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Museum Education in the Information Age: Outreach Initiatives on the Internet

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Submitted in partial fulfillment of the requirements for the degree of
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Abstract

In recent years, museums have been given the opportunity to reach out to audiences beyond their physical vicinities with the help of the internet. Most museums maintain websites with varying degrees of educational value. With so many choices, how is an educator to know which is best for his or her students? Some contain only basic information about the museum while others contain substantial resources including collections databases, virtual tours, and even lesson plans for classroom teachers. This paper seeks to evaluate from the viewpoint of the museum educator the variety, educational content and feasibility of the overwhelming number of internet resources available and in use today. It will describe how museum websites can and do benefit from educational theory, and how museum educators use this theory to create teacher resources that are relevant to curricular needs.

What factors influence the usability of a museum's website? Part I will discuss educational theory relative to educational museum websites. Part II will define and provide examples of the most common types of internet technology in use on museum websites today. In Part III, the results of a 1999 Baltimore Museum of Art survey of art teachers' available resources will be discussed as well as a 2000 National Center for Education Statistics survey of how teachers across the curriculum use computers. In Part IV, original survey results of museum educators polled in 2002 concerning their websites will be presented. The focus will be on museums using technological resources to further their educational mission rather than the actual use of technology in the classroom.

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Preface

I have chosen to focus on museum outreach initiatives on the internet because I believe it to be highly important in providing children with cultural resources they might not otherwise have access to. Internet access has the potential to lessen this cultural gap.

Many people have proven to be of great help in fostering my interest in this topic. I would like to thank Dr. Susan Leshnoff, my thesis advisor, for her support, advice and assistance on this project. I would also like to thank my professors and mentors in the Museum Professions program, Barbara Cate, Dr. Petra Chu, Dr. Jurgen Heinrichs, Dr. Charlotte Nichols, Claudia Ocello, Jo Ann Cotz and Rebecca Buck, for sharing their knowledge, guidance and friendship which continues to contribute to my growth as a museum professional.

I owe a special debt of gratitude to Dan Mills for his introduction to the field that would ultimately become my career. His guidance, support, dedication and especially friendship were and are integral in shaping the professional I continue to become.

Finally, I would like to thank my family for always providing me with every possible opportunity to expand my horizons. Their continued love and support as I pursue a field that has taken me hundreds of miles from home means so much.

It was my personal experiences in a small, rural town that initially interested me in museum outreach. As a child, I grew up in a community geographically isolated from major museums and cultural institutions. My parents regularly took my sister and me on weekend trips to nearby cities; however, many of my peers did not have those opportunities.

After finishing college, I spent several months substitute teaching in the community I grew up in. As an adult, I was able to see even more clearly the effects of this isolation on the community's children. I began to wonder how this cultural isolation could be alleviated.

In my graduate career at Seton Hall, I had the opportunity to work for University Computing, where I witnessed first hand the possibilities the internet presents for distance learning. It is in the realm of museum internet outreach that I choose to focus my research.

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Information everywhere, at light speed, immersing us – is this what we want? We seem unsure. We are the species that defines itself in terms of information: homo sapiens sapiens. We are knowledge connoisseurs. We are promised some approximation of All Previous Text (and music and pictures) in our pockets. Then again, we didn't evolve in a world with so much data and buzz. Our sense organs tuned in one slow channel at a time. Now we tune in and out. The dream of perfect ceaseless information flow can slip so easily into a nightmare of perfect perpetual distraction. (Gleick 2001)

In recent years, museums have been given the opportunity to reach out to audiences beyond their physical vicinities with the help of the internet. Most museums maintain websites with varying degrees of educational value. With so many choices, how is an educator to know which is best for his or her students? Some contain only basic information about the museum while others contain substantial resources including collections databases, virtual tours, and even lesson plans for classroom teachers. This paper seeks to evaluate from the viewpoint of the museum educator the variety, educational content and feasibility of the overwhelming number of internet resources available and in use today. It will describe how museum websites can and do benefit from educational theory, and how museum educators use this theory to create teacher resources that are relevant to curricular needs.

What factors influence the usability of a museum's website? Part I will discuss educational theory relative to educational museum websites. Part II will define and provide examples of the most common types of internet technology in use on museum websites today. In Part III, the results of a 1999 Baltimore Museum of Art survey of art teachers' available

resources will be discussed as well as a 2000 National Center for Education Statistics survey of how teachers across the curriculum use computers. In Part IV, original survey results of museum educators polled in 2002 concerning their websites will be presented. The focus will be on museums using technological resources to further their educational mission rather than the actual use of technology in the classroom.

The resources considered here will be limited to those available on the internet; CD-ROMS and video conferencing will not be considered in this thesis. Since more than 99% of public school teachers have access to the internet at school, financial considerations should not weigh in as a significant hindrance to the use of internet resources. (U.S. Department of Education National Center for Education Statistics, 2000)

Part I: Educational Theory

Museum educators involved in the creation of internet resources for students and teachers must consider the educational theory behind the learning environments they create in much the same way as educators in physical environments. As schools move toward a more technological classroom, museums have the opportunity to help facilitate this change and should take that responsibility seriously. A major aspect of this responsibility involves taking into consideration the variety of learners who will make use of their resources and the educational theory behind their learning processes.

Most of the educational theory applicable to classroom educators is relevant to online learning environments as well. In recent years, significant work has been done to apply educational theory to museum learning environments, specifically by George E. Hein and the team of John H. Falk and Lynn D. Dierking. These writers base much of their theory on the work of educational theorists such as Thorndike and Skinner, Dewey, Piaget, Vygotsky, Bloom and Gardner.

Thorndike and Skinner

Thorndike established the basis for operant conditioning during the early twentieth century through a series of experiments in which cats were placed in closed boxes and released when they performed a predetermined task. (Woolfolk, 2001) Thorndike discovered that the cats learned quickly that their performance of the task would result in their release. The theory is that a positive response to a particular action will result in that action being repeated. (Ibid.)

B.F. Skinner is thought to be responsible for the more fully developed concept of operant conditioning as a result of his work in the mid twentieth century. Skinner believed that operant

conditioning only accounted for a fraction of human behavior. He held that operant conditioning explained only the pairing of preexisting behaviors with new stimuli, not the creation of new behaviors. Skinner went on to consider various types of reinforcement, including positive reinforcement, which involves a positive consequence to a specific action, negative reinforcement in which a negative stimulus is removed, such as the cessation of an unpleasant sound, when a particular action is performed, and punishment in which a negative action leads to a negative consequence, therefore decreasing the frequency of the action. (Woolfolk, 2001)

Skinner also experimented with a variety of reinforcement schedules. Continuous reinforcement is given after every desired response, fixed interval reinforcement is given after a set period of time, variable interval reinforcement is given after varying lengths of time, fixed ratio reinforcement is given after a set number of responses, and variable ratio reinforcement is given after varying numbers of responses. His experiments showed variable ratio reinforcement to be the most effective in creating consistently repeated behaviors. (Woolfolk, 2001)

Dewey

John Dewey's work of the late nineteenth and early twentieth century holds that knowledge is created by the learner, and that there is no single absolute truth to be transferred from educator to learner. (Dewey, 1997) Truth, in Dewey's belief, is evolutionary. Dewey's theory of education, instrumentalism, advocates experiential learning through experimentation and practice and is sometimes referred to as pragmatism. Dewey's work claims that rote learning and didactic teaching strategies are inadequate, as they rely on the belief that knowledge exists outside the learner. (Ibid.)

