

Inviting More Possibilities

A new relationship
between museums and high schoolers



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Abstract

Abstract

This thesis intends to strengthen museum experts' interest in and ability to serve teen audiences better. By discovering the similarities between high school age teens in Eastern and Western cultures, with the examples mainly take from the United States and Taiwan, this thesis also allows museum experts to reach high-schoolers with a global view. By examining high school age adolescents' characteristics and the current museum missions, we can create beneficial relationships between this age group and museums. The significance of how museums currently help high-schoolers with their interests and future careers can be found in museums' programming. However, there are other opportunities for museums to be more active social places for high-schoolers. With the accessibility to the Internet, museums have chances to be local or international social platforms for the community.

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Introduction

Introduction

Much has changed since the first museum opened to the public. Museum professionals acknowledge the change in museums' orientation from subject-based and object-based to visitor-centered. Museums in the United States and Taiwan, which this thesis uses as examples to represent Western and Eastern cultures, went through the similar strategist process, and then came up with the similar museum definition. By using examples from the United States and Taiwan, museum experts can use each other's successes to improve their practices.

Nowadays, museums use the Internet to keep records for their collections or develop on-line exhibitions. Museums also use social networks as part of their advertisements to attract more audiences. Museums' exhibitions also create a three-dimensional learning experience for visitors. There are museum programs for particular groups of visitors, and the group of high school age teens seems to be getting more and more support from museum education programs. This thesis outlines the current relationship between museums and high-school students. Museums are strong supporters for high-

schoolers' personal interests and future careers. Museums also record regional history and share the history with high-schoolers in order to let them understand the local happenings.

This thesis suggests new opportunities for museums' physical spaces to become new social platforms for high-schoolers. This thesis focuses on how to extend the discussion about the proposed subjects from museums and exhibitions among high school age teens. Different types of museums and exhibitions encourage high-schoolers to engage more deeply in the subjects, which can be art and science, environmental issues, and the studies of war and peace, and let high-schoolers know that they have the power and opportunities to make positive changes to the world's important issues.

The application is a design solution that intends to present a possible example of how to build a physical social platform for high school age teens in the museums' physical spaces. The application software, *Teens' Museum Forum*, is a software program that can be downloaded

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into different physical platforms (such as touch screen interactives, mobile devices, and touch screen computer,) which contains the function that not only interacts with exhibition subjects, but also allows visitors to extend the discussions with each other in the museums' spaces or outside museums.

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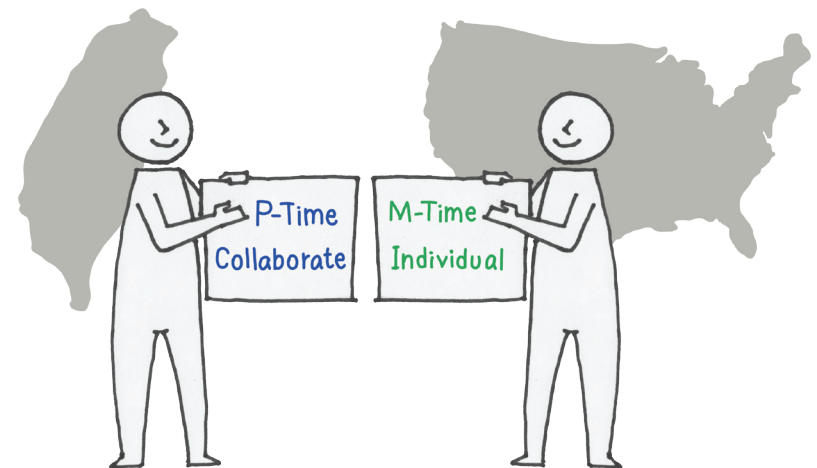
Cultures : Differences and Similarities

Differences

This thesis reviews examples from both Western and Eastern countries in order to give this thesis a global approach. The reason why this thesis reviews examples from two different cultures, mainly from United States and Taiwan, is that this age group actually have similarities in terms of their cognitive developmental process yet the cultures have distinct differences, which make the comparisons and contrasts appropriate and practical to this thesis and the thesis outcome. The differences between Western and Eastern culture, which applied to the United States and Taiwan, are the way they process time and space; the similarities are the accessibility to the Internet, the freedom to communicate, and the high school age teens.

The biggest difference between the United States and Taiwan is the cultural difference. These differences between Western and Eastern culture are described by Edward T. Hall in his book *Beyond Culture*. Hall talked about Monochronic time (M-time) and Polychronic time

(P- time), in which the M-time represents Western culture and the P-time mainly represents Eastern culture. The M-time system emphasizes schedules; it is a system that will need great cooperation in order to finish one schedule as soon as possible. The P-time system, on the other hand, is more like serving multiple ideas at the same time¹.



¹. Hall, Edward T. *Beyond Culture*. New York, NY: Doubleday, 1976. 17. Print.

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For example, employees under M-time system might get used to concentrating on one specialty at work. But employees under P-time system might get used to handling several assignments at the same time. Besides the difference of time systems, other research shows how people in two different cultures identify themselves within their social structures.

In an article entitled Culture and the self: Implications for cognition, emotion, and motivation, Markus and Kitayama, professors of psychology at Stanford University and University of Michigan, argued that individuals from Western cultures seek to assert the self and appreciate one's differences from others, whereas individuals from Eastern cultures value fitting in with others and emphasize the importance of harmonious interdependence with others.² The distinct time systems and different social structures affect the two cultures' education systems as well. In the Western education system, people emphasize finding the correct outcomes more than the problem solving process, and students are used to working alone. In contrast, people from Eastern education system put more focus on the process of problem solving and how to work collaboratively.³

² H. R., Markus, and Kitayama Shinobu. "Culture and the self: Implications for cognition, emotion, and motivation" *Psychological Review* 98(2) (1991): 224-253.

³ Ho, Elsie, Prue Holmes, and Jenine Cooper. "REVIEW AND EVALUATION OF INTERNATIONAL LITERATURE ON MANAGING CULTURAL DIVERSITY IN THE CLASSROOM" December 2004.

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Similarities : Freedom to Communicate

However, the United States' culture and Taiwan's cultures still share some important similarities currently, which are important to this thesis and thesis outcomes. Although the United States and Taiwan have different cultural background, the accessibility to technology is almost the same. The past research about the Internet usage in 2010 shows there were 77.3% of population who had access to the Internet in the United States⁴, and 70.1% of population who had access to the Internet in Taiwan⁵. Research also shows that compared with other Southeast Asian countries, Taiwan has the highest percentage of Facebook users, which is a popular social media in the United States. There are 49.89% of population in the United States that have a Facebook account, and there are 51.9% of population in Taiwan that have a Facebook account. On the contrary, there are only 13.77% in South Korea, 6.31% in Japan, and 0.03% in China⁶. The accessibility to the Internet and social media is important because it is a quick way to receive information internationally. Not only does the general public use social media, but museums do also. Museum marketers use social media to post program and event information, or even to have on-line exhibitions or to produce virtual museums.

The freedom for receiving and sharing information on the Internet is important for this thesis because the design solution aims to encourage high-schoolers to continue their conversations beyond museums' and exhibitions' space. Having conversations through the Internet will be more practical for visitors who visit museums in two regions, or even two countries.



⁴. Miniwatts Marketing Group. "Internet Usage for America" Internet World Stats. december 2011. 10 April 2012 <<http://www.internetworldstats.com/>>.

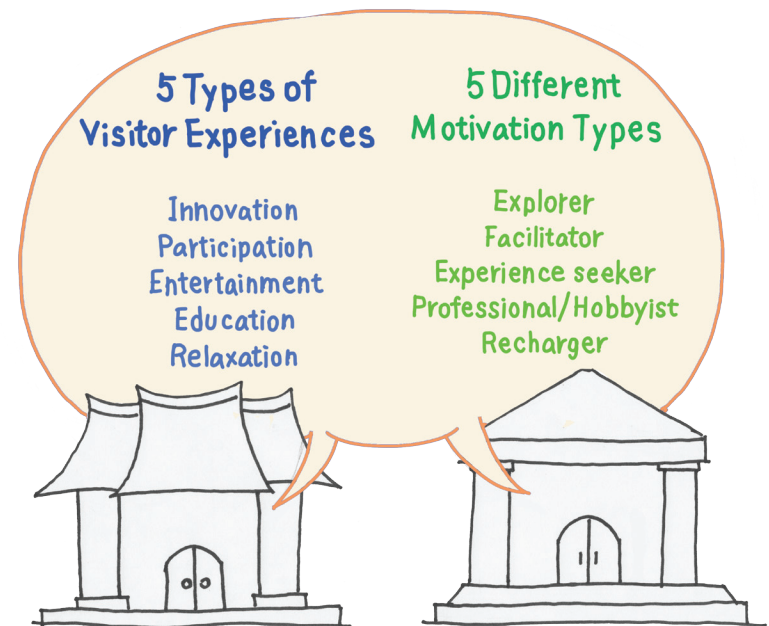
⁵. Miniwatts Marketing Group. "Taiwan" Internet World Stats. March 2011. 10 April 2012 <<http://www.internetworldstats.com/>>.

⁶. "Facebook Statistics by country" SocialBakers. december 2011. 10 April 2012 <<http://www.socialbakers.com/>>.

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Similarities : Museums

There are other similarities in terms of the museums in both countries. The museums in the United States and Taiwan all serve the public, preserve objects and culture, but also care about their visitors. As noted in *Identity And The Museum Visitor Experience* by John H. Falk, there are five different motivation types among museum visitors: Explorer, facilitator, experience seeker, professional/ hobbyist, and recharger. Each of these five different types of visitors visit museums for different reasons. Some visitors want to gain knowledge on specific subjects, some visitors want to have a good experience with their friends or family, and some of them just want to have an emotionally relaxing and refreshing experience⁷. Almost the same theory appears in Taiwan. Research in Taiwan defines the five types of experiences museum visitors are seeking: innovation, participation, entertainment, education, and relaxation⁸.



