Development of A Multimedia and Interactive Museum Guide for the Learning of Visual Arts Appreciation and Criticism

Cheung On Tam
Assistant Professor
Hong Kong Institute of Education
E-mail: cotam@ied.edu.hk

Ng Mau Wai
Instructor
Hong Kong Polytechnic University
E-mail: sdclive@polyu.edu.hk

Abstract

This paper reports on a project involving the development of a multimedia and interactive guide that can be used in museums for the learning of visual arts appreciation and criticism. A group of seven university students conducted in-depth studies of ten selected works exhibited at the Hong Kong Museum of Art. The students’ findings concerning these artworks were organized and transformed into relevant audio, visual and textual materials in the form of a portable individual interactive guide. The guide was made available to secondary school Visual Arts students visiting the museum. Constructive learning and contextual art appreciation are the guiding principles in the development of the guide. The content of the guide is divided into two areas: 1) background information on each artwork and 2) interactive learning activities. This guide is a collaborative effort between academics, the education sector
and community cultural institutions, bringing benefits to each group of participants from these organizations. The paper ends with a discussion on the ways in which the guide can be improved and the benefits brought to project participants.

Key Words: Multimedia and Interactive Guide, Museum Education, Visual Arts Teaching and Learning, Mobile Technology, Art Appreciation and Criticism
Introduction

Education in Hong Kong has undergone many changes in response to waves of curriculum reform since the late 1990s (Poon & Wong, 2008). Major changes have taken place in the content of the Visual Arts curriculum and in the format of public examinations. The New Senior Secondary Curriculum (NSS), which was implemented in September 2009 for Form Four to Form Six students (ages around 16-18, equivalent to senior secondary level of the US school system), postulates ‘visual arts appreciation and criticism in context and visual arts making’ as two major ‘intertwined and inter-related strands’ (Curriculum Development Council & Hong Kong Examinations & Assessment Authority, 2007, p. 9). Making visual arts criticism a compulsory paper and incorporating critical studies into the school-based assessment, the forthcoming 2012 Hong Kong Diploma of Secondary Education Examination (HKDSE) has created much anxiety among teachers regarding how art criticism should be taught and assessed (Wong, 2005). It is evident that the emphasis on art appreciation and criticism in the secondary school Visual Arts curriculum has been greatly increased. Using community and authentic resources such as artworks in museums to teach Visual Arts is also one of the strategies suggested in the NSS. Furthermore, the use of information technology for interactive learning plays an important role in the new teaching environment. Using mobile devices as a tool for teaching art criticism is an innovative way to respond to the needs of 21st century education. It is against this background that the present project was developed.

Aims of the project

The principal aim of this project was to develop a multimedia and interactive guide that could be used in museums for the learning of visual arts appreciation and criticism. A group of seven participants from the Hong Kong Institute of Education (HKIEd) conducted in-depth studies of ten selected works exhibited at the Hong Kong Museum of Art. Six paintings and four ceramic works were selected on the basis that they are part of the
museum’s permanent collections and represent important styles of and developments in Chinese art. The participants’ findings concerning these artworks were organized and transformed into relevant audio, visual and textual materials in the form of a portable individual interactive guide. This guide was then made available for secondary school students visiting the museum. The value of the project lies in its capacity to enhance the visual arts learning of all project participants, including HKIEd and secondary school students. Schoolteachers also benefited from the project in terms of a better integration of museum visit activities with appreciation and criticism using mobile technology. Specifically, the project aimed:

1. To foster the learning of visual arts appreciation and criticism adopting a constructivist approach at the senior secondary level.
2. To help students construct knowledge and learn about art through the use of mobile technology that makes use of multiple-sensory learning.
3. To develop a self-learning multimedia and interactive guide that has the marketing potential for museums and heritage trails realizing university-promoted ‘knowledge transfer’.
4. To initiate school-museum linkage and better use of community resources.