Piaget

Piaget's work conducted in the mid to late twentieth century resulted in a theory of cognitive development. His work with children led him to develop a framework for describing the cognitive abilities of children during different stages of development. This theory holds that children from approximately 0-2 years of age are in the sensorimotor stage, characterized by the use of imitation, memory, thought, recognition of object permanence and development from reflex action to goal directed activity. (Woolfolk, 2001) Children from approximately 2-7 years of age are in the preoperational stage, characterized by development of language, symbolic thought, ability to think operations through in one direction and difficulty in seeing another person's point of view. (Ibid.) Children from approximately 7-11 years of age are in the concrete operational stage in which they are able to solve concrete problems logically, understand laws of conservation, classify, seriate and understand reversibility. (Ibid.) Children in the formal operational stage, from approximately age 11-adult, are able to solve abstract problems logically, think scientifically and develop concerns about social issues and identity. (Ibid.) The theory of cognitive development helps educators to create activities that will be most beneficial to the children they teach based on the child's developmental level. Piaget's theory holds that knowledge is created as people attempt to make sense of the world around them by interacting with objects, people and ideas. He also holds that the maturation process, along with social interaction and activity, influence the way knowledge is developed. (Piaget, 1969) Piaget believes knowledge is acquired by the development of schemes, or changes in the organization of thought, and adaptation, which involves incorporating new information into preexisting schemes or adjusting schemes to incorporate new information. (Ibid.)

Vygotsky

Vygotsky was perhaps the most well known proponent of the Sociocultural Perspective. Vygotsky believed cognitive development was the result of internalization of elements of the surrounding environment, and was therefore heavily influenced by the individual's social interaction and cultural environment. In Vygotsky's theory, Piaget's stages of development would not necessarily hold true in cultures with different social structures or values. Vygotsky held that cognitive development could not be studied accurately outside its cultural context. (Vygotsky, 1990)

Bloom

Benjamin Bloom was responsible for the development of a taxonomy of educational objectives. The taxonomy divided objectives into cognitive, affective and psychomotor domains, and further classified objectives within the cognitive domain. From lowest to highest level, these include knowledge, comprehension, application, analysis, synthesis and evaluation. 'Lower order thought', including knowledge, comprehension and application, refers to activities in which the child memorizes, understands and uses information. (Woolfolk, 2001) 'Higher order thought', including analysis, synthesis and evaluation, requires the child to think critically and/or creatively by making inferences, analyzing conclusions, creating original solutions or products, judging the merit of ideas or by offering opinions. (Ibid.) Though these objectives are often referred to as lower and higher level, the order does not necessarily apply in every subject. (Bloom, 1984)

Gardner

In the 1980s, Howard Gardner developed a theory of multiple intelligences. Gardner holds that there is not one single definition of intelligence. He defines intelligence as a biological and psychological potential to solve problems and create products or outcomes that are valued by a culture, and holds that this potential can manifest itself through seven intelligences, including linguistic, musical, spatial, logical-mathematical, bodily-kinesthetic, interpersonal, and intrapersonal, and that an individual may fall into any or all of these categories. (Gardner, 1993) Since traditional education is best suited for the linguistic and logical-mathematical learner, Gardner suggests that different kinds of learners would benefit most effectively from a variety of teaching styles catering to the seven intelligences. (Gardner, 1993)

Learning in the Museum

Most of these theorists were not specifically considering the museum environment; rather, they were studying learning in general. The museum presents its own unique challenges as an informal learning center in which people of many ages and cultures come together to learn as individuals or in a variety of social and family units. In the 1990s, museum educators began to examine the role of educational psychology and theory specific to the museum, a role which can be applied to the virtual as well as the physical environment.

Falk and Dierking

John H. Falk and Lynn D. Dierking suggested that all museum visitors experience the museum in three overlapping contexts. (Falk and Dierking, 2000) The personal context involves how individuals respond to the museum as a result of their personal knowledge or experience. This context takes into consideration many of Piaget's theories involving assimilation and accommodation of information, or how learners place information within preexisting frameworks of knowledge. (Ibid., 29) The sociocultural context takes into account the museum visitor's social and cultural background and recognizes that these influences will affect the way the museum is perceived and interpreted. This context is based on Vygotsky's Sociocultural Perspective, which considers many cultural and social factors including language and social values. (Ibid., 43-45) The physical context refers to the museum environment. (Ibid., 57-59) This includes the exhibitions, but also extends to include other physical influences such as light, sound, physical space and availability of food or restrooms. Falk and Dierking hold that these three contexts overlap and are at work in every museum visit and must be considered in shaping exhibitions and programs. (Ibid., 10)

Hein

G.E. Hein developed a theoretical structure for museum education that would encompass any existing educational theory. (Hein 1999) Hein concluded that all educational theories included both a theory of knowledge and a theory of learning. He holds that knowledge theories span a continuum between the belief that knowledge is something that exists outside the learner and must be transmitted to them, and the belief that knowledge is created by the learner. Learning theories also span a continuum between the transmission-absorption theory to active learner participation. If these two continuums are juxtaposed, they create four quadrants into

which any educational theory can be accommodated. (See Figure A) Each of the quadrants represents a teaching and learning strategy as well, including Didactic/Expository, Stimulus/Response, Discovery and Constructivism. (Hein, 1999)

The Didactic/Expository teaching and learning strategy is based on the belief that knowledge exists outside the learner and must be added incrementally. In this strategy the learner is a passive recipient of information rather than an active participant. (Ibid.) Examples of activities used in this strategy are rote learning and memorization, and correspond to the lowest levels of Bloom's taxonomy.

