the module (user testing, usability heuristics).
- **Phase 5.** Improve — Evaluate how well students learned and how well the module performed (evaluation of learning outcomes), (Huang, 2005).

Our research on existing module-based programs did help us understand the process of how to properly present our data findings in an interactive module format. Steps include creating a story behind presented information, adding informational voiceovers, implementing interactive scenario-based decision-making activities, and adding small exams throughout the course.

Based on feedback from Museums Victoria we also concluded that each module set will divide into the six audience segments as they pertain to the Melbourne Museum, Scienceworks, and Immigration Museums so that staff receives information tailored to their museum.

Figure 22: Training Module sourced from iSpring Solutions
Module Breakdown:

The Google Site module training course has three main pages; Home, Training Modules, and Infographics. The home page consists of an introduction about Museums Victoria and general information about how to navigate the training. There are links to take the user to the Training Module tab or the Infographics tab. At the end there is an informational video about general audience segmentation, as well as a video on how to navigate the site.

For structural purposes, each segment training was designed and organized in the same way. They begin with a background introduction of each segment, followed by an initial video with pre-course questions embedded into the video. The video was created by the 2016 project group and we then incorporated questions throughout using edPuzzle. The course then transitions into a segment-descriptor word association game. These interactive games were a fun way to keep the trainee engaged while also learning about what words are associated with each segment. Trainees can also compete with other coworkers who have also taken the training. Word game were created using Wordwall.
The following section dives into statistics related to each segment as they correspond to each individual museum.

**The Easy-Going Visitors Favorite Exhibitions**

- **At the Scienceworks**
  - Tinkerbots
  - Grow Up: Building Big Ideas, Together
  - Think Ahead

- **At the Immigration Museum**
  - Immigration Exhibits
  - Identity: Years, Miles, Ours

**The Easy-Going Visitor at a Glance**

- **Melbourne Museum**
  - Easy-Going visitors represent 17% of all Melbourne Museum Visitors.
  - 74% of Easy-Going Melbourne Museum visitors attend with children, compared to only 4% of all Melbourne Museum visitors.
  - Most Easy-Going visitors (52.4%) have visited the Melbourne Museum in the last 12 months.
  - The Net Promoter Score (NPS) for the Easy-Going visitors at the Melbourne Museum is 70 compared to an average of 10 across all segments.

- **Scienceworks**
  - Easy-Going visitors represent 23.9% of all Scienceworks visitors.
  - 76% of Easy-Going Scienceworks visitors

**Figure 25: Easy-Going Training Module**

Introduction and Word Game

The user is then shown which exhibits each segment favors by museum, and finally guided to review the infographics related to that segment.

**Figure 26: Easy-Going Training Module**

Statistics and Data

**Figure 27: Easy-Going Training Module**

Favorite Exhibits
The last portion of the training is a post-quiz that contains multiple-choice questions relating to various topics covered in the course as well as scenario-based questions. This quiz was made through Google Forms.

The last tab are contains all six infographics for each segment. Clicking on each will open up a PDF version of the infographics, making it easier to read and view electronically. There is a link at the bottom of the page that take the user to the text version of the infographics.

Figure 28: Easy-Going Training Module Post Quiz

Each training module takes roughly ten minutes to complete, resulting in the final completion time of the training course lasting about one hour.
This project was a continuation of a 2016 study in Museum Victoria's constant effort to be at the forefront of museum experiences. The goal of this project was to provide updated training material for museum staff about visitor segment patterns and preferences.

Analysis of the datasets provided to the team by Museums Victoria was completed, culminating in a compiled report. This analytical report highlighted important statistics and trends relevant to museum staff, as well as notable differences from previous datasets.

The team produced six infographics each corresponding to one of Museums Victoria's motivational segments. Each of the infographics displayed information that reflected the findings concluded from the analyzed data. The infographics were also updated stylistically, now being able to fit on a standard sheet of paper used by Museums Victoria and featuring icons and images that better reflect the museum's views.

The online training modules hosted on a Google site's website were all successfully created and approved by Museums Victoria. The training module site, as well as online versions of the infographics, were handed off to Museums Victoria's audience insight team to allow them to make changes without having to recreate our deliverables from scratch. This is important as the museum will likely wish to make changes or edits as new data is collected.

The team recommends that Museums Victoria begins to use the training tools given to them as soon as possible. The Audience Insight Team as well as other staff members who have seen the new infographic and training site were receptive to implementing them in required training. Our team suspects that the use of these training tools will increase the understanding museum staff has of the audience segments, their needs, and motivation. Allowing Museums Victoria to continue to be on the cutting edge of museum experiences.
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