**Application of multimedia and interactive technology in museums**

During the recent decade, multimedia technology has been innovatively used by museums all over the world, variously known as ‘on-line museum’, ‘multimedia museum’, ‘virtual museum’, ‘telemuseum’ or ‘computer-based (or mediated) exhibits’ (Atagok & Ozcan, 2001; Kenderdine, 2001; Reading, 2003; Staniszewski, 2000; Trant, 1998). In addition to uploading museum materials (e.g., archives, brochures and artifacts with detailed descriptions) into cyberspaces and installing digital appliances for museum visitors (e.g., kiosks), some museums have been creating effective portable devices or interactive installations such as Personal Digital Assistants (PDAs) and multimedia phones to enhance visitors’ involvement and participation (Micha & Economou, 2005; Legrady & Honkela, 2002; Vavoula et al., 2009). For example, Vavoula, Sharples, Rudman, Meek and Lonsdale (2009) initiated an experiment called *Myartspace*, which involved the provision of a mobile
phone service in museum learning. During a school field trip to a museum, students engaged in inquiry learning and used their mobile phones to gather information. The collected information was then automatically sent to a website where students could view, share and present the information when they worked in the classroom or at home. Upon completion of the project, the study proposed a criterion for evaluating school museum visits and concluded that Myartspace had successfully bridged the museum-classroom gap by assisting teachers to design pre- and post-visit lessons, enabling students to create their own virtual museum with the artifacts collected from the visit, and extending the museum context into the classroom through personal and museum digital collections.

Research studies on multimedia and digital interactivity fall for the most part into the categories of either evaluating the effectiveness of using these technologies in a particular way or presenting successful experiences of using the technology. As revealed from the literature (e.g., Atagok & Ozcan, 2001; Kenderdine, 2001; Lisus & Ericson, 1999; Reading, 2003; Trant, 1998), it has been widely recognized that multimedia and interactive technologies do indeed have positive effects on museum learning, and that they change the current roles of museums and create new methods of interpretation and communication in museums. For example, Micha and Economou (2005) presented a case of artists using multimedia technologies to provide a meaningful method of connecting stories and interpretations to illustrations in an interactive and user-friendly way. Kenderdine (2001) put on a virtual exhibition entitled 1000 years of the Olympic Games at the Powerhouse Museum in Sydney. His project, together with other similar projects such as those of Reading (2003) and Atagok et al. (2001), demonstrated the unlimited potential of multimedia technology for use in museum development by extending the contents of the exhibition to reach much wider audiences.

However, some scholars (Heath, Lehn & Osborne, 2005) note that the value of multimedia and interactive technology in connecting with single users has been over-stated at the cost of group participation. Thus, museums should be aware of ‘facilitating interaction and collaboration among visitors’ (Heath, Lehn & Osborne, 2005, p. 93) and establishing cooperative and partnership relationships with outreached organizations.
(Nickerson, 2004; Marty 1999) before multimedia and interactive technology are applied. These scholars also suggest building a group-participating visiting experience for each individual visitor, implementing a management structure which oversees and co-ordinates the various actions of visitors, and establishing a collaborative problem-solving and help-giving system between museum professionals and users (Heath, Lehn & Osborne, 2005; Marty, 1999). Nickerson (2004), Trant (1998) and Marty (1999) further suggest that museums and their outreached organizations should work in partnership, create opportunities for co-operative learning from each other, and use cross-linking to each organization’s website to raise their collective profile. In view of the findings of these studies, the application of multimedia and interactive technology in museum learning is not simply a matter of content or technology, but also of the social use of technology and the social construction of a museum’s contents (Reading, 2003).

**Content of the multimedia and interactive guide**

In this project, all the content relating to the artworks were programmed into a device called iPod touch, which was then used as the multimedia and interactive guide. The guide starts by providing a brief gallery introduction and a virtual map indicating the locations of each piece of artwork. By clicking on any thumbnail image of these works on the map, users are led to a ‘background information’ page on the artwork. A menu bar then appears, highlighting various pieces of background information and students can choose to listen to any of the following:

**Basic Information**

This is a list of basic information, including the name of the artwork and the artist, the medium, measurements and the period when the artwork was created.

**Artist Background**

This refers to background information about the artist, including his/her education and training background (in particular those aspects relevant to
his/her career as an artist), artistic style, the masters that influenced the artist and the art school that he/she belongs to.

**Historical, Cultural and Aesthetic Background**

This is a description and explanation of the aesthetic, cultural, social, political, economic, religious and/or technological background of the period when the artwork was first appreciated and created. This information will help students to understand the artist's motivation in creating and various social and cultural factors affecting the production and reception of the work.