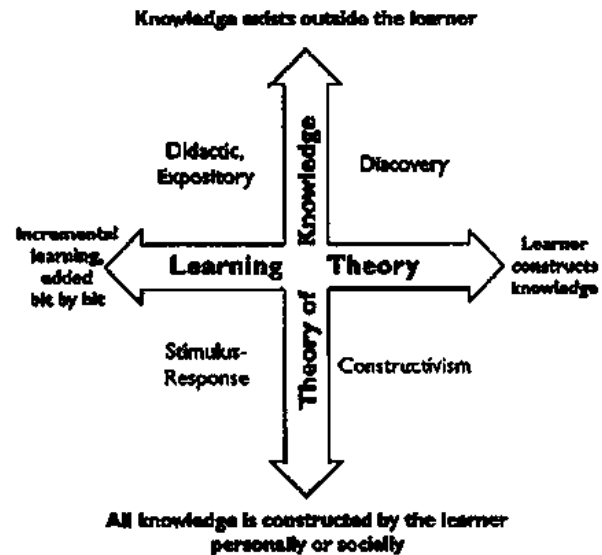


Figure A. Hein's Theory of Learning

Proponents of this technique think of knowledge as something to be transmitted from teacher to student, rather than something that can be learned through discovery or transmitted by peers. Highly structured, this teaching style is beneficial for imparting basic skills that are necessary to perform more difficult tasks and cannot be completed in a variety of ways.

This learning style does not, however, foster creative and critical thinking skills, or recognize alternative methods of problem solving. Individual learning is emphasized, and students often do not get the chance to develop group problem solving skills, or to benefit from the knowledge of their peers. It also keeps the learner in a passive role in which they do not have a voice in deciding how or what they learn. (Ibid.)

An example of Didactic/Expository strategy on a museum website would be online exhibitions provided by museums that present the viewer with images and text and tell them what to look at in each work, but do not invite viewers to make their own interpretations of the art.

The Stimulus/Response strategy is based on the work of Thorndike and Skinner and relies on, much like its name implies, stimuli and responses or operant conditioning. This strategy shares with the Didactic/Expository strategy the belief that the learner is a recipient of knowledge rather than a creator of it, but differs in its belief that knowledge is constructed by the learner personally or socially. (Ibid.) Examples of this strategy would be praising a student for creating an effective solution to a proposed problem or rewarding good behavior.

An example of Stimulus/Response theory on museum websites is the collections database. The website visitor is given access to stimuli such as images and information and can respond to those stimuli in a variety of ways. The focus is on the educational resource as the provider of knowledge, but the learner's specific response is not made to conform or prescribe to a particular truth. The online database of the National Gallery of Art in Washington, D.C. is an excellent example of this type of resource. (See page 21) The database provides a great deal of factual information, but contains very little interpretive direction, allowing viewers to create their own meaning. Without interpretation, the visitor is able to draw many of their own conclusions about the meaning, symbolism or purpose of a particular object.

The Discovery strategy holds that knowledge exists outside the learner, but that the learner must be an active participant in their own learning. This strategy is based upon the belief that given enough information, learners will come to the same conclusion, truth or discovery as was predetermined by the educator. (Ibid.)

The Discovery method of learning has been extremely well-received by museum educators. This method is similar to constructivism in that it focuses on the student as the creator of learning. In this method, the students are engaged in hands-on, interactive experiences that encourage them to become active participants in their own education. The difference between constructivism and the discovery method is that in the discovery method the students are all expected to arrive at the same conclusion, or 'discovery', at the end of their experience. The participatory activities they take part in are specifically designed to lead students to this conclusion. It is successful because the students' 'discovery' is validated when they achieve the final conclusion. The negative aspect of this method is that it does not allow students to explore any unintended issues relating to the lesson. (Ibid.) Since children are able to create their learning, they are also able to choose a method of learning that best suits their intelligence type.

The *Devices of Wonder* online exhibition of the J. Paul Getty Museum in Los Angeles, California (<http://www.getty.edu/art/exhibitions/devices/choice.html>) encourages students to have a personal experience with the objects through 'hands on' play. Once the students' interest has been piqued, they can read about what the object is and where and how it would have been used. This resource uses the discovery method by giving students a hands-on experience, but eventually leads them to learn the same lesson no matter what the content of their play experience. Each of the objects is meant to relate to the evolution of modern cinema, though students may have questions about the objects that bring up other topics. In order for this lesson to succeed as is, other topics cannot be explored as they do not fit into the design of the resource.

The Constructivism strategy postulates that active participation of the learner is necessary not only in learning, but in constructing conclusions based on that learning. These conclusions are not expected to lead to a single, predefined truth; but rather a truth that can only be validated

by the experience of the learner. The idea of constructivist learning is based on the work of Piaget and Dewey. Piaget held that an active mind was critical in interpreting one's surroundings. Dewey's support of experiential learning also lends support to this strategy. The Constructivist strategy also looks to Howard Gardner's Multiple Intelligences to find a variety of ways to reach learners with a variety of intelligence types. (Hein, 1998, 165.)

Constructivism is based on the theory that students are more motivated and learn more effectively if they have the opportunity to play an active or participatory role in constructing their own learning. Group work is emphasized, allowing students to emphasize their own strengths within the group to develop solutions to problems. (Ibid.) Students are also able to benefit from their more advanced peers through scaffolding, in which the less advanced learners are able to reach beyond their individual abilities with the support of a more advanced learner. (Vygotsky, 1990)

While directed instruction is necessary for many basic skills, constructivist techniques are better suited for art museum education. As much is based on individual perception in the arts, dictating to students what they should think is antithetical to the subject matter. One way to pique the students' interest in art and museums in general is to encourage personal interactions with the works the students are viewing. If a painting or sculpture can be related to the personal experiences of the learners, they are that much more likely to develop an interest in it. Many children have the basic skills to think critically and creatively about art, but need help to know which skills to use. Scaffolding techniques are invaluable in helping students learn how to use their skills to think creatively about the artwork they are looking at.

The very nature of the internet lends itself well to constructivism. Its non-linear, webbed nature constantly gives learners hyperlinked options concerning which path to follow, allowing them to determine both the course and outcome of their experience. (Teather, 1998)

The 'Art Safari' web page of the Museum of Modern Art in New York City is created in the constructivist method. (<http://www.moma.org/momalearning/artsafari/index.html>) Students are given very little information about the artist or work; they are simply asked to answer questions such as "What do you think this person is doing?", "Describe the figure," and "Write a story about what is going on in this picture." This type of web site encourages a personal experience with the artwork, and invites learners to create their own meanings.

In summary, a museum website must offer a variety of resources incorporating multiple learning theories to appeal to a variety of teachers and learners, yet not be so overwhelming as to deter teachers from learning how to use the site. The ArtsEdNet site of the J. Paul Getty Museum in Los Angeles fulfills a variety of teacher needs within a single site. (See page 30) Though it has not been updated in two years, it still remains popular among art teachers. The discussion boards and listserv create a community environment that draws teachers back to the site and its variety of resources. The National Gallery also provides a variety of resources that allow the site to be used repeatedly even for the same class. (See pages 21, 23-24, 26) Some of the museums with less comprehensive web sites alleviate that limitation by providing rotating temporary online exhibitions so that teachers can return to them year after year.