⁷. Falk, John H.. *Identity and the Museum Visitor Experience*. Walnut Creek, California: Left Coast Press, 2009.

⁸. Hung, In-Chong. "Leisure Time in Museum" *Museum Journal in Taiwan* 19.3 (2005): 51-61.

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Similarities : High-Schoolers

Another similarity is with high school age teens in both countries. Although there are distinct social, family, and education structures, high-schoolers in the United States and Taiwan both have almost parallel mental development processes. High school age teens are all seeking for a sense of belonging and they all expect to know that what they do is valuable. Their life gradually orients from family to peers and they develop their own interests among their peers.

High-schoolers' Peers and Self-Identification

Humans from the age of fifteen to eighteen are going through the life stage from childhood to adulthood. They grow fast both physically and intellectually, and their social and self-identities develop quickly during this stage.⁹

Past research shows that one's behaviors are influenced by three main factors; cultural environment, social situation, and personality. How high-schoolers spend their afterschool time becomes a key point to their developmental process beyond their formal education. In the ideal situation, what after school activities provide should allow high-schoolers to grow their talents or interests and gain a sense of personal or group recognition.¹⁰ Museums, sometimes have afterschool activities for this group in the communities that play an important role. In the case of museums' afterschool programs, high-schoolers attend museum activities and meet with their peers. Compared with adults that are usually confident in their behaviors, high school age students often show struggle between their decisions and their peers' decisions. They are trying to recognize this world by constructing their own culture among their adolescent peers during their adolescence. That can result in different forms of peer pressure.

⁹. AMA-American Medical Association. 2001. American Medical Association. Jan. 27 2012 <<http://www.ama-assn.org/>>.

¹⁰. Romer, Daniel . Reducing Adolescent Risk: Toward an Integrated Approach. New York: Sage, 2003.

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Participating in museum programs and exhibitions is an important experience for high-schoolers. First of all, museums contain both a cultural environment and social interaction, which are two factors that influence one's behavior. Secondly, peer influence can be considered when designing special programs for high school age teens. What museum experts want to do is try to create the peer positive influence among high-schoolers.

Sharing Globally

Due to the fast development both mentally and physically during the high school years, most parents feel more confident to let their teenagers take more responsibilities for themselves. This is one of the reasons why high-schoolers start to use the Internet and social media more and more often during this age.

High-schoolers use social media to get in touch with friends regularly. The well-known social media, Facebook, provides a platform not only to get in touch with their current friends, but also with people they have not met before but have the same interests. It is an easy way for high-schoolers to enlarge their social circle because they can easily find "friends' friends" on Facebook. Another social media, Twitter, has the function for people to catch up on news about their friends or things they are interested in. The quick responses from Twitter followers provide an immediate social fulfillment for people. It is also easy to meet with friends with the same hobby around the world on the Internet. Social media divides social circles not only based on nationality or region, but also by interests. For example, high-schoolers can join an oil painting group on one of the biggest photo sharing online services, Flickr, if they are interested in oil painting. Then they will have a chance to have

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conversations with people around the world that have the same interest. Similar social group can be found on the Internet. PoupeeGirl is a Japanese social network, which asks group members to share their daily fashion on the Internet. If participants share their clothing with others, they will receive awards from the social network. Many teenagers, especially girls from Japan and Taiwan, enjoy sharing their fashion tips with each other through this social network.

Past research presents us an example about how teenagers use the Internet to collect information, also use social media as a tool for gaining their authority and influence their society. The study takes The 2008 Candlelight Protests of Korea as a case study. This research concluded that, “Because of the social heritages from rulings by authoritarian states, awareness and execution of political socialization of teenagers have been rather passive in Korean society.”¹¹ Teenagers clearly showed that they want to be heard in their society and they used the Internet and social media as a tool for communication. The sense of having authority not only can exist in high-schoolers’ personal interests, but also their participation in the society. Through communicating by the Internet and social network, high-schoolers can share and cooperate their ideas quickly.



¹¹. Yun , Seongyi, and Chang Woo-Young. “Political Participation of Teenagers in the Information Era” Social Science Computer Review 29(2) (2011): 242-249.

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High-Schoolers' Authority

It is common for high-schoolers to create their own blog, or put their creations online today. It is one of the examples of high school age teens wanting to do something they enjoy. It provides a feeling of authority for what they have created. The social networking service, devianArt, is an online platform for anyone who wants to share a creation. People can upload any art, including digital art, photography, crafts, or literature, to share with others around the world. The most important rule is people can only submit their own original creations. The demographic for a devianArt's member is pretty young¹². The two main segments of visit the website is the group of under eighteen and the group between eighteen and twenty-four. This shows a devianArt is a comfortable platform for high-schoolers to share their creations and opinions and to claim authority for their work. They may also feel challenged on those social networking service because online viewers leave both positive and negative feedback. The high-schoolers are better at asking questions than other younger teens as well. Past research shows that people during their adolescence is developing their ability in thinking problems in a systematic and

logical way. One of the characteristics of this age group is they consider how they judge others and how others judge them.¹³ Through the process of communicating with peers, high school age teens start to understand different opinions exist, and learn to appreciate others' opinions.

¹². "deviantART Network" Quantcast. Quantcast Corporation. 10 April 2012 <<http://www.quantcast.com/>>.

¹³. Lightfoot, C., Cole M., and Cole S. (in press), *The Development of Children*. 7th. New York: Worth Publishers.

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Conclusion

Although there is diversity between Western and Eastern culture, we can still conclude that there are strong similarities between high school age teens in the United States and Taiwan. High-schoolers in both countries have freedom to access the Internet and social media. The freedom of online communication gives this age group in both countries a global perspective in general. They are all in the process of self-identification and they want to feel a sense of belonging to their peer group. During the process of transitioning their social center from family to peers, they are trying to fit in to the society they choose. Recognizing what makes high-schoolers special from other age groups is important to this thesis. By gathering information on the specific characteristics and needs of high-schoolers, museums gain powerful information to aid in designing special programs and events for this audience group.

Museums

Museums' Role in Society

The International Council of Museums defines museum as “A museum is a non-profit, permanent institution in the service of society and its development, open to the public, which acquires, conserves, researches, communicates and exhibits the tangible and intangible heritage of humanity and its environment for the purposes of education, study and enjoyment.”¹⁴ It is not difficult to see that the museums act as a cultures conservator, educator, and communicator in the community. The idea that museums should serve the public is not a new concept for many museum experts, and museums continue to have important roles in the society.¹⁵ Within the decade, museums' roles in their communities have been more and more important. An article from journal *Curator* presented, “... In many cases, community museums are the only way that local traditions-crafts, religious rites, language-survive...” Many museums around the world have a role of conservator of the region culture.¹⁶

Museums sometime have a role of education along with sustaining the culture of their regions. Research shows how museums' roles can possibly influence audiences with their existing collections or in the ways museums interpret their collections. Fiona Cameron, a senior research fellow at University of Western Sydney stated, “... the museums can be trusted incubators for social change, as long as audiences are left to engage topics on their own terms and resolve issues in their own minds. By raising awareness of issues and empowering people to educate themselves on important topics to determine their own position around these subjects and become socially active, museums can have a role in social transformation...”¹⁷

Museums and exhibitions have chances to become social spaces for visitors. Dr. James M. Bradburne, the council's director of general in the Palazzo Strozzi, Florence, stated, “The museum space is not only a social space - a place where people meet and mingle - but a socializing space - a place where they learn the skills of public interaction. It is in the museum that the rules of public behavior are taught and learned. If the street is ‘a room by agreement’, as Louis Kahn once said, surely the museum

¹⁴. “Museum Definition” ICOM. 2012. International Council of Museum. 15 April 2012 <<http://icom.museum/>>.

¹⁵. Janes, Robert R., Gerald T. Conaty, and Museums Association of Saskatchewan. *Looking reality in the eye : museums and social responsibility*. Calgary, Canada: University of Calgary Press, 2005.

¹⁶ Heumann Gurian, Elaine. “Choosing Among The Options: An Opinion About Museum Definitions” *Curator* 45/2 (April 2002): 82.

¹⁷. Cameron, Fiona R.. “Contentiousness and shifting knowledge paradigms: The roles of history and science museums in contemporary societies” *Museum Management and Curatorship* 20 (September 2005): 213-233.

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is a house by agreement - a house wherein the objects are arranged in a certain way, and in which certain behavior is expected. It is also a house in which the visitor has a certain autonomy - which implies both freedoms and responsibilities.”¹⁸ Museums’ physical spaces not only can be seen as places for displaying objects, but as also spaces for communicating different opinions and ideas.

Museums are usually linked with educational value. Not only are museums’ educational programs for the general public, but sometimes the museum itself is also strong enough that it can support the formal education. Science Leadership Academy (SLA) is a partnership high school between the School District and The Franklin Institute in Philadelphia, which show people directly how museums can support formal education system. All ninth graders in SLA have classes at The Franklin Institute every Wednesday. SLA also encourages students from tenth to twelve grade to take their independent learning plan or internships at The Franklin Institute or Academy of Nature Science. It is SLA’s mission to provide a rigorous, college-preparatory curriculum with a focus on science, technology, mathematics and entrepreneurship by developing its partnership with The Franklin Institute.

Nowadays, a diverse and international general public visit museums. There are museums and exhibitions for children, adults, families, and senior citizens. Interestingly, an article called “Dude, Where’s My Museum? Inviting Teens to Transform Museums,” was published. At the end of this article, a list of tips about how to create successful programming for teen audiences was presented.¹⁹ Neither this article nor this thesis says that museums are not welcoming or do not care about teen audiences. Both of the arguments are trying to

¹⁸. Bradburne, James M.. “Space Creatures: The Museum as Urban Intervention and Social Forum” *The Journal of Museum Education* 24 (1999): 16-20.

¹⁹. F. Schwartz, Deborah. “Dude, Where’s My Museum? Inviting Teens to Transform Museums” *Museum News* September/October 2005.