**Forms and Techniques**

This is an analysis of basic visual elements such as the colours, shapes, forms, and space of the work; of principles of organization such as balance, unity, contrast and rhythm; and of the relationships among the visual elements and the organizational principles. With the help of such information, students will gain a better understanding of the forms, medium and techniques of the artwork.

**Themes and Subject Matter**

Focusing on the expressive quality of the work, this part speculates on the meaning of the work or the message that the work conveys. It is also an exploration of the artist's personal feelings, views, and ideas as presented in the artwork.

**Value and Importance**

This part will help students to arrive at a judgment of the artwork, considering the contribution of the artwork to the overall development of art, probably through comparison with other artworks of a similar style or on a similar topic. The appropriateness of the medium used, the level of creativity and innovation demonstrated, and the effectiveness in bringing out the content of the work are highlighted.

The above background information helps students to appreciate and critique artworks in their social and cultural contexts. Each piece of information is structured into two or three levels. Students can choose to access the next level if they are interested or else they can go to other pages.
At the bottom of each background information page, the following applications are created so that students can engage in interactive learning about the artwork:

**Issues and Discussion**

In this section, students are able to record their replies to a question about the artwork or raise a question that they want to ask. The guide will then upload the students’ responses onto a shared database that is accessible for all guide users. Teachers can make use of such information to design follow-up lessons when the students return to school.

**Links**

This section links artworks to other artworks having similarities in the topic, background, technique or style. The placing of similar artworks on the same page will help students to make comparisons between the mediums, expressions, techniques, styles or contexts of the two artworks selected. Students are guided to look for the similarities as well as the differences between them, thus helping them to understand artworks from a broader and contextualized perspective.

**Responses**

In this section, students are able to listen to responses to the artwork by experts or peers, thus being provided with a platform for sharing, exchanging and understanding other people’s views of the work.

**Games and Activities**

Games and activities are being designed to foster the students’ learning interest. Examples of such games include changing a 2-D landscape scene into a 3-D environment so that students can see the scene from different angles, matching hairstyles with appropriate ceramic figurines, and the students recording an imagined conversation between two characters in the work.
Figure 1. Structure of the multimedia guide.
Development of a Multimedia and Interactive Museum Guide for the Learning of Visual Arts Appreciation and Criticism

Figure 2. Navigation of the multimedia guide.
Collection of data for improvement

A mixed approach of using quantitative (a one-page survey) and qualitative methods (focus group interviews) was used to collect feedback from the multimedia guide users. Both methods helped to evaluate the current multimedia guide and collect data for the improvement of the guide for future development.

Four secondary schools and a total of 79 students participated in the project. All of them are Form Four or Form Five students (ages around 16-17) studying Visual Arts as an elective. There are altogether five galleries in the Hong Kong Museum of Art. As the multimedia guide only features ten works from the Xubaizhai Gallery of Chinese Painting and Calligraphy (A Landscape Journey: Chinese Landscape Painting from the Xubaizhai Collection) and the Chinese Antiquities Gallery (Gems of Chinese Ceramics form the Hong Kong Museum of Art), students were asked to visit the two galleries without using the guide for half an hour. After that, they were introduced to the operation of the guide. Then they visited the galleries again and looked for the artworks featured in the guide for another half an hour. They were asked to look at no more than four artworks. A one-page survey was distributed to the students immediately after they visited the gallery. The survey was in Chinese, containing mainly questions of ordinal options. Data from the returned surveys were processed and analyzed.

Three students from each school were selected randomly to attend the focus group interviews. The interviews were conducted right after the visit to ensure respondents had fresh memories of the exhibition, content of the multimedia guide and their experience of using the guide. Each interview lasted for approximately 15 to 30 minutes. Respondents were assured of confidentiality of all the content that had been discussed in the interviews. The interviews were conducted in Cantonese, the native dialect of the students, and were recorded. Discussions were then transcribed into English for writing this paper. The following questions were asked during the group interviews:
1. What are the overall feelings and comments of using the multimedia when
you visit the gallery?