Part II: Internet Resources on the Web and their Relevance to Classroom Educators

Almost every museum has a website, but its educational relevance can vary considerably. Most give a general description of the museum using text and pictures and include hours of operation, admission rates, directions and a calendar of events. Many have links to a retail site that sells items from the museum gift shop. In the past few years, many museums have built upon their existing websites by providing educational resources such as general information on collections, collections databases, online exhibitions, virtual reality tours, lesson plans, discussion boards, educational games and in a few cases, online learning communities. (See Part II: Museum Educator Survey)

Several years ago museums began the laborious task of making collections databases available on their websites. (Sabin, 1997) Depending on the museum, some or all of the collection was available, and the museum was able to filter information the public should not have access to, such as monetary values or donor information. While this provided an invaluable tool for the researcher, creating lesson plans would have been incredibly work intensive for a busy classroom educator. Providing general information about museum collections can be of use to classroom educators, but in order to create high quality lesson plans in a reasonable amount of time, teachers need access to more comprehensive information in a variety of formats. (See Part Ia: Baltimore Museum of Art Teacher Resources Survey)

The online exhibition is more conducive to classroom use, as the curator has already done the work of linking related images and information and providing them in an understandable context. Creating lesson plans based on a single online exhibition is a more realistic goal for a classroom teacher; however, for the online exhibition to be truly successful in the classroom, it

must be designed with students in mind, and take into consideration learning theory and the age levels of the students most likely to use it. (See Part III: Educational Theory)

The interface of the online exhibition affects its classroom usability as well. (Teather and Wilhelm, *Web Musing*, 1999) Interfaces range from a very straightforward linear story line to the virtual reality tour that allows the users to make choices about which objects they want to study more in depth. The virtual reality tour can range in format from an interactive map of the museum with links to various objects in each area to a more realistic video game format. Some museums even have docent led tours in digital video format.

Probably one of the most useful additions to the museum website for educators is the downloadable lesson plan. The lesson plans themselves may have little or nothing to do with technology, making them feasible even for a classroom without computers, but it is technology that makes them an easily accessible resource for educators. Often these lesson plans are useable as is and many conform to state curriculum guidelines. Offering resources for teachers that require very little preparation on their part encourages them to use the museum in the classroom by making their job a little easier in the process.

Some museums are now including interactive educational games for children to enhance the educational value of their online offerings, allowing children to learn through a medium they enjoy. They also allow children to actively interact with the material rather than passively reading or looking at it.

A few major museums have experimented with discussion boards for users to post their comments regarding the museums offerings or other art education related topics. While this kind of resource could be an invaluable tool for educators to interact with one another, many of the

discussion boards are relatively inactive. The Getty's ArtsEdNet discussion board is an exception to this, with a large and active population of discussion board users.

An online learning community, in which students and teachers are able to create usernames and interact within a series of web pages including virtual classrooms and galleries containing a variety of educational resources, is another possible means for museums to provide resources for classroom educators.

Museum Education Resources on the Web

The museums used as examples of online education resources were chosen based on the 1999 Statistics Survey of the 145 largest museums in North America published by the Association of Art Museum Directors. The following museums had the top ten education programs in 1999 based on all aspects of their educational initiatives, both on the web and off:

1. National Gallery of Art, Washington, D.C.
2. Metropolitan Museum of Art, New York, NY
3. J. Paul Getty Museum, Los Angeles, CA
4. Art Institute of Chicago, Chicago, IL
5. Boston Museum of Fine Arts, Boston, MA
6. Museum of Modern Art, New York, NY
7. National Gallery of Canada, Ottawa, ON
8. The Newark Museum, Newark, NJ
9. Dallas Museum of Art, Dallas, TX
10. Whitney Museum of American Art, New York, NY

Collections Databases

With the inception of the internet, museums gained the ability to provide images and information about their collections online, both as a stand alone educational resource and as a preview to the museum visit. With this new potential also came the fear that online accessibility would discourage the website user from actually visiting the museum. (Sabin, 1997) In time,

museums learned that the website was not a deterrent to visiting the museum; it actually increased visitation.

It is important to remember that digital databases of any kind are still a relatively new concept, and many, if not most, museums are still struggling to keep their in-house databases updated. (Sabin, 1997) Many early databases were created without the standardization that we now recognize as critical to creating a useful resource. In order for museums to make their databases available online, they first have to be sure they are up to date and useful and that they are updated regularly. For many museums, this may be too work-intensive to be practical in light of limitations in financial and human resources.

The National Gallery of Art in Washington, D.C., The Metropolitan Museum of Art in New York and The J. Paul Getty Museum in Los Angeles all provide some version of a collections database.

The National Gallery of Art has information about more than 100,000 objects available through its website, and more than 5,100 images. (<http://www.nga.gov>) The database is searchable by, and contains information about, the artist, title, subject, accession number and provenance, as well as an image for entries containing one. (See Appendix A, Figures 1 and 2) An expanded search capability allows the user to search by any combination of artist name, key words in title, school, style, date of creation, medium, and/or a short list of popular subjects. This database then returns, if available, matches that include biographical information about the artist, a list of works contained in the Museum's collection, images and detail images, exhibition and provenance history, information on any inscriptions, the location of the work in the museum, a bibliography of related literature, links to any online tours the work is included in and a link to the gallery shop if a reproduction is available for purchase.

The Metropolitan Museum of Art website also includes a collections database; however theirs does not encompass the entire collection. (See Appendix A, Figures 3 and 4) While the entire European painting collection is included, only fifty highlights from each of the other curatorial departments is searchable. The Metropolitan also provides less information about the works in its database, including only a brief description of the work, the location of any signatures or inscriptions and provenance information, though this is not included for every work and does not seem to be complete for most cited works. (<http://www.metmuseum.org>)

The Getty does not provide a collections database per se, but does allow users to browse by artist, subject or collection type. It is unclear what percentage of the collection is available online. The Getty also provides access to some photo study collection databases, though much of their data is only descriptive, with no images available. (<http://www.getty.edu>) While these resources are helpful for researchers, they can be difficult to use in a classroom setting because the information can be disjointed with no interpretation or narrative.

Online Exhibitions

The online exhibition has become a common format for museums to present permanent and/or temporary museum exhibitions on their websites, or to provide exhibitions or formats that are not feasible in the physical museum. Much like a regular exhibition, the work in an online exhibition is curated and presented in a manner that is more understandable to the web site visitor. Like a traditional museum exhibition, the online exhibition usually includes various levels of information ranging from general to specific. (Marschalek, 2002) This allows the user to decide how much information to extract from the exhibition, much as would happen in a museum visit. The information in an online exhibition may correspond to a temporary exhibition

in the museum. Other times, the online exhibition allows the museum to present information in a context not possible in the physical museum. For example, the Getty Museum currently has an exhibition available on its website that allows the viewer to virtually manipulate various gadgets. (See Appendix A, Figures 5 and 6) Visitors to the physical exhibition in the museum are unable to interact with the objects in the same way. In either case, the online exhibition allows the museum to reach out to audiences beyond their physical constituency.