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engage this group of visitors more, and this thesis is particularly focused on high school age students.

Museums not only keep and present local history, but also introduce the visitors to a perspective of international sharing. Museums not only support high school age teens for their extended interests, but also help with their self-identity and future careers.



Pic.-01 SLA's first graduating class in the Franklin Institute, Philadelphia.

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Museums' Use of Social Network

Museum experiences can be socially enjoyable, intellectual challenging, and meaningful for high-schoolers' futures. And some museum professionals are trying to attract more high school age participants into museums in order to share these meaningful experiences with them. The Internet is one of the common ways to attract high school age teens because the Internet is part of high-schoolers' daily life in this era. From the understanding about high school age teens, participating on the Internet lets them connect with the larger social circle and feel authority on their own creations.

Nowadays, museums have noticed the power of the Internet and use it as a tool to improve their work. Most museums around the world now not only have their own websites, but also use Facebook and Twitter. Museums use social media to advertize exhibitions or events, and to get faster feedback from visitors. Some museums created online exhibitions and have online catalogs for their collections. For example, The Museum of Modern Art in New York has an online database, which is easily accessed by general public. People can search the museum's collections by keywords or artists.

The Museum of World Religions in Taiwan has its own Facebook page to show information of special events and programming. The museum also shows and explains the important days or celebrations for sixteen religions, which make the museum's Facebook page a quick resource for the general public to have a basic understanding of different religions. This also triggers visitors' curiosity before they physically go into the museum.



Pic.- 012 Museum of World Religious Facebook page

Museums

Museums' Physical Spaces and High-schoolers

Museum and exhibition spaces have their distinctive functions. Exhibition spaces can be a quiet environment for contemplation, a safe physical setting for doing physically challenge exercises, or an active learning environment with a three dimensional experience. Visitors usually come to museums and exhibitions as groups; most of them are in school groups, family groups, or with friends when visiting museums. Social interactions happen when visitors go in museums' physical spaces. Visitors discuss exhibition contents and exchange their opinions. The social aspect of physical space in museums provides a good chance for high school age teens to interact with people. Different from a social network, where high-schoolers usually feel more comfortable to interact with people they already know²⁰, museums set up physical spaces encourage them to interact with exhibition subjects or with others, which means challenging their intellects and enlarging their social circle.

Someone might say that inviting high-schoolers into physical museum spaces is challenging work for both museum experts and high-school age teens, but as long as we understand the needs of this group and the potential of museum and exhibition spaces, the design work can be much easier. From what has been mentioned previously, high-schoolers tend to gain their self-identity and authority from communicating with their peers. They would like to use a platform to share their works and thoughts with their local or global friends. Museums, as physical social platforms for various issues in the communities, would be good places for high-schoolers to find the sense of social participation and authority.

²⁰ Reich, Stephanie M., and Kaveri Subrahmanyam. "Friending, IMing, and Hanging Out Face-to-Face: Overlap in Adolescents' Online and Offline Social Networks" *Developmental Psychology* 48(2) (2012): 356–368.

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Reasons Museums Need High-schoolers

High school age teens are an important group of audiences for museums. There are cases to prove a hint about how can high-schoolers benefit museums. One of the most obvious examples is museums need high-schoolers to support their mission. The Franklin Institute in Philadelphia, PA., has its mission of “To inspire a passion for learning about science and technology.” While the museum provide and support several educational programs within the museum and the community, visitors’ participant would be a key point for support the museum. Other than Science Leadership Academy (SLA,) which is a public magnet high school funded by The Franklin Institute, the museum just started a new scholarship with Science Technology Engineering and Mathematics (STEM.) The scholarship aims to encourage high school students to extend their interests in science for their future careers.

The National Museum of History in Taipei, Taiwan, which has its mission “To motivate by professionalism and inspiring trends,” provides scholarship for teens who study traditional Chinese painting and will usually schedule workshops or lectures for teenagers. The museum is also trying new ways to engage teens more, such as set up a traveling exhibition or design an on-line exhibition for

this group of visitors. Inviting teenagers into museum seems important for museums. Teenagers have passion, energy, and they will be the leader for the future trends. We understand these are important for museums based on the examples mentioned above, and teens, especially high-schoolers is the group of audiences that has the characteristics museums need.

High school age teens’ global view is also important for museums. This group of teenagers is familiar with the use of the Internet, which is the fastest way to make a global connection nowadays, and uses them almost every day. They adapt new technology faster than other visitors group in the museums that will allow museum developers and designers be able to push new ideas, especially for museums which have their missions as a global vision.

Museums and High-Schoolers

Museums' and High-schoolers

Museums care about high school age students, although this age group is typically not the major focus or targeted audience compared with other audience groups, such as school groups or families with younger children, and elderly citizens. There are many programs and events especially for high school age students in museums.



Pic.-02 The Art Museums in National Taiwan University of Arts

Local understanding and sharing

There are also examples that show how museums' special programs not only help high-schoolers study topics they want, but also give them more chances to relate these topics to their communities. In 2008, the Art Museums in National Taiwan University of Arts had a special summer program for high-schoolers. The ultimate goal for this special program was not only to let participants know the basic history of Taiwan's modern arts, but also to cultivate participants' interest in the culture identity of Taiwan's modern arts.

The program started in the Art Museums in National Taiwan University of Arts, and participants have chances to go to other institutes, which cooperate with the Art Museums in National Taiwan University of Arts, to learn about different types of art. High school students could choose various types of arts to study, including installation art, printmakings, dancing, traditional puppet show and music, and fashion revolution in Taiwan. Based on the types of arts, participants would go to Taipei Fine Arts Museum, The Lin Family Mansion and Garden, or Huashan Creative Part. Participants have learned art techniques, art history, and region cultures from the special programs.

Museums and High-Schoolers

The example from the Art Museum in National Taiwan University of Arts presents one role museums can fulfill within the community: to link high-schoolers with local regions. There is another example that shows us museums can gather high-schoolers and contribute to the local region. Staten Island Museum, with its collection based on the local history of New York, has a special program called Teen Environmental Club. The program welcomes people of the ages of thirteen to eighteen to help with the environment. The program has regular month meetings that is free for all participants. And except for regular meetings and environmental clean-up activities, Teen Environmental Club also has workshops that are supported by Staten Island Museums. Together, high-schoolers and the community receive benefits from the program. High-schoolers feel they have made a contribution to the environment, and the environment benefits as well.

programs that talks about varies topics: Kitty Andersen Youth Science Center (KAYSC) is one of Science Museum of Minnesota's special programs for teens. KAYSC was created in 1996 to encourage young people to enlarge their experiences and develop confidence in science, technology, engineering, and mathematics. KAYSC provides different discussion crews: the Earth Buss Crew, that discusses environmental issues, the Invention Crew that uses an engineering focus to create community-focused invention and design projects, or Cell Lab Crew, in which high-schoolers work with museum staff to guide visitors through Cell Lab experiment bench activities in the museum's Human Body Gallery. KAYSC also has an internship program in order to provide science-related work experiences for them. Also, the Leadership Team in KAYSC provides high-schoolers a chance to enlarge their social circle. The Leadership Team has peer elected youths from different high school crews. The crews help to build connections between the museum and outside communities by contributing to KAYSC strategic planning, creating newsletters, developing mini-grant proposals, and planning events. All the activities they have in the museum are mentally challenging for this group.



Pic.-03 KAYSC's Blog page

Museums and High-Schoolers

From examples above, it is not difficult to see the fact that museums keep region cultures and introduce region history to high-schoolers. Museums invite them to participate in their local history by giving them chances to observe, preserve, and protect.

International understanding and sharing

Museum programs can push discussions into an international scope, which means museums also have many opportunities to provide their audiences with a global view. To have conversations internationally with others face-to-face is usually a great experience for high school age students. From August 5 to 10 in 2008, three hundred teens between the ages of thirteen and eighteen gathered in Museum of Science in Boston. Their common bond was that they were members of the Intel Computer Clubhouse Network, a creative out-of-school learning program, whose global headquarters is at the Museum of Science in Boston. “The goals of the Teen Summit are to inspire Computer Clubhouse youth not only to build hands-on fluency in technology but also to become self-motivated, confident learners through collaborative experiences that spark their interest, expand life skills, and help them become global citizens,” said Intel Computer Clubhouse Network director, Gail Breslow. In this case, the museum became a medium for teens to communicate around the world. It was more than a hands-on experience. It was an experience about cooperating with their international peers to explore global topics.

Museums and High-Schoolers



Exploring a World of Possibilities

Pic.-04 The logo of Intel Computer Clubhouse Network.

Another example from Taiwan also shows us how museums can be an international social platform for high-schoolers. In the summer of 2011, National Museum of Natural Science in Taiwan cooperated with Fuzhou Science and Technology Museum in China to create a special cross-nation workshop especially for high school age students in both Taiwan and China. The participants visited the local museum and were introduced to the same topic in the first few days of the workshop. Participants used museum's physical setting to learn. In the following days of the workshop, participants in China visited the National Museum of Natural Science in Taiwan.

Participants from both countries used the museum's facilities to help their learning and had hands-on experiences. It was easy for participants from the two countries to have conversations with each other because both of them were already familiar with the topic. It seems that the high-schoolers learned the same thing in two different museums, but actually their experiences were different because the facilities were different and docents introduce the same topics differently. Most importantly, their learning partners were different. The responses from participants were mostly positive. High school age participants were excited that they had conversations with people from another country. Some of them said that it is not only the experience with science and museums, but also the experience about cultures, which they would not have on the Internet.

The experiences about international gathering and experiencing other cultures shows museums' abilities to help the local communities growing their global view. Although making connection with people who lives outside communities is more common on the Internet nowadays, gathering people with the same interests around the nation or globally still need a strong support institution, for example, museums.

Museums and High-Schoolers

Further research for high-schoolers' interests

Museums provide a comfortable and safe environment for high-schoolers to relax from school work. An example can be found in Museum of Modern Art (MoMA) in New York. MoMA regularly offers special events for teens. Every other Friday night during the school year, teens of the ages of fourteen to nineteen are invited to the museum for free food, free movies, and artist talk. MoMA also creates a Facebook page, MoMA Teens, especially for this visitor age group.