2. How, if there are any, does the guide help you as secondary school students to learn visual arts and art criticism?

3. What would you recommend for improvement of the multimedia guide?

<table>
<thead>
<tr>
<th>School</th>
<th>No. of surveys collected</th>
<th>No. of students interviewed</th>
</tr>
</thead>
<tbody>
<tr>
<td>School A</td>
<td>21</td>
<td>3</td>
</tr>
<tr>
<td>School B</td>
<td>26</td>
<td>3</td>
</tr>
<tr>
<td>School C</td>
<td>17</td>
<td>3</td>
</tr>
<tr>
<td>School D</td>
<td>15</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>79</strong></td>
<td><strong>12</strong></td>
</tr>
</tbody>
</table>

Table 1. Number of surveys collected and number of students interviewed.

Findings

Overall, results from the survey indicated that most students found the experience of using the guide satisfactory. In the interviews, the students elaborated on the usefulness of the guide and gave suggestions on how to improve it. The students in general appreciated the multimedia guide in terms of its convenience and richness of information. They perceived the experience as beneficial to their visual arts learning, but at the same time they raised a number of concerns and recommendations for improvement.

Students’ overall experience of using the guide

The survey asked the students to rate different parts of the content of the multimedia guide. Five levels of satisfaction were provided. For data processing, the five levels were encoded into a scale of scores from 1 to 5. Five represents the highest level of satisfaction while one represents the lowest. Table 2 lists the ratings of all items in the survey.

<table>
<thead>
<tr>
<th>Item</th>
<th>Very Much Satisfied</th>
<th>Much Satisfied</th>
<th>Satisfied</th>
<th>Average</th>
<th>Dissatisfied</th>
<th>Very Much Dissatisfied</th>
</tr>
</thead>
<tbody>
<tr>
<td>Artist Backgrounds</td>
<td>9 (11.4%)</td>
<td>35 (44.3%)</td>
<td>31 (39.2%)</td>
<td>4 (5.1%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Historical</td>
<td>19 (24.1%)</td>
<td>40 (50.6%)</td>
<td>20 (25.3%)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Development of A Multimedia and Interactive Museum Guide for the Learning of Visual Arts Appreciation and Criticism

The International Journal of Arts Education

69

Table 2. Level of satisfaction of students using the multimedia guide.

<table>
<thead>
<tr>
<th>Cultural &amp; Aesthetic Backgrounds</th>
<th>Forms &amp; Techniques</th>
<th>Themes &amp; subject Matters</th>
<th>Value &amp; Importance</th>
<th>Interestingness</th>
<th>Interactivity</th>
<th>User-friendliness</th>
<th>Helpfulness in art learning</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>11 (13.9%)</td>
<td>18 (22.8%)</td>
<td>20 (25.3%)</td>
<td>23 (29.1%)</td>
<td>23 (29.1%)</td>
<td>25 (31.6%)</td>
<td>15 (19.0%)</td>
</tr>
<tr>
<td></td>
<td>43 (54.4%)</td>
<td>35 (44.3%)</td>
<td>34 (43.0%)</td>
<td>22 (27.8%)</td>
<td>25 (31.6%)</td>
<td>35 (44.3%)</td>
<td>47 (59.5%)</td>
</tr>
<tr>
<td></td>
<td>21 (26.6%)</td>
<td>24 (30.4%)</td>
<td>23 (29.1%)</td>
<td>32 (40.5%)</td>
<td>25 (31.6%)</td>
<td>13 (16.5%)</td>
<td>15 (19.0%)</td>
</tr>
<tr>
<td></td>
<td>3 (3.8%)</td>
<td>1 (1.3%)</td>
<td>2 (2.5%)</td>
<td>2 (2.5%)</td>
<td>6 (7.6%)</td>
<td>5 (6.3%)</td>
<td>1 (1.3%)</td>
</tr>
</tbody>
</table>

Interestingness

The results of the survey indicated that 57% of the students were satisfied with the level of interestingness and only 3% of them rated it as dissatisfied. Concerning the experience of using the guide, most students in the group interview described it as ‘interesting’ and ‘special’. The majority of them had no previous experience of using multimedia guide in museum visits. However, they found the guide innovative for it could arouse their interest and enhance their involvement in learning about the artworks.