The exhibition on the website of the J. Paul Getty Museum in Los Angeles, *Devices of Wonder*, examines the precursors of modern cinema, including parlor games, optical devices and natural wonders that have provided entertainment throughout history. The website visitor is invited to choose a device, read about its origin, use and history, and experiment with the device to see how it worked. One of the objects available in the *Devices of Wonder* exhibition is the "Praesentation eines schonen Kunstkabinett," or *Depiction of a Beautiful Cabinet of Wonders*. This miniature theater is made of layers of cut and illustrated paper that are superimposed to create a three dimensional depiction of a cabinet of wonders, precursor to the modern museum. While this is difficult to describe, even with a picture of the object, the online exhibition allows the viewer to take a virtual trip inside and view the object from within. This perspective was unavailable even to the original owners of the object. Linked text explains to the viewer where this object would have been used, what kind of subjects would have been represented in other objects of this type, and what type of people might have used the object. There are twenty-two objects included in the online exhibition, and the viewer has the option of which objects to view.

The website of the National Gallery of Art in Washington, D.C. contains a series of linear online tours. This is an excellent resource for the classroom teacher, because any of the exhibits can be viewed on individual computers by students, or used by the teacher with an LCD

projector. This allows teachers to find an exhibition which most closely relates to their curriculum. Four collection tours are available in painting, sculpture, decorative arts and graphic arts. In addition, 28 themed tours are available on various artists and subjects. Also available are downloadable guides in English, French, German, Italian and Spanish.

In the case of the National Gallery of Art, the online exhibitions consist primarily of a single image on each page with accompanying text. Subsequent pages include detail images and highlights of specific areas in each work. In most cases, the user is able to enter the exhibition at several different points based on an artist or work within the exhibition. In some cases, the exhibition is entirely linear. In each case, the viewer has very few choices about which objects he or she views. Despite this lack of a choice, the online exhibition is much more amenable to classroom teaching than is the collections database. In an online exhibition, the material is already categorized and linked. The teacher can use the information to supplement preexisting curriculums and lessons, or can quickly create a lesson plan based on the exhibition.

One of the themed exhibitions, entitled *Still Life*, examines the role and meanings of still life painting throughout history. (See Appendix A, Figure 7) Paintings from the Netherlands, Spain and the U.S. are examined to compare differences in symbolism and subject matter. The exhibition prompts the viewer to consider national, political, and social influences on a genre that has been historically underappreciated.

Since most students study still life in art classes, this is an exhibition that can easily be used in the classroom. This exhibition provides information about the meanings of various elements of each painting; for instance, a historical background in the depiction of flowers to symbolize various aspects of love, death and religion could lend depth to students' still life endeavors in the art classroom.

The Virtual Tour

The website of the Metropolitan Museum of Art in New York provides virtual reality tours of its period rooms. (See Appendix A, Figure 8) These tours utilize the Macintosh based QuickTime program and allow the viewer a 360° view of each room. A general description is available for each of the period rooms and when the "hot spot" option is selected, a selection of items within the room are highlighted and linked to further information. These links lead to extended text, better quality images and in some cases, detail images. In this way, users are able to choose the various items in the room that interest them and obtain further information.

The images in the virtual reality tour are low quality, but they allow the viewer to see the collections in relation to each other, in context. The links to higher quality images give the viewer the option of seeing the items in clearer detail. This virtual reality tour could be easily integrated into the history classroom, as examples of family dwellings of various social classes throughout different periods in American history. The links to extended information about the objects in the rooms could be used in the study of decorative arts. For users who just want the information about the object, a non-virtual reality text-based interface is available, with a list of the objects in the room, a description of that period's style, and information about any associated artists or architects.

The downside to this technology is that it requires faster connection speeds to load the large files required. The Metropolitan Museum of Art uses lower quality graphics to minimize download time, resulting in a virtual tour that does not give the viewer a quality experience with the objects. The links from the virtual reality tour window lead to a higher quality image of the same object. While this allows the viewer a better experience with the object, it deflects from the overall experience of the virtual reality tour.

The National Gallery's virtual reality tours use the same Macintosh based QuickTime platform, but are different in that they encompass multiple rooms that the user can move between. (See Appendix A, Figure 9) The orientation map below the virtual reality window helps the viewer to orient himself within the virtual gallery. With the exception of the ability to move between rooms, the two interfaces are very similar. Each allows users to view 360 degrees of the room they are in, and "hot spots" can be selected which link to further information about the objects. Higher quality images of the objects in the tour are linked to each hot spot and allow the viewer to see details unavailable in the QuickTime format. Virtual reality tours have a great deal of potential for the future of museum websites, but in this writer's opinion the sacrifice in image quality does not make for a very "real" tour at all.

The virtual tour attempts to provide the viewer with the most realistic experience possible. The most sophisticated of these attempts is presented in a format that is similar to a video game, in which the viewer is able to move in a virtual physical space. Usually this type of tour has the viewer click on objects within a digitally recreated gallery. This format allows the viewer more freedom of choice in viewing an exhibition.

The National Gallery's tour includes a floor plan of the museum with links to different galleries in the museum. This type of virtual reality tour does not offer the illusion of moving in a physical space, but it does require less download time while still providing the viewer with options about which objects they'd like to view.

Digital Video

Some museums provide teachers with a lending library of videos to use in the classroom. The Getty has taken this a step further and now offers a series of short videos in digital format on

its website. (See Appendix A, Figure 10) Twenty-three videos in sections entitled 'Making Art', 'Behind the Scenes', and 'Collection Tours' range from 2 minutes, 17 seconds to 8 minutes, 38 seconds and loaded quickly with a DSL connection. Many of these could be used as supplements to an existing curriculum without taking up an inordinate amount of class time.

Download time for lengthier digital videos can pose a problem, and the compromise is often low image quality. This is true of the Getty's videos. Though useful additions to curriculum, they certainly cannot take the place of the higher quality images in videocassettes or DVDs.

Games

Another option museums have for reaching children is by providing educational games through their websites. Shockwave and Flash interactive movies allow computer games to be made and put on a museum website for its visitors to use. The Museum of Modern Art website includes several simple games for children. Art Safari asks open ended questions about a selection of artworks. (See Appendix A, Figure 11) These questions encourage children to think creatively, using their imagination to create a story about each of the images. The game includes a space for children to type in their answers and to submit their story if desired. Though extremely simple, this game engages children and helps adults find ways to teach children about art.

The Art Institute of Chicago (<http://www.artic.edu>) also includes a series of simple games for children; however their interface can be difficult to manipulate. (See Appendix A, Figure 12) The credits for these games explain that they were derived from a CD-ROM created in 1994 for the Museum. There are no back buttons on any of the games, and most only perform one

function, so the website visitor has to constantly close the game window and reopen it to select another game. This resource would be extremely difficult to use in the classroom, and none of the games contain a significant amount of information about the objects on which they are based.