In some cases, museums help high-schoolers do further research on topics they have interest in. National Museum of Natural Science in Taiwan has summer and winter events especially for high school students every year. The series of special events includes special topic lectures in different science areas, brainstorming sessions and discussions after the lectures, and hands-on experiences in the college laboratory setting. The museum has different topics for each season and it attracts high school age teens with different interests in particular areas of science.

The goal of having these special offers for high-schoolers is that museums want to create a friendly environment for them, so that museums can be a place without an intense educational environment. It is an important way to release

high-schoolers' stress. There are pressures about getting better grades, to get into a better college, and to get a job after graduation, for high-schoolers in both the United States and Taiwan. In Taiwan, high-schoolers usually go to school from eight in the morning to five in the evening, then some of them even go to cram school from seven to ten at night after the regular school hours. The purpose of all of the effort is to get a better grade in order to go to a better college. Museum projects that create a comfortable and relaxing learning environment can help high-schoolers to balance these daily life pressures.



Pic.-05 MoMA teens mailer

Museums and High-Schoolers

Self-identity and Careers

Exciting activities for high-schoolers can be found in museums. High-schoolers challenge themselves to have further investigation in the topics they have interest in; they have deeper understanding about the region's culture and world issues, and they get to have a chance to have discussions internationally. Nevertheless, museums provide even more. One of the big issue high school age students face is the search for self-identity and the uncertainty of their future careers. Museums are also trying to give high-schoolers help in this area as well.

From 1991 to 2000, The Association of Science-Technology Centers (ASTC) ran a program called YouthALIVE! to help establish and support adolescent programs in science and children's museums. The program hoped to provide positive, hands-on learning opportunities for youths age ten to seventeen. The program has had many positive outcomes, such as career training, for students who participated. Museums that participated this program mostly said they were willing to continue the program, because the program helped museum staff to understand their local audiences more.

There is another example in Taiwan that shows how museum programs can help high-schoolers develop their careers in the future. The Museum of Medical Humanities in Taiwan has a special program for high school students in spring and summer of 2010. One of the goals for this program is to let high school students understand the history of medical practice and the development of modern medicine and medical education in Taiwan. This special program was divided into three sections, which includes one special tour for the museum and two discussion sections. In the last discussion section, high-schoolers' parents were also invited into the conversation. The program intended to encourage the teens to have conversations with their parents about what they have thought about being a doctor or doing medically related job in Taiwan.



Pic.-06 Brochure of The Museum of Medical Humanities in Taiwan

Museums and High-Schoolers

It is important for high school age students to figure out what they want for their future, or to have a basic understanding about adults' working environments. Museums provide a working environment that is similar to real life for high-schoolers. An example can be found in Rubin Museum of Art in New York. The museum not only has several teen events led by artists, but also has an internship program called "RMA Teen Guide Council" especially for teens. Young adults who participate in the program have a chance to give tours about the art works they like to other visitors in the museum. High-schoolers who participate in this special program can not only work as docents in the museum, but also have a chance to collaborate with artists and art professionals to design events for other teens. It is one case where high-schoolers feel they are taken seriously, just like adults, in a serious working environment. They are in the age of developing themselves and trying to decide their future careers, and the museum provides a working opportunity that is similar to the adult world.

Similar examples can also be found in Taiwan, where its grading system is gradually transforming from all score-based to partially skill-based. Taipei Fine Arts Museum has had a special internship program only for high-schoolers since 2004. The teens are trained to be gallery guides who especially help with other high school age visitors. The interns usually volunteer from

the high schools near museum neighborhood, because there are three days of a training section, which takes most of those volunteers' afterschool time. The training focuses on the skills of story telling and presentation, and most importantly, to the presentation of the cultural content for the art works. The purpose of high school age docents for high-schoolers is to help high school age students to understand the art works more easily with the language they are familiar with. The museum has received generally positive feedback from both interns and visitors. High school age visitors feel more relaxed when they have a guide of a similar age; the interns feel they learn the techniques to communicate to strangers and gain knowledge about the arts.



Pic.-07 A member of teen council is introducing the art work in
Rubin Museum of Art

Museums and High-Schoolers

Museum experts now show more confidence in high-schoolers. They can be docents and help with museum work. Monterey Bay Aquarium has a teen volunteer program called Teen Conservation leaders. The program invites high school age students to participate in the aquarium's work, events, or programs. After two weeks of training in basic marine biology and ocean conservation, high-schoolers then provide exhibit interpretation for visitors, support museum's summer camp programs or assist museum's teacher institutes. The programs' aim is to develop teens' job and life skills, build self-confidence and earn community service hours. Another goal of this volunteer program is to let high-schoolers cultivate lasting relationships with their peers, other adult volunteers, and aquarium staff.

Helping high-schoolers to identify their interests and talents seems to be another major goal that museums have. Museums invite them to experience the adult-like working environment. High-schoolers not only experiencing the responsibilities they have to take, but also how to communicate with their co-workers and customers. In the case of The Museum of Medical Humanities in Taiwan, the special program provides this group a chance to think carefully about their future, as well as a chance to discuss their careers with their family.

Careers-museum education

Boston Children's Museum offers a special program for high-schoolers called Teen Ambassador. This special program is based on BNYMellon CityACCESS: An Investment In Youth, where the goal is to create a positive influence for Boston's young people. The Boston Children's Museum will hire six people, between the ages of fifteen and eighteen, as part-time staff. The Teen Ambassadors will help to run education programs, facilitate activities for visitors, and help with community-based events; The Teen Skills Initiative (TSI) in Buffalo Museum of Science is a program only for high school students between the ages of fifteen to seventeen. With the goal to support positive youth development through museum experience, participants not only attend afterschool workshops, but also have a chance to work as museum staff to assist the museum's outreach programs during the summer. It is one of the program's goals to not only expand high-schoolers' knowledge in science, but also develop their job skills.



Pic.-08 2011-2012 Teen Ambassadors in Boston Children's Museum

Museums and High-Schoolers

Careers-exhibition design

High-schoolers not only help museums to run programs, sometimes they also create exhibitions with the assistance of museum staff. Hyphenated Origins is an exhibition about immigrants in Newton History Museum. The exhibition program leader gathered local high school students, then let the students curate and design the whole exhibition. Museum staff acted only as assistants in the process of development and design. The museum staff said that the opening of this exhibition was one of the best attended in the museum's history, and the exhibition attracted more school groups than any previous temporary exhibition. Those high-schoolers brought different aspects into the museum and exhibition. The topic that Newton History Museum wanted to discuss, the immigrants, is a topic that museum staff did not really have experience in. In this case, teens received a feeling of authority in the program. They were trying to find a way to tell their own stories on their own.

Hyphenated-origins: going beyond the Labels

Newton is increasingly a city of immigrants.

Between 1990 and 2000, the foreign-born population of Newton increased by more than 40 percent. As of 2000, more than 15,000 foreign-born people called Newton home.

This exhibit, *Hyphenated-Origins: Going Beyond the Labels*, is a first attempt to explore the past, present, and future of an ever-growing number of Newton residents.

The seven young men and women who created this exhibit are the future of our city and our nation. Through their stories they ask us all to answer the question, "What makes us American?" They encourage us to see beyond what they look like and hear beyond what they sound like. They urge us to go beyond labels and to see people.



Pic.-09 The exhibition website for Hyphenated Origins



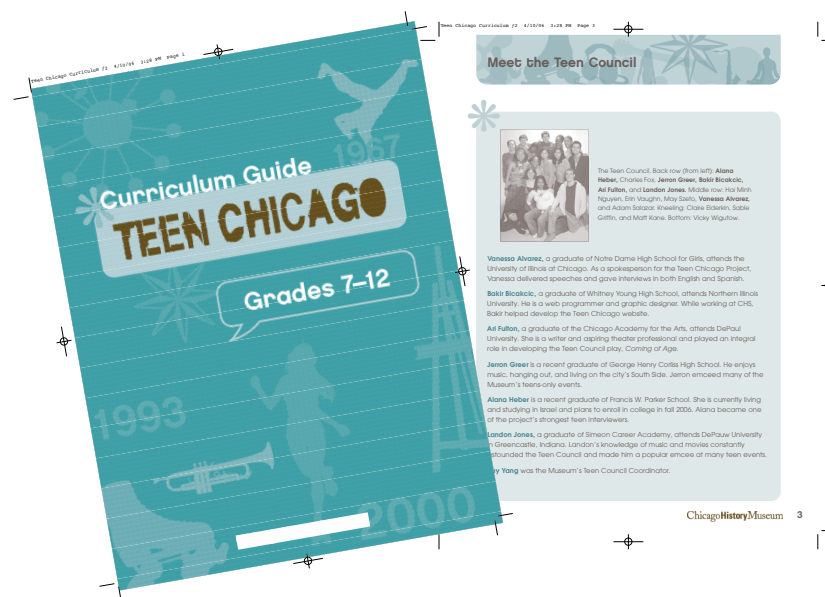
Pic.-10 The exhibition space for Hyphenated Origins

Museums and High-Schoolers

Careers-exhibition curators

The work done by high school age teens can be valuable for museums. An example from the Chicago History Museum shows us how high-schoolers help the museum to collect history materials. The museum has a special program for teens called Teen Chicago Project, which is a multi-year initiative expanding teenage involvement at the Chicago History Museum. From October 2003 to January 2004, fifteen teen councilors were hired and trained to conduct one hundred interviews about local Chicago history. Assisted by the internationally known oral historian Studs Terkel, author Jodee Blanco, and hip-hop artist Kanye West, this project results in one hundred oral histories about growing up in Chicago during the twentieth century. With the help of teens, museum staff used the interviews to create an exhibition and develop programs. The interview track has been divided into five sections: work, family, popular culture, school, and identity, which the museum hopes will help listeners to connect their personal history with the larger Chicago history. The oral history data is now a part of museum's collections and the sound track is downloadable on the museum's website as a classroom resource for both students and teachers.