_The advance technology of the guide can lead us to understand the theme of artworks created during ancient periods. Using a new technology to introduce an old object, it aroused my interest to study that particular artwork. Without the guide, I would just think that it is merely an ordinary porcelain ware with nothing special._  (Student 3)

The use of technology was appealing to the students. One student suggested that the guide functioned like a ‘take-along Wikipedia’ for its interestingness and interactive nature.
Interactivity

Around 60% of students in the survey indicated that they were satisfied with the interactivity of the guide. Some students in the group interview gave positive feedback on the interactive function of the guide for it enabled them to give response and listen to others' opinion. The 'Issues and Discussion' part was one of the most highly rated parts. The students explained that this part allowed them to express their views about the artworks. The questions asked in the guide also provided them an opportunity to have more in-depth thoughts about the meaning of the artworks.

[I like the] ‘Answering the Questions’ [part the most]. This part can help me think over the meaning of the artworks in a deeper way. Apart from this, I can answer that question by myself and it creates a chance for me to reflect more. I can also listen to the comments given by the person who uses the guide previously. I am exposed to views given by different people, which brings me towards a more thorough understanding of the work.
(Student 11)

Future Use

Students were generally affirmative about the possibility of using the guide in the future. All students stated that they would use the guide in the future even if they were not required by the school. The main reasons were the convenience and the interactivity of the guide provided. In the survey, 36.7% of students claimed that they would definitely choose to use the guide again when visiting museums.

<table>
<thead>
<tr>
<th>Future Use</th>
<th>N=79 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definitely</td>
<td>29 (36.7%)</td>
</tr>
<tr>
<td>Probably</td>
<td>45 (57.0%)</td>
</tr>
<tr>
<td>Probably Not</td>
<td>5 (6.3%)</td>
</tr>
<tr>
<td>Total</td>
<td>79 (100.0%)</td>
</tr>
</tbody>
</table>

Table 3. Possibility of using the guide again.
Usefulness of the guide

Students generally agreed that the guide helped them construct a new and meaningful visual arts learning experience. Most of the students revealed that they liked the experience of visiting the museum with the guide more than that without the guide. Around 80% of students (62) expressed that they were satisfied with the guide and that the guide helped in their visual arts learning, with only 1 student (1.3%) feeling dissatisfied with the guide strongly. The reasons for their satisfaction were the abundance of information provided, convenience and the help in learning visual arts and art criticism.

Abundance of information

As indicated in the survey, students were generally satisfied with the information section. The most highly rated part was ‘Historical, Cultural and Aesthetic Backgrounds’. Around half of the students (50.6%) were satisfied with this part and 24.1% of them rated it ‘Very much satisfied’. The parts ‘Forms and Techniques’, ‘Themes and Subject Matters’ and ‘Value and Importance’ received very similar ratings. Around 67-68% of students rated these items as ‘Satisfied’ or ‘Very much satisfied’. Relatively speaking, ‘Artist backgrounds’ received a lower rating; only 56% of students were satisfied with this part.

Students believed that detailed information (for example the period of time that the artwork was created) provided by the guide was necessary for writing art criticism. They also appreciated that the information could be found conveniently in the guide. Some students thought that the comments from experts and peers enriched their understanding of the content a lot.

Convenience

In both the survey and group interviews, students indicated that the usefulness of the guide was its convenience. Students in the interview pointed out that by clicking a few keys, pictures, explanations and background information of the artwork and the artist could be shown in the guide immediately. One student pointed out that the virtual map was quite
convenient for it could lead users to a particular artwork and help to design one’s own route of visit.

I think it is very convenient. It helps us to understand the artwork, and also to record our comments so that other people and the teacher will know what we think about the artwork. With the help of this guide, we can view the exhibits with a focus. (Student 5)

Helpfulness in learning visual arts / art criticism

About one-third (31.6%) of the students believed that the guide could help them in learning visual arts and art criticism. They also believed that the guide had increased their interaction with experts and peers on the appreciation of artworks. Most of the students in the group interview agreed that the guide was beneficial for developing their skills in art criticism. Some of them pointed out that it was the information offered by the guide that was useful for art criticism. One student suggested that the explanation of the artworks were at the right level of difficulty for them to understand. Another student commented that:

If we read introductions that are too sophisticated, we would probably be unable to understand. I think the level of difficulty now is adequate. When we encounter artworks and we have to write art criticism in the future, we can recall the wordings and expression that we have came across today. This surely will help. (Student 9)

However, some students suggested that the information provided by the guide did not help directly in acquiring art criticism techniques unless students are well trained in such analysis and lines of thoughts during class teaching.