Lesson Plans

Providing lesson plans on a museum website provides teachers with access to information and images of the museum's collections without requiring them to have any technical resources in their classroom. Lesson plans do not necessarily have to deal with technology, though many correspond with other online resources provided by the same institution. Some museums provide only their own lesson plans, while others provide a forum for educators to share lesson plans.

Based on the U.S. Department of Education National Center for Education Statistics findings, less than 1% of public school teachers did not have access to computers or the internet at school in 2000; therefore, the online teaching resource that is probably the most ubiquitously available is the online lesson plan. (U.S. Department of Education, 2000)

The Getty Center's ArtsEdNet site provides lesson plans based on their collections. (<http://www.getty.edu/artsednet/resources/Sampler/d.html>) (See Appendix A, Figure 13) A five lesson unit entitled 'Celebration!' explores the ways in which various cultures use art. The lesson plans are ready to use, including an objective, materials needed, time needed, any images relating to the lesson, instructions, a bibliography, suggested resources and an evaluation for the unit. One of the lessons, entitled 'Wrap a Room,' involves a discussion about how various cultures use textiles and other materials to decorate space for holidays and events, a study of the artist Christo and his use of fabric to create environmental art, creating their own tie-dyed fabric

and working as a group to engineer a plan for decorating a room with their creations. The writers of this unit have taken into consideration curriculum needs, and the unit is designed to be usable without significant modification by the classroom teacher. By providing resources in this manner, the museum is encouraging the classroom educator to use museum resources by doing a significant amount of the teacher's preparatory work for them.

The Art Institute of Chicago provides an extensive series of lesson plans in art, math, science, social science and language arts based on their online exhibition *Cleopatra*. (<http://www.artic.edu/cleo/Teachfolder/WarriorHTML/FINAL/Warrior.SocSci.3.html>) (See Appendix A, Figure 14) One lesson plan entitled "Military Memorials" is designed for high school social science students and asks them to compare an ancient Roman memorial with modern memorials. Students are then asked to analyze how each conveys aspects of war and military sacrifice. This lesson plan is designed specifically to meet an educational goal of the state of Illinois. The lesson provides links to images of various war memorials to use with the class and provides specific instructions about how the instructor should conduct the lesson. Little or no modification would need to be made in order to use this resource in the classroom, and if the images were saved or printed along with the lesson, no internet access would be necessary to use the lesson in the classroom. The 'Cleopatra' series of lesson plans is designed to be used as a unit, but most of the lessons could stand alone as a supplement to the existing curriculum.

Discussion Boards, Listservs and Online Communities

Discussion boards and listservs are another means of not only providing educators with resources, but of enabling them to provide each other with resources as well as support. The

Getty provides a discussion forum on its ArtsEdNet site that gives teachers the opportunity to maintain a cyber community to discuss a variety of topics. (<http://www.getty.edu/artsednet/Talk/index.html>) (See Appendix A, Figure 15) On November 25th, 2002, some of the topics of discussion were: average salaries for art teachers, links to the online version of a Modigliani exhibition in Buffalo, sites of interest for a high school art trip to Europe and benefits of the ArtsEdNet list. User Naaell@aol.com wrote, "I too agree that often we [art teachers] are alone in our buildings and that there is very little support. This list has been a life saver for me so many times. The wealth of knowledge and experience here just can't be found anywhere else."

Unfortunately, there are few sites like ArtsEdNet. The Getty's high profile public image and reputation for being a leader in education could explain the high traffic on the site. Some smaller museums include discussion boards; though several this writer visited had few posted messages and no clear sense of community.

In the spring of 2001, this writer visited the DOCEO website of the Whitney Museum of American Art in New York. DOCEO provided an online community for art educators that could provide multiple art education resources within a single web environment. (See Appendix A, Figure 16) Though this site is no longer available, it provides a valuable model for analysis.

DOCEO provided a virtual space for teachers and students to learn and share. The space included several resources for teachers and students including:

- a discussion board for educators,
- a lesson plan template for use in the classroom,
- a database of submitted lesson plans to choose from, links to the New York State Department of Education's learning standards,
- a glossary of art terms,
- a list of places to view public art in the United States,
- a directory of art supply companies,
- a bibliography and webography related to online activities,
- a gallery of artwork by K-12 students,
- a guide for proper use of digital imagery,

- a gallery of digital images for use with activities on the site,
- a journal into which students and educators can submit text and images from the galleries,
- an 'art talk' activity designed to make students think creatively about artworks,
- a 'flip book' activity in which students arrange images to create an animated virtual flip book and
- a space for students and educators to upload their own pictures onto the site.

Educators were able to create online classrooms and submit a list of students who could access their classroom. Educators had access to more features than students, and could view their students' online progress in their journals and activities. The activities that were on the site were best suited for elementary and junior high school students.

Though this site offered many online activities and resources, educators at the Whitney realized immediately that it was not as well tailored to the needs of teachers as it could be. According to Dina Helal, Head of Curriculum and Online Learning, teacher feedback validated the Whitney educators' beliefs. Though most teachers do have internet access at school, their students' access is limited, and regular access to a computer classroom is even rarer. (U.S. Department of Education National Center for Education Statistics, 2000) Teachers need a variety of resources, including not only online activities, but also activities that can be downloaded and used without access to technology. (Baltimore Museum of Art Teacher Resources Survey, 1999, See Appendix B)

The DOCEO web site is no longer available, although educators at the Whitney are now developing a new site. (Helal, 2003) The new project is dependent upon federal funding, but an interim site should be available by July 2003. The current educational website for the Jacob Lawrence exhibition that was on view in the museum from November 8, 2001 – February 3, 2002, (<http://www.whitney.org/jacoblawrence>) serves as a prototype for this new resource. (See Appendix A, Figure 17) Images can be viewed online or printed for use in the classroom, and

information is available about the life and work of Lawrence. Activities include a unit on creating a visual narrative that involves making egg tempera paints, creating narrative works, converting the images to digital format, organizing the narrative in PowerPoint format and adding text.

The new site will include similar resources and possibly some reinvented versions of the resources previously available on DOCEO; however, the online classroom feature will not be included, as it did not prove to be useful to many classroom educators. The new site will include a bulletin board and possibly a listserv to allow site users to communicate and share resources as well as to provide a sense of community. (Helal, 2003) Though the current Jacob Lawrence site would probably fall best in this project under the category of lesson plans, the combination of educational and communication resources under consideration for the new project for which this site is a model lead this writer to believe it is better left under the category of online community.

Part III: Art and Technology in the Classroom

The Institute of Museum and Library Services (IMLS) recently released *True Needs, True Partners 2002: Museums Serving Schools*, a survey of museum-school partnerships that encompassed all forms of museum education, from the physical to the virtual. (IMLS, 2003) More than 72% of their respondents indicated the use of websites as an educational tool. Museums clearly realize the importance of providing online resources, but face a wide variety of capabilities and limitations. This section will explore the educational and technological resources available to classroom educators, as well as the extent to which they can be used in the classroom.