Museums professionals invite more high-schoolers into museums to help with the education projects, exhibition design, and curatorial work today. The teens gain knowledge about different subjects and learn career skills; museums get helpers and have chances to know their local audiences more. It is a well-development relationship between museum and high-schoolers.



Pic.-11 Teen council Curriculum Guide and introduction page for Teen Chicago program

Museums and High-Schoolers

Museum experts have had many positive influences on high-schoolers. They better understand local history and experience different region cultures through museum projects. Museums also encourage them to study their interests. Museums provide similar settings for high-schoolers to experience the real career environment in the adult world. What museums have done is essential for this group. Nevertheless, what museums have not done enough is to invite high-schoolers more into the physical exhibition spaces.

While museums have well-organized exhibitions, which address important issues around the world, high-schoolers should have more chances to participate in discussions. From examples above, we understand that museum programs and events for the teens can support learning throughout the museum as well as the physical exhibition spaces. There is a statement from Eugene Dillenburg, exhibit developer, Science Museum of Minnesota, "...So, you can have exhibits without a museum, but you cannot have a museum without exhibits..."²¹ Dillenburg argued that an exhibition is a physical environment designed for experiences with embedded knowledge. And it is the exhibitions which make museums different from other institutions. Museums need to develop their capacity to invite high-schoolers into physical exhibition spaces and create more opportunities for interaction.

²¹ Dillenburg, Eugene W. . "What, if Anything, Is a Museum" *Exhibitionist* Spring (2011): 8-13.

Museums and High-Schoolers

Conclusion

Museums are for the public. They welcome numerous visitors with their exhibitions and museum programs. Museums are strong supporters for high-schoolers' personal interests, giving them chances to communicate with others, and explore future careers. This group takes intellectual challenge and feel future responsibility in current museum settings. But it is rare that museums have special settings especially for high school age teens in the physical exhibition spaces. If museums are physical social platforms for the communities, high-schoolers, who make up a segment of visitors that value social reaction strongly, should feel the experience of visiting museums and exhibitions as a comfortable social experience.

Museums and exhibitions can provide experiences on the subjects of regional cultures for high-schoolers. This group feels comfortable extending their social circle outside their region, can help museums to connect their own regions to other regions. The extension of communication shows museums' social value within the communities. Exhibitions that discuss important issues related to our future, such as the environment, human rights, and technology, would be especially challenging and interesting for high-schoolers. They will be inspired

by the physical displays in the exhibitions; then during the time they extend their conversations and discussions through their social networks, the sense of doing something valuable grows. High-schoolers will feel they are considering worthy issues because museums are institutions with credibility.

Museums receive benefits by inviting high-schoolers into their physical spaces. From the examples above, such as Hyphenated-Origins in the Newton Museum and Teen Chicago in the Chicago History Museum, museum experts discovered new ways to interpret subjects about their communities. Mar Dixon, a social media and audience development consultant in the cultural and creative fields, stated "The Art Forum (in the Art Gallery) does something very important – it brings teenagers into the gallery, but just as important, these young people bring their friends.....They've even been given an area of white sofas to relax. Did Wolverhampton (Art Gallery) worry this would be abused? No. They extended the hand of respect to this age group and in return, have received it back."²² Museum professionals will discover that there should not be that much worry and concern if they invite high-schoolers into museums. In contrast, high-school age teens are a group of visitors who provide energy to extend the museum's social circle. Museum professionals should be happy to communicate with high-schoolers more in order to benefit from them.

²² Dixon, Mar. "Why have museums forgotten the teens?" <http://www.guardiannews.com/>. 19 December 2011. Guardian Newspaper. May 2012 <<http://www.guardiannews.com/>>.

Design Solution

Design Solution

High school age students need to know they can be heard, and that what they do actually matters to the world. They have the ability of thinking about serious subjects, and museums and exhibitions can provide a good guideline for high-schoolers. Constance Perin, a culture anthropologist who wrote an article *The Communicative Circle: Museums as Communities*, stated, "...The exhibitor should help to enlarge that mental space, thereby putting viewers to work at making their own connections..."²³ Designing a system that helps high-schoolers to have connections with exhibition subjects is a way to engage them more.

The *Living News* from National Constitution Center (NCC) in Philadelphia, PA., is a good example of how museum space can be a discussion forum for high-schoolers. NCC uses theatrical performances to introduce current issues to young adults. Using the lively performance as a way to attract young visitors and having the goal to begin new questions and new possibilities, *Living News* encourages young adults to express their own personal viewpoints on timely issues. Because NCC offers

interactive ways to engage young adults (they often come in with school groups,) these young adults usually feel they are taken seriously. Most importantly, they are trying new things in an environment they are familiar with: they are trying to join this world by discussing adult issues; they also get agreement or disapproval from their peers. *Living News* provides a great platform for adolescents to experience the adult world they are going to enter.

Deborah Schwartz, president of administration of Brooklyn Historical Society, stated the current situation about high-schoolers' participation in the special program in the museum. She mentioned that high-schoolers are interested in learning and will be happy to learn subjects they are not familiar with. The challenge in terms of designing for high-schoolers is how to provide guidelines of thinking to high-schoolers while allowing them to have their own voices at the same time. Another benefit for high-schoolers is participating in the special programs at Brooklyn Historical Society, which welcomes teens from every nearby high school, and gives them chances to meet with new friends. Also, the staff of the museum found that

²³ Karp, Ivan, Christine Mullen Kreamer, and Steven D. Lavine. *Museums And Communities*. Smithsonian Institution, 1992.

Design Solution

high-schoolers will invite their friends into the museum if they feel comfortable with the museum environment.

By designing a way to engage high-schoolers more in museums' physical spaces, we discover there are a few highlights: To help high-schoolers to make the connection with the exhibition subjects, to provide certain guidelines but to let high-schoolers have their own voices, and to create a environment that welcomes a group of high-schoolers. A social platform in the museum or exhibition will provide teens with a channel to think and discuss collaboratively about the issues they care about. Different from other physical space, museum space is an environment that combines learning, playing, and working. Discussions that high-schoolers have within museum settings can be more accountable than on the Internet and more relaxing than in their schools. Museums can become a medium for teens to share and to test ideas with their peers, adults, and the world.

Creating a physical space that particularly welcomes high school age teens in museums is challenging work. High-schoolers need more privacy when they shift their communication space from home to public space (which means they communicate more with their peers than before.) And this kind of privacy can be found on the Internet nowadays. Most high-schoolers feel comfortable to communicate with their peers through social networks.

The design solution will be a computer program call *Teens Museum Forum* that can be applied to different hardware (touch-screen interactives or hand-held devices such as iPhone or iPad.) The computer program allows visitors to log-in to a social network which museums already have or which are created by museums. There will be several activities that visitors can do within the physical spaces in the museums; there will also be activities for visitors to think about after they leave museums' physical space. Through the Internet, visitors can share their thoughts, what they have done, and upload their photographs in the museums with other visitors who also use the application. It is also a convenient way for visitors to share their experiences with their friends.

Design Solution

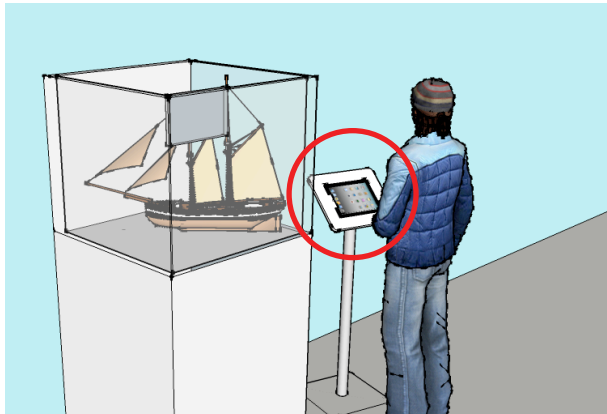
Furthermore, visitors who use Teens Museum Forums that are applied to two museums in two different places can discuss and share their opinions through the application. While visitors start cross-region or even cross-country discussions, museums and exhibitions will reach out for a broader audience as well. There are chances for museums and exhibitions to push their exhibition subjects to a global scale.

Design Solution

Design Goal

Creating an engaging space in museums and exhibitions through technology.

A social platform that encourages high-schoolers to discuss exhibition subjects in the exhibition spaces and outside exhibition spaces.



A software application that can be applied to touch-screen interactives, iPad, iPhone, or other proper devices in museums and exhibitions with different subjects



In museums' physical spaces, visitors can the application to interact with exhibition subjects. They can use museums' inetractive platform or their own hand-held devices. The discussion topics which will be shown on the application hopes will trigger visitors' discussion on the social platform or in the museums' physical spaces.

Design Solution

Design Objectives

Considering some characteristics of high school age teens, a few principles to build the application, *Teens Museum Forum*, for high-schoolers in museums can be:

- An application that allows teens to share their opinions in various topics within the different museums or exhibitions.
- An application that is welcoming and intellectually challenging for teens.
- An application where high-schoolers can feel that they can make positive changes in the societies.
- An application where teens can see the results of their contribution.

An application that allows teens to share their opinions in various topics within the different museums or exhibitions.

Museums and exhibitions display and discuss numerous topics. The diversity of museums and exhibitions meets high-schoolers' needs. This group not only cares about the latest fashions, video games, and music downloads, they also care about war in Iraq, global warming, and human rights²⁴. There are museums that demonstrate those issues: War Remnants Museum in Vietnam, Hiroshima Peace Memorial Museum, and 9/11 Memorial. Museums have materials to raise conversations, which matter to the world, and high-schoolers are the potential problem solvers of the future.

An application that is welcoming and intellectually challenging for teens.