I think the impact is not direct. First, what it offers is merely some basic information. After reading (the guide) I would have knowledge on a specific artwork. But if afterwards I do not have any practice, it would
not help much. When it comes to the examination, we will encounter an artwork that we may have never seen before. There is no direct benefit if we don’t learn art criticism at other times. (Student 3)

On the contrary, some other students affirmed the help from the guide in other ways. In the survey, students were asked to rate the items that they found beneficial to them. The items that got the highest rating by students were ‘Improve my art understanding and knowledge’ (60.8%) and ‘Explore new art learning experience’ (59.5%). One student suggested that the structure of the content could guide users to describe artworks from different points of view, such as commenting on the artwork’s history, form and value. Other students noted that they had the opportunities to reflect on as well as to talk about the artwork when they were invited to give responses right after reading the information in the ‘Issues and Discussion’ part.

<table>
<thead>
<tr>
<th>Item</th>
<th>N=79 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enhance my interest in arts criticism</td>
<td>41 (51.9%)</td>
</tr>
<tr>
<td>Increase interaction with peers/experts</td>
<td>25 (31.6%)</td>
</tr>
<tr>
<td>Improve my art understanding and knowledge</td>
<td>48 (60.8%)</td>
</tr>
<tr>
<td>Explore new art learning experience</td>
<td>47 (59.5%)</td>
</tr>
<tr>
<td>Extend the museum context to classrooms or home</td>
<td>22 (27.8%)</td>
</tr>
<tr>
<td>Nurture my interest in art learning</td>
<td>25 (31.6%)</td>
</tr>
</tbody>
</table>

Table 4. Helpfulness of the guide in learning visual arts and art criticism.

Suggestions for improvement

In the focus group interviews, the twelve respondents were asked to give suggestions to improve the multimedia guide. Most of the student respondents agreed that more information and pictures of artworks were needed. They also mentioned the technical problems of the guide.

Technical problems and the layout design

Students pointed out a number of technical problems that needed to be addressed, including poor indoor Wi-Fi connection, problems in playing the videos, navigation errors in the guide, and too low recording volume. Some
specific recommendations from users were raised. For instance, the size of the picture shown in the guide could be smaller and the area of menu had to be enlarged to make it easier to click. One student stated that the set-up process of the guide was time-consuming. Another respondent suggested that a protecting film was needed for the screen of the guide. The hygienic problem of earphones was raised. Some students commented on the layout design of the guide:

The menu and layout of the picture for each piece of artwork is exactly the same... (What can be done to make it better?) Perhaps the design for each exhibition can be of different styles. For example, the design for an exhibition of Chinese painting and calligraphy can use black and white. And for an exhibition of modern artworks, a colourful layout can be used.

(Student 7)

More and better information

Some students advised to increase both the quantity and quality of information of the artworks. Two students thought that some of the comments from experts were not sufficiently professional.

As the guide is still in its development stage, it is normal that the information [of the artworks] is incomplete. The format and structure of the information is not problematic. But in the future, the quantity and quality of the information provided have to be improved. For the experts’ comments that I’ve listened to, to be straightforward, I think it is not so useful. (Student 12)

A student pointed out that some questions in the “Issues and Discussion” part were not related to the artwork presented. For example, the question for the work Bodhidharma ‘Do you think it is necessary for each piece of artwork to deliver a positive message?’ was a good question on aesthetics but was irrelevant to that piece of work.
Include more photos of the artwork from different angles

According to the students, adding more pictures depicting the artwork from various angles would be good for better viewing and understanding of the work. As the physical display environment sometimes posed limitations on viewing 3-dimensional works from all angles, it would be better if pictures taken from some other angles other than the front and the back views were included.