Part IIIa: Baltimore Museum of Art Teacher Resources Survey

In June 1999, the Baltimore Museum of Art surveyed area art teachers to gauge their level of access to technological resources, their use of BMA educational materials, both on the web and in print, and to discern which materials teachers would find useful if presented on the BMA web site. (Baltimore Museum of Art, 1999) (See Appendix B)

Of close to 200 teachers who responded, 96% had access to a computer. 83% had access at home; 82% had access at work. Of those who had access to a computer, 88% indicated they would still prefer to receive teacher packets rather than the same information in digital format.

Eighty-eight percent of respondents had access to the internet. 71% had internet access at home; and 81% had internet access at work. Of those who had access to the internet, 5% used it as a teaching resource on a daily basis, 24% used it on a weekly basis, 40% monthly, 8% occasionally, and 21% never used the internet as a teaching resource.

According to the teachers who responded, only 3% of students used the internet daily for class assigned work, 12% used it weekly, 31% used it monthly, 5% used it occasionally and 47% of students never used the internet for class assigned work. Eighty-five percent of the teachers responding had email addresses and of that group, 69% would prefer to communicate with the museum through email and 37% would still prefer to communicate by telephone.

Teachers responding to the survey were given a list of materials the BMA was considering as additions to its web site and then asked the teachers to indicate how useful they felt each would be. This list included tour previews to help teachers prepare their students for a BMA visit, self-guided tour material, introductions to upcoming exhibitions, images of BMA objects with extensive information, activities and discussion questions related to BMA objects and ideas for meeting Maryland Visual Arts Standards using BMA objects. The teachers responded positively to each resource offered, indicating a preference for a variety of resource options.

Part IIIb: National Center for Education Statistics' Analysis of Teacher Use of Computers and the Internet in Public Schools

If museums wish to increase their online constituency through educational programming, they must first uncover the reasons teachers do not use their resources. A 1999 survey conducted by the National Center for Education Statistics may hold some of those answers. The survey revealed that more than 99% of public school teachers had access to the internet in their schools and very few were using it to its fullest potential. Table 1 illustrates the percentages of teachers using computers or the internet at school for various tasks. (See Appendix C) It does not measure the extent to which they assign computer or internet related coursework. The survey excludes the less than 1% of public school teachers who do not have access to the Internet at school.

According to this survey, teachers with fewer years experience and who teach in more affluent districts tended to feel more comfortable using computers and the internet for a variety of purposes; however, they were in the minority. Students need technical support as they learn to use technological resources for learning, and many educators don't feel prepared to provide it.

In 2001, the U.S. Department of Education recognized the need for technology in schools and released a list of five goals its publication, *e-Learning: Putting a World-Class Education at the Fingertips of All Children*. (U.S. Department of Education Office of Educational Technology, 2001)

- Goal 1: All students and teachers will have access to information technology in their classrooms, schools, communities and homes.
- Goal 2: All teachers will use technology effectively to help students achieve high academic standards.
- Goal 3: All students will have technology and information literacy.
- Goal 4: Research and evaluation will improve the next generation of technology applications for teaching and learning.

- Goal 5: Digital content and networked applications will transform teaching and learning.

These goals of the Department of Education having teachers use technology effectively can only work if they develop methods of teaching the teachers how to use the resources.

Table 2, also a product of the 1999 National Center for Education Statistics survey, indicates the percentage of teachers who reported using computers or the internet for instruction and the tasks they assigned. (See Appendix C) A direct correlation is clear between hours of professional development and the complexity of the tasks assigned to students. According to this survey, the most effective way to increase teachers' use of internet resources is to continuously emphasize teacher training in general computer skills, best practice for use of technology in the classroom, and workshops on the best use of specific internet resources. One potential problem with this solution is that workshops tend only to draw local teachers. For a wider audience, online courses are a possibility, but teachers might have to be recruited if they do not regularly visit the museum's website to realize online training is available.

In 2001, President George W. Bush pledged his support for the integration of technology in his "No Child Left Behind" address. (U.S. Department of Education, 2001) The Bush administration promised to send more money to schools for the development of technology, to use technology to reduce educational paperwork between departments at the federal, state and local levels, to allow funding for schools to provide internet filters to protect students from inappropriate content at school, to focus funds on proven methods of educational technology and to offer matching grants for community technology centers. His address did not specifically mention funds for training the educators.

Part IV: Museum Educator Survey

Methodology

What kind of internet resources are museum education departments currently providing and what are their plans for future endeavors? As part of this thesis, a survey was distributed to museum educators in one hundred major museums in the United States in the fall of 2002. (See Appendix D for survey questions and database of responses.) Eighty-seven percent of the museums were contacted by email. For museums that did not list email addresses on their websites or for whom emails were returned undeliverable, the survey was sent by mail with a self addressed, stamped return envelope. Twenty-eight percent of the educators contacted returned the survey, though not every returned survey was completed in its entirety. Respondents were not specifically asked to identify themselves; however, the email respondents were certainly aware that they could be identified by email address. Each survey was accompanied by an email or cover letter stating that respondent information would be kept anonymous.

The survey focused on the educational internet resources these museums are currently providing, as well as their future plans to include educational materials on their websites. The survey included both quantitative and qualitative questions, with space to include any additional comments. The quantitative questions included: the types of educational resources the museum currently provides on its website, the types of resources the museum plans to incorporate in the future, the types of non-internet based resources the museum provides, what methods the museum uses to provide support to the educators who use their resources, how many students and teachers were serviced by their internet resources last year and how that number was ascertained. The qualitative questions included: how the successfulness of the website is

determined, what educators liked best about their current resources, what educators planned to improve upon, whether museum educators felt their internet resources significantly improved the quality of their educational programming and how teachers have responded to these resources. A space was provided at the end to include any information the educator felt to be relevant to the topic that was not covered elsewhere in the survey.

Museum Resources Available on the Web

When asked what educational resources their museum provides on the internet, approximately one third of the respondents only provided general information about programs and exhibitions within the museum. Almost half responded that they provide lesson plans through their website, several of whom noted that the material they provide is not in the form of a lesson plan, but rather suggestions for pre-visit activities. One respondent indicated their museum provided "other" resources for teachers to use in the classroom, but that they were not full-fledged lesson plans. Six educators reported that they provided some form of collections database, though the entire collection was not necessarily accessible on the web. Only 4 reported providing online exhibitions and 2 provided virtual field trips. One museum had previously provided a discussion board through their site but opted to discontinue the service. None of the museums surveyed are currently offering an online classroom, and 1 educator commented on not knowing what an online classroom was. Fourteen educators indicated they provided some other type of resource. Some less common responses were video and audio clips and a timeline of art history. Three responded that their websites contained information about marketing and links to a museum shop.