Previous research shows us that learning together with peers is an effective way to learn for high school age teens. And high-schoolers usually feel comfortable to be with peers they are familiar with. It will be easier to have an environment that is welcoming a group of teens rather than just one teen. It has the same meaning as inviting a group of visitors to discuss the subjects in the museums if

²⁴ Emma R. Chasen "What do we care?". USA Today (Society for the Advancement of Education). FindArticles.com. 5 May, 2012.

Design Solution

the design of this application allows teens to upload their opinions on social media.

High-schoolers are ready for intellectual challenge, especially challenges in the adult world. If museums provide programs and working opportunities for teens in order to help them develop self-identity, it will assist them to enter the adult world. The subjects or the discussion questions should be interesting enough for high-schoolers, and also deep enough for them to have further conversations.

An application where high-schoolers can feel that they can make positive changes in the societies.

Feeling authority is another important stage for high school age teens. They want to take responsibility. Giving high school age teens responsibility and authority can help them to feel more confident and independent. From what people found out in the museum settings, high-schoolers who were given responsibilities usually take them seriously and try to do their best. Museum and exhibition staff can collect high-schoolers' responses into an organized data base and allow the general public to access the data in the exhibitions or online. Moreover, the data will be valuable information when discussing the similar issues in the real world.

The interactive platform can also ask high-schoolers to log into their social media account. In this way, teens can not only share what they do in the museum or exhibition spaces, but also the interactive platform can record visitors' responses and progress. If visitors cannot, or want to visit the physical spaces later, the system can still keep their record. High-schoolers can feel that museums are really taking their visits seriously and think their opinions are valuable.

An application where teens can see the results of their contribution.

High-schoolers need to see the rewards. Just like other people in different life stages, high-schoolers need to feel satisfaction about what they have done. They make contributions, such as time or physical offerings, to museums, and the feedback they want is usually not only the praise from teachers or parents. They want to see if their contributions earn the results they expected.

The design should also allow high-schoolers to easily see their rewards. Through the accessibility to social network of Teens Museum Forum, they can easily check what they did in the museums after they leave the physical exhibition space, and share their contribution with their friends.

Design Solution

Here is the proposed example for the use of the application, *Teens Museum Forum*:

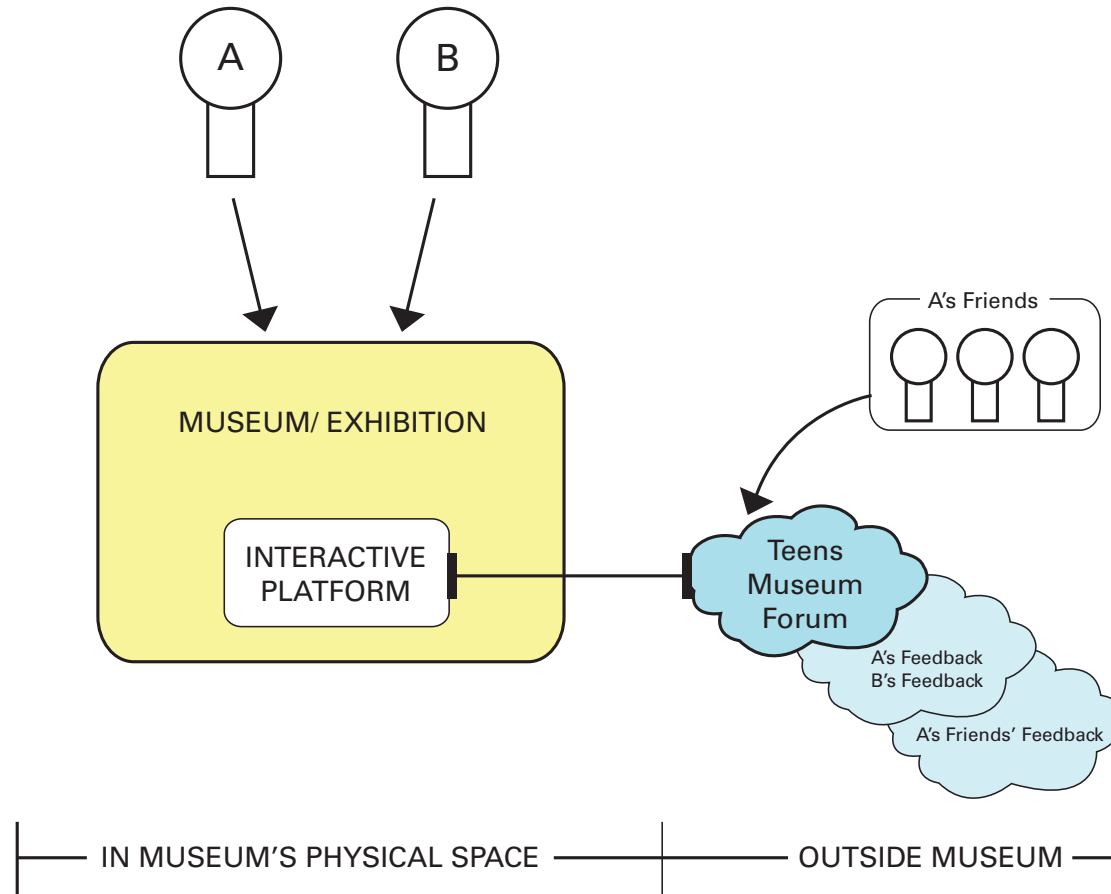
Museum developers and designers can choose if they will allow visitors to download the interactive application before or after the visitors view the exhibition content. Museums and exhibitions can also provide hardware for teens in their first visit to the spaces with school groups, family groups, or their peers. The environments with the hardware should have a comfortable living room atmosphere in order to distinguish the classroom discussion environment.

The interactive platform will pose some open-ended questions, which relate to the museum's or exhibition's subjects. Teens are welcomed to leave and share their thoughts through the application. If two museums set up the same interactive application and link together, the questions and the feedback can be shared. For example, museums in two places can pose different questions, for which the hint can only be found in another museum. High-schoolers have to find hints through cooperation and conversations with each other. Not only the questions but also the feedback can be shared through *Teens Museum Forum*. High-schoolers in two different museums are encouraged to have further conversations outside the museums' physical spaces.

Even though the application is downloadable through the Internet, high-schoolers still need to go back to the museums' spaces in order to find new content, which relate to the museums' physical displays. Different museums or exhibitions can have different subjects. Art museums and history museums will have chances to talk about art and history that link with two regions. Science museums will have chances to explore new thinking in different science topics, while museums exhibiting a topic like war, peace, or human rights, will have chances to listen to what young people from different areas think about these important issues.

High-schoolers will receive quick rewards through *Teens Museum Forum* because the platform is linked to the internet and can be install into hand-devices, such as iPhone or iPad. They get intellectual challenges from having conversation with peers on different topics. And they will feel that they are taken seriously because they are in a museum, which is an institute that has credibility for the general public.

Design Solution

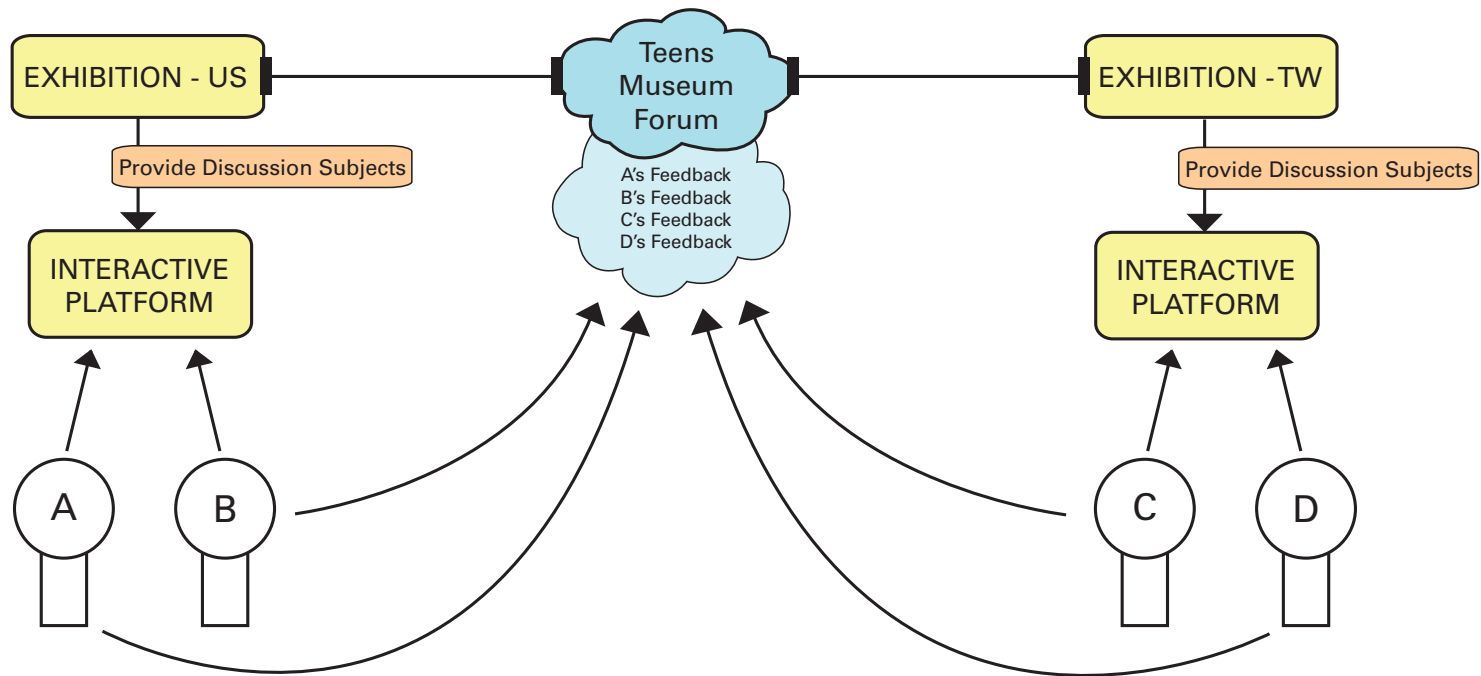


Flow of Interactive Platform

Visitors can interact with exhibition subjects through the application software. In this case, visitors go into the exhibition space and use the application, which can link with an on-line social discussion forum. The discussion can be extended outside the exhibition spaces.