Include more artworks

It was suggested to include more pieces of artwork in the guide since students preferred to have more choices of which artwork to listen to. An advice was:

(Q: How many artworks would be sufficient? Including all artworks of this gallery?) Perhaps choosing a few more in each category would be adequate. (Q: What category do you mean?) For example, we can categorize artworks according to the period of their creation such as Qing Dynasty or Ming Dynasty, and we can select a few from each dynasty. (Student 6)

Some students suggested that it was not necessary for the users to listen to introductions of all the artworks included in the guide. One student suggested that the optimum number would be three to five pieces and the time of using the guide would probably last for half an hour to 45 minutes.

Include more functions

One student suggested adding a function of taking notes by handwriting technology and these responses could be sent to teachers. Another suggestion was adding a function that enabled users to discuss instantly with peers, for example a chatting function. It was also recommended by students that a page could be added for introducing the part of the artwork most worth watching.
In addition I think the guide can add a page introducing the part of the artwork that is most worth watching, accompanying with an elaboration on what we can observe from that particular part. Or to include a circle or a dot on the picture, which can be clicked to enlarge with some descriptions. (Student 4)

Strengthen the focus of the guide

Students raised a number of concerns if using this guide would become a compulsory component of museum field trips organized by schools. One student advised to block some of the functions in the guide so as to prevent students from being distracted. One student pointed out the primary focus of the guide was to help students understand the intended meaning of the artwork:

I think the technical problems are not difficult to tackle. There are some more core concerns. It is important for students to recognize the artist’s motivation and I think the guide should help in this aspect. ... The guide will be useful in particular in helping us to look at abstract art. (Student 4)

Benefits to project participants

Connections with museums and schools

The project was an effort to establish a tripartite relationship between cultural service providers (the museum), academics (HKIEd) and the education sector (participating secondary schools). Through actively engaging school students in a museum learning environment, the project helped to attract a museum audience, support knowledge transfer from universities and create the opportunity for pre-service as well as in-service schoolteachers to use community resources in the planning and delivery of the Visual Arts curriculum. Further collaboration is expected in making the guide an official guide of the museum, and similar guides can be developed for other cultural institutions and heritage sites.
Benefits for secondary school student and teacher participants

By placing secondary students in direct contact with artworks, the project enabled them to use the guide to learn at their own pace and to focus on what interested them. With the help of the audio, visual and textual materials supplied by the guide, students constructed their experience and knowledge of artworks on their own. The material of the guide was rich in modes of communication and appealed to multiple senses in bringing out its contents. The project had explored an alternative to the teacher-centred presentation of teaching art in the museum. It was a step towards diversifying the teaching and learning strategies in visual arts learning.

Benefits for HKIEd student participants

The project created an opportunity for the HKIEd student participants to engage in an in-depth study of artworks. Through discussion with the project investigators and fellow participants, students had not only learnt ways to transform art historical knowledge into learnable contents but also gained experience of using mobile technology in teaching. The project had an impact on participating students’ current and future teaching.

Benefits for the project investigators

The project allowed the two investigators to gain the knowledge and experience necessary for the development and usage of mobile technology in teaching and learning. The project also created opportunities for the investigators to work closely with the creative industry in digital media production. The project necessitated discussion, consultation and mutual understanding between the project investigators and the professionals working on the production of the interactive guide. Linkages established with the museum and schools will create opportunities for further collaborations.

Conclusion

This project assured the benefits of using multimedia and interactive technology in museums in learning about artworks. From the generally positive feedback obtained, the innovative mode of learning allows students
to engage in looking at artworks, thinking about the various contexts related to the work, responding in their own ways and listening to their peers’ or experts’ views. With the help of audio, visual and textual materials of the guide, students constructed the experience and knowledge of artworks on their own. The project also created an opportunity for HKIEd student participants to engage in an in-depth study of artworks. Although the guide required fine-tuning technically, the collaboration among the museums, universities and the secondary schools was worthy of further development in the future. Evaluation of the project had also helped to improve the guide and prepared for the second phrase of the project, focusing on teaching in schools.
Reference

Curriculum Development Council and Hong Kong Examinations and Assessment Authority. (2007). Visual Arts: Curriculum and Assessment Guide (Secondary 4 - 6). Hong Kong: Curriculum Development Council and Hong Kong Examinations and Assessment Authority.