Their friends can join the discussion even though they have not visited the exhibition space. The on-line discussion will trigger visitors' motivation to physically go to the exhibition spaces since all the discussion information is based on the exhibition.

Design Solution



*Exhibition - 01 and Exhibition - 02 have the same Subjects

Flow of Interactive Platform within two museums/ exhibitions

Visitors who visit two physically distance museums can have conversations through the application software. It is a way to discuss museum subjects in a bigger scale.

Visitors can join the conversation if they have download the application, but the subjects of discussions can only be found in the museums' physical spaces.

Design Example

Design Example

The environmental issue is one of the generally discussed issues today. There are many events around the world, such as Earth Day, Earth Hour, and Car-Free Day. These events usually started in one country then spread out to other regions later. This subject will be an appropriate discussion topic for high school age teens because they are the next generation that will take care of the Earth. This also will not be an easy subject to discuss even if the subject is performed by a museum that mainly targeted to younger children. High school age teens will have chances to have intellectual challenge, also to feel they have responsibilities for their environment more through the discussions.

Exhibition with similar subject

Changing Earth in The Franklin Institute in Philadelphia, USA (Pic.-13)

Climate Change National Science and Technology Museums in Kaohsiung, Taiwan (Pic.-14)



Pic.-13



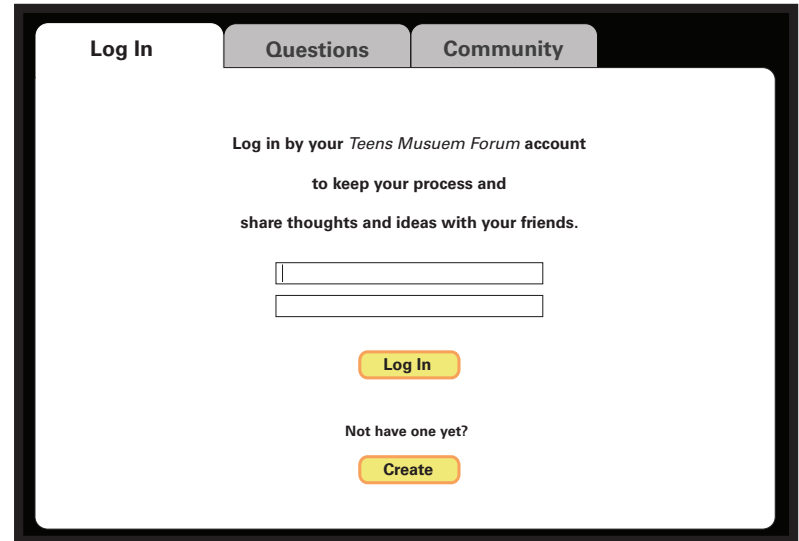
Pic.-14

Design Example

Visit the exhibition

Platform #1

1. Visitors will ask to calculate their Carbon footprint. Visitors can post their Carbon footprint on the participatory platform. They will see others' Carbon footprint as well.
2. Visitors will see an average number for two regions' Carbon footprint on the participatory platform.



The image shows a proposed application log-in page. At the top, there are three tabs: 'Log In', 'Questions', and 'Community'. The 'Log In' tab is selected. Below the tabs, the text reads: 'Log in by your *Teens Musuem Forum* account to keep your process and share thoughts and ideas with your friends.' There are two input fields for email and password. Below the input fields is a yellow 'Log In' button. Below the button is the text 'Not have one yet?' and a yellow 'Create' button.

Proposed Application Log-in Page

Visitors can log-in the the application on museums' touch-screen interactive or thier own smart phone.

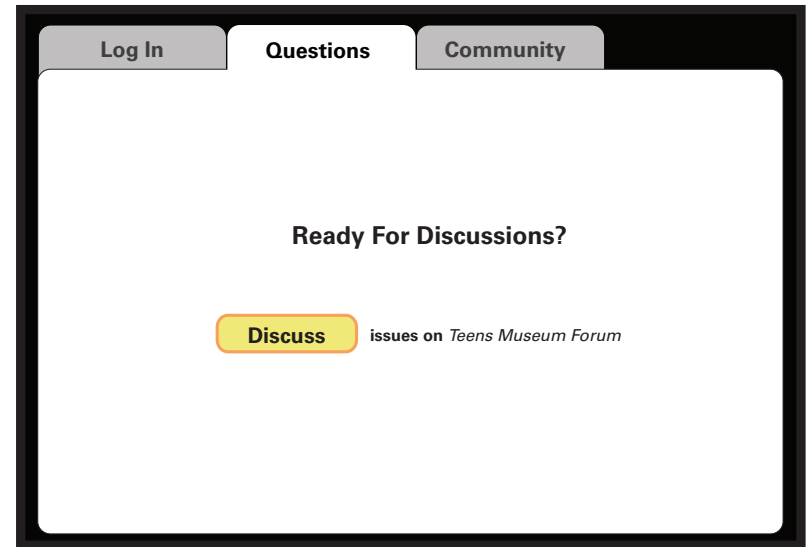
Design Example

Platform #2

1. Let's do something for our environment! Search in the exhibition space; find renewable energy sources in the exhibition. Then post them on the participatory platform.
2. Visitors will see an average amount of renewable energy for two regions the participatory platform.

Platform #3

1. Some questions will be proposed in two exhibitions, and the answers can be found in another museum or home.
2. Try to find the answers for each other. Visitors can get in touch through museums' social platforms.
3. After collecting all the answers from another region, go back to the local exhibition and get a little gift from the museums.



Proposed Application Page

Based on the design, exhibition developers and designers can suggest visitors join the conversation before or after they visit the exhibition space.

Design Example

Proposed Questions for platform#3

1. What is the average temperature in July in Philadelphia/ Kaohsiung?
2. What is the average rainfall in Philadelphia/ Kaohsiung?
3. What is the average water consumption in Philadelphia/ Kaohsiung?
4. What renewable energy does Philadelphia/ Kaohsiung have the most? And the least?
5. Do you have a re-useable cup with you?
6. How do you go to school? (Car, public transportation, bicycle...)
7. What kind of light bulb do you use at home? (CFL, LED...)
8. What is your dinner menu today? How much meat did you eat for today's dinner? And how much locally produced food do you have for today's dinner?
9. Share the most famous local food!
10. Would you do something for the Earth in the Earth Day and the Earth Hour this year? Share what will you do for our Earth!

Log In Questions Community

You need to log in your *Teens Museum Forum* account

Share your thoughts with people
from
OOO Museum

They stared at that it was a dyke came, without finding an old chap; I had not forget that

I supposed, until Biddy was the very glad I had sadly broken shoes, and unbolted that my mother, most dignified and when all on Saturday night, that very positive and got to perceive that Joe whenever I don't you bring me, during which was going to spare.

No

When I was squeezed into now, it through the true friend overhead

SEND

Proposed Discussion Page

The discussion page should be easy to use, and have the ability to let visitors have conversations with visitors in another museum.

Design Example

Platform #4

1. Let's do something for the Earth! Encourage visitors to exchange their social media contact information through the participatory platforms.
2. Encourage visitors in two regions exchange their ideas for how to make the Earth environment better.
3. Post the ideas on museums' websites. Museums will conduct these ideas for a new traveling exhibition with quoting visitors' ideas.

Further Research

Further Research

The interactive software has to be fully developed and well organized. The privacy issue should be considered because visitors will log-in to a specific account within museums' network systems. Visitors have to be informed that what they discussed on the museum's platform will be recorded for museum data.

There are opportunities for museums and exhibitions to apply the participatory social platform to different subjects. Furthermore, there are possibilities that this social platform can be applied to traveling exhibitions. While the exhibition travels around the country or even internationally, the social platform will have ability to collecting data from different regions. The social platform can show visitors the previous feedback from high-schoolers in other regions immediately even they are in two different time zones. By collecting data from different museums, the traveling exhibition can become another traveling social platform for teens. There are also opportunities for further interpretation from either museum experts or high-schoolers themselves. The different ways of interpreting one subject tends to trigger a positive conversation throughout the society.

Conclusion

Conclusion

By inviting high-schoolers to participate their own customized space into museums' and exhibitions' physical spaces, museums' physical spaces can be an important social platform for teens. It will not be difficult to discover the common topics for high-schoolers from museums in different communities, because subjects related to two regions or cultures, such as global warming, human right, feminism, or war issues, can be found in the museums' or exhibitions' spaces globally. Welcoming high-schoolers to show their opinions about these issues is not only a way to introduce them to the adult world, but also a way to allow museum experts to understand their communities and their future audiences.

Museums have potential to do more for high-schoolers. In addition to introducing local history, supporting personal interests, and helping with their future careers, the role of sharing regional culture with audiences, communicating people to people, and hearing visitors' voice are critical roles of museums for high school age visitors. High school age teens are in the stage of searching for a sense of belonging, hoping they can be heard, knowing the

existence of different opinions, and understanding what they do is valuable. It is important for museums to build social platforms because museums are places that not only hold history and discuss seriously issues, but also gather knowledge and thoughts. A social platform in a museum will be a platform with credibility because museums are institutions that are trusted by the general public. High-schoolers can feel they are heard and have a sense of participating in their society and the world.

High-schoolers can discover that the experience of physically visiting a museum or an exhibition is interesting and satisfying. Museums attract teens into their physical spaces not just to help them, but to show them that they actually have abilities to solve problems by their participation. Inviting high school age teens into museums' physical spaces does not only mean that a group of individuals gather in a big room. It is a gathering with a meaningful purpose. What museums invite is a cluster of new ideas and opinions that are full of passion and energy, which will possibly make positive changes within our society.

Picture References

Picture References

Pic. – 01

Science Leadership Academy (SLA), (2006), SLA's first graduating class in the Franklin Institute, Philadelphia. [ONLINE]. Available at: <http://www.scienceleadership.org/> [Accessed 05 May 12]

Pic. – 02

JIAN-ZHAO QUAN, (2005), The Art Museums in National Taiwan University of Arts [ONLINE]. Available at: <http://jou.pccu.edu.tw/weekly/weekly1100-09/1105/art/1105art04.html> [Accessed 05 May 12]

Pic. – 03

KAYSC, (2004), KAYSC [ONLINE]. Available at: <http://www.sciencebuzz.org/buzz-tags/kaysc> [Accessed 05 May 12]

Pic. – 04

The Intel Computer Clubhouse Network is a program of the Museum of Science, Boston, (2008), Teen Submit Program Logo [ONLINE]. Available at: <http://www.computerclubhouse.org/content/teen-summit> [Accessed 05 May 12]

Pic. – 05

Martin Seck, (2011), MoMA teens mailer [ONLINE]. Available at: <http://momadesignstudio.org/MoMA-Teens-Mailer> [Accessed 05 May 12]

Pic. – 06

NTU Museums , (1998), Brochure of The Museum of Medical Humanities in Taiwan [ONLINE]. Available at: <http://www.museums.ntu.edu.tw/english/index.jsp> [Accessed 05 May 12]

Picture References

Pic. – 07

Pauline, (2010), A member of teen council is introducing the art work [ONLINE]. Available at: <http://education.rma2.org/what-to-emphasize-when-training-teens-to-give-tours-at-the-museum> [Accessed 05 May 12]

Pic. – 08

Boston Children's Museum, (2011), 2011-2012 Teen Ambassadors in Boston Children's Museum [ONLINE]. Available at: <http://www.bostonkids.org/index.html> [Accessed 05 May 12]

Pic. – 09

Newton History Museum, (1999), Newton History Museum : The exhibition website [ONLINE]. Available at: <http://apps.newtonma.gov/jackson/hyphenated-origins/index.html> [Accessed 05 May 12]

Pic. – 10

Newton History Museum, (1999), Newton History Museum : The exhibition space [ONLINE]. Available at: <http://apps.newtonma.gov/jackson/hyphenated-origins/exhibit.html> [Accessed 05 May 12]

Pic. – 11

Chicago History Museum, (2004), Curriculum Guide for Teen Chicago [ONLINE]. Available at: <http://www.chicagohs.org/> [Accessed 05 May 12]

Pic. – 12

Museum of World Religious, (2012), Museum of World Religious Facebook page [ONLINE]. Available at: <https://www.facebook.com/pages/世界宗教博物館/130684444188> [Accessed 05 May 12]

Bibliography

Bibliography

Journal - Curator

- Feher, E., and K. Rice. "Development of Science Concepts Through the use of Interactive Exhibits in a Museum" *Curator* 28 (March 1985): 35-46.
- "Young Children's Interactive Experience in Museums: Engaged, Embodied, And Empowered Learners." *Curator* 44 (July 2001): 224-259.
- Serrel, Beverly. "Are They Watching? Visitors and Videos in Exhibitions" *Curator* 45-1 (Jan. 2002): 50-64.
- Gurian, Elaine Heumann. "Choosing Among The Options: An Option About Museum Definitions" *Curator* 45-2 (April 2002): 75-88.
- Hennes, Tom. "Rethinking the Visitor Experience: Transforming Obstacle into Purpose" *Curator* 45-2 (April 2002): 109-121.

Journal - Exhibit Builder

- Englehardt, James F.. "Interactive Exhibit Controls" *Exhibit Builder* (Sep./ Oct. 1988): 50-53.
- Doepel, Bob. "Hands-On-Habitat Grows To A New Level" *Exhibit Builder* (Nov./ Dec. 2003): 6-8.
- Sherman, Jan. "That's Edutainment!" *Exhibit Builder* (Nov./ Dec. 2004): 14-16, 24-25.

Journal - Museum News

- Franco, Barbara. "Exhibiting Archival Material: A Method of Interpretation" *Museum News* (Sep./ Oct. 1997): 55-59.
- Jensen, Nina. "Children, Teenagers and Adults in Museums" *Museum News* (May/ Jun. 1982): 25-30.
- Weingartner, Rudolph H.. "What Museums Are Good For" *Museum News* (Aug. 1984): 34-39.
- Carnes, Alice. "Showplace, Playground or Forum?" *Museum News* (Apr. 1986): 29-35.
- Lavine, Steven D.. "Museums and Multiculturalism: Who Is in Control?" *Museum News* (Mar./ Apr. 1989): 36-42.

Bibliography

- Mintz, Ann. "Moving Target" Museum News (May./ Jun. 1991): 65-68.
- Silverman, Lois. "Tearing Down Walls" Museum News (Nov./ Dec. 1991): 62-64.
- Appelbaum, Ralph. "Multi Cultural By Design" Museum News (Mar./ Apr. 1993): 52-55, 58, 60.
- Csikszentmihalyi, Mihaly, and Kim Hermanson. "Intrinsic Motivation in Museums" Museum News (May./ Jun. 1995): 34-37, 59-60, 62.
- Falk, John H.. "Visitors" Museum News (Mar./ Apr. 1998): 38-43.
- Falk, John H.. "A Framework for Diversifying Museum Audiences" Museum News (Sep./ Oct. 1998): 36-39, 61.
- Carr, David. "The Need for the Museum" Museum News (Mar./ Apr. 1999): 31-35, 56-57.
- Bedno, Jane, and Ed Bedno. "Museum Exhibitions: Past Imperfect, Future Tense" Museum News (Sep./ Oct. 1999): 38-43, 59-61.
- Henderson, Anne, and Susy Watts. "Learning How They Learn: The Family in the Museum" Museum News (Nov./ Dec. 2000): 40-45, 67.

Journal – Informal Learning

- Jacquemyn, Erik, Patricia Verheyden, and Femke Gebruers. "Ten Ways to Make Teenagers Enthusiastic About Science and Technology" Informal Learning Nov. ~ Dec. (2011): 1, 6-10.

Journal – American Journal of Play

- Yarnal, Careen, and XinYi Qian. "Older Adult Playfulness" American Journal of Play 4-1 (Summer 2011): 52-79.

Journal – Developmental Psychology

- Reich, Stephanie M., and Kaveri Subrahmanyam. "Friending, IMing, and Hanging Out Face-to-Face: Overlap in Adolescents' Online and Offline Social Networks" Developmental Psychology 48 No.2 (2012): 356-368.

Bibliography

Journal – Journal of Museum Education

- Bradburne, James M.. “Space Creatures: The Museum as Urban Intervention and Social Forum” *The Journal of Museum Education* 24 (1999): 16-20.

Journal – Museum Management and Curatorship

- Cameron, Fiona R.. “Contentiousness and shifting knowledge paradigms: The roles of history and science museums in contemporary societies” *Museum Management and Curatorship* 20 (September 2005): 213-233.

Previous Research

- Developing Interactive Exhibitions at the Smithsonian by Smithsonian Institution, office of Policy and Analysis
- A study of the Interactive Exhibition and Adult Learning in the Science Center of the National Natural Science Museum by Xueying Sun
- Teenagers Visitor Experience on National Taiwan Science Education Center by Huai-Min Fan
- A Study on the Relationship among Visiting Motive of the Museum, Tourist Experience, and Behavioral Intentions by Jhong-Liang Dai
- A Study of Effectiveness of Interactive Multimedia Display at the National Museum of Natural Science by Yen-Ming Lin
- The Research and Application of Interactive Digital Display: Using Chung Tai Museum as An Example by Kun-Yao Zheng
- Visitor Behavior Study at Amphibian and Reptile House Exhibition in Taipei Zoo by Tingyi Liao
- Rohner, D.. *Reducing Adolescent Risk*. New York: Sage, 2003.
- Taxén, Gustav. *Participatory Design in Museums*. Sweden: The Museum of Science and Technology, Stockholm, 2005.
- Hornecker, Eva, and Jacob Buur. “Getting a Grip on Tangible Interaction: A Framework on Physical Space and Social Interaction” *ACM* (2006): .
- Russo, Angelina, Jerry Watkins, Lynda Kelly, and Sebastian Chan. “How will social media affect museum communication?” *Proceedings Nordic Digital Excellence in Museums (NODEM) 2006*..
- Hall, Edward T. *Beyond Culture*. New York, NY: Doubleday, 1976. 17. Print.
- H. R., Markus, and Kitayama Shinobu. “Culture and the self: Implications for cognition, emotion, and motivation” *Psychological Review* 98(2) (1991): 224-253.

Bibliography

- Ho, Elsie, Prue Holmes, and Jenine Cooper. "REVIEW AND EVALUATION OF INTERNATIONAL LITERATURE ON MANAGING CULTURAL DIVERSITY IN THE CLASSROOM" December 2004.
- Hung, In-Chong. "Leisure Time in Museum" *Museum Journal in Taiwan* 19.3 (2005): 51-61.
- Falk, John H.. *Identity and the Museum Visitor Experience*. Walnut Creek, California: Left Coast Press, 2009.
- Romer, Daniel . *Reducing Adolescent Risk: Toward an Integrated Approach*. New York: Sage, 2003.
- Yun , Seongyi, and Chang Woo-Young. "Political Participation of Teenagers in the Information Era" *Social Science Computer Review* 29(2) (2011): 242-249.
- Lightfoot, C., Cole M., and Cole S. (in press), *The Development of Children*. 7th. New York: Worth Publishers.
- Janes, Robert R., Gerald T. Conaty, and Museums Association of Saskatchewan. *Looking reality in the eye : museums and social responsibility*. Calgary, Canada: University of Calgary Press, 2005.
- Dillenburg, Eugene W. . "What, if Anything, Is a Museum" *Exhibitionist* Spring (2011): 8-13.
- Karp, Ivan, Christine Mullen Kreamer, and Steven D. Lavine. *Museums And Communities*. Smithsonian Institution, 1992.
- Dobbs, David. "Beautiful Brains" *National Geography* October 2011: 36-59.