Future Plans

In this survey, educators were asked about future plans for educational website development as a follow up to the question concerning what resources are currently provided. Eight educators did not respond to this question, though 1 noted the museum was currently involved in a planning process to make decisions relevant to the educational content on their website. Trends were less distinct for this question. Eleven indicated they had future plans to provide a collections database through their website; 10 had future plans to provide lesson plans and 8 intended to provide online exhibitions. In addition, 4 listed virtual trips, 4 listed discussion boards and 2 mentioned the online classroom. Endeavors listed in the 'other' category included interactive learning activities or games for youth and families, a make your own gallery activity and expanding the teacher site in general.

These answers indicate several things. It would seem that despite the obstacles involved in providing databases, a significant number of museums are still working toward making their collections available online. Those planning to add downloadable lesson plans to their site in the future indicate that museums are taking into consideration the teachers' need for material that is directly applicable to curriculum and classroom use. The level of interest expressed in discussion boards indicates that some museums are interested in developing an active online community in addition to their geographic constituencies. It is not surprising that only two are planning to provide an online classroom since this type of service is rare on museum websites and require a great deal of staff and funding to implement and maintain.

Non-Internet Resources

In order to compare internet outreach initiatives with non-technology based resources, each museum educator was asked what resources they provided off the web. While 7 did not respond, more than half indicated that they provide an outreach program in the classroom. Eight indicated they provide loan materials. The remaining answers in the 'other' category included after school and senior programs, professional development, speakers for adult groups and museum/artist/school collaboration.

The response for this question was considerably greater, and several educators opted to comment on or describe their outreach initiatives. The data indicates these physical outreach programs are more actively supported than internet outreach.

Methods for Supporting Classroom Educators

Educators were asked which methods they used to communicate with the educators using their resources. The results were not surprising; museum educators use a combination of telephone, email and postal service communication to stay in touch with the educators using their resources.

Online Constituency

Twenty-three of 27 educators did not answer the question of how many teachers and students were serviced by their internet resources last year, several noting that they did not know and/or did not have access to those figures.

Respondents were asked how the figure was ascertained as a follow-up question. Of the 4 who gave estimated numbers, 1 ascertained his figures from Webtrends, a website evaluation software package, 1 from the hit counter on the web page, 1 from the number of classes visiting the museum and 1 just "guessed".

This tells us that these museum educators are unaware of how much traffic their web sites receive, and they may not be aware whether classroom educators find their resources helpful. It also indicates that these museums may not have planned for evaluation of their websites when they put them into place.

When the survey was emailed to museums, a few educators replied that they were forwarding the survey to the museum's webmaster as they did not have answers to the survey questions. Since the survey was only concerned with educational resources on the internet, it is noteworthy that the educators deferred to the webmasters.

Evaluating the Site

When asked how the success of the website was ascertained, many educators mentioned hit counters on their web site, though number of hits does not necessarily reflect the effectiveness of the resources provided. A significant number also mentioned user comments submitted on the site as being a major form of evaluation. A few educators solicited evaluations of their internet based resources from teachers and 1 museum educator responded that the outcome of one of these surveys resulted in the realization that teachers were not aware that the museum provided resources on its site.

It would seem from the data that some of these museums are making a concentrated effort to evaluate the successfulness of their websites while others are doing very little, or

deferring to webmasters. One respondent commented, "We don't [evaluate the website]. Its just there." Fifteen educators did not respond to this question at all.

What Museum Educators Find Valuable

The remaining questions in the survey were qualitative rather than quantitative and inevitably received a much lower response rate; however, the qualitative questions prompted more thoughtful responses.

Educators were asked what they liked best about the online resources their museum provided. Of the 12 responses, the recurring themes were that online resources allow the museum to reach out to people who might not be able to visit the museum and that the resources were relevant to curriculum. Other characteristics mentioned were diversity, ease of use and available support, multi-disciplinary resources, the object-based nature of the resources and access to information.

Plans for Improvement

When asked what they would like to improve about their internet resources, 14 of the 27 respondents commented. Most comments centered on the quantity of information available on the website, and many of the educators mentioned improving the quality of existing resources based on teacher input. Two pointed out that evaluation and reevaluation was an ongoing process and that they were constantly updating their web resources to reflect feedback.

The answers to this question were surprising in light of the museum educators' lack of response to the question concerning how they evaluate their web presence. What criteria are these educators basing their decisions on when deciding which internet resources they will

improve, add or remove from the museum's website? One educator pointed out that the museum would probably do a lot more with their internet resources provided that funds were available.

Impact on Quality of Programming

The educators surveyed were asked if they felt the museum's educational resources on the web significantly improved the quality of the museum's educational programming. Of the 13 who responded to this question, only 5 responded with an enthusiastic yes. Many did not answer clearly, commenting "yes and no", "not adequately enough", etc. Others did not answer the question at all, but made positive comments about specific aspects of their resources instead. Three said their resources did not improve the overall quality of the education program at all.

Classroom Educator Response

When asked how teachers had responded to their internet resources, most of the 14 respondents indicated that teachers had responded positively. One respondent indicated that teachers had responded quite favorably to their resources, but that teachers had also expressed a desire to have the material available that was more amenable to their teaching. This seems to be a recurring theme; that teachers will be more apt to use a resource if museum educators reduce the work necessary to make it usable in the classroom. Another respondent pointed out that the teachers using their resources were enthusiastic, but always wanted more.

Comments

Finally, educators were asked to comment on anything they felt was relevant and had not been covered elsewhere in the survey. Though there were only 2 responses to this question, 1 in

particular was notable. "We need to develop ways to provide images to teachers that both meet our needs for visual quality and adherence to copyright and meet educators' needs to have accessible images in a variety of platforms they can access online, download and print." This statement brings to light the issue of copyright, one that was not covered specifically in the survey. Many museums have attempted to solve this problem by providing only low resolution images on their websites. Though this does alleviate the copyright issue, it does not give online resource users the most accurate image possible. It is worth mentioning, though, that this respondent was the only one who mentioned copyright concerns as an obstacle to providing online resources.

One of the most obvious issues the results of this survey brought to light was the lack of involvement many museum educators had with their web resources. As the nation and the world move toward a more technological society, museums stand in a unique position to help educators make practical use of technology in the classroom. How are museums to do this if their educators are not knowledgeable about technology?

This seems to be an extension of the same problem that currently exists in the school system. The nation wants schools to teach more technology and integrate it effectively in the classroom, but many of our educators do not have the knowledge and experience to either teach technology or teach using technology. Museums are in a position to act as facilitators of the move toward use of technology in the classroom, but museums must first equip their educators with essential skills.

Conclusions

In Part I, basic educational theory was considered as it pertains to museum website development. It is critical that as museums continue to develop educational resources, they utilize the educational theory most suited to the resources they provide and the students and teachers who would use them. In recent years, significant work has been done to apply educational theory in the museum environment. Falk and Dierking, as well as George Hein have provided us with a method for implementing educational theory in the museum, a method that can extend to the online museum environment as well.

In Part II, the variety of resources provided on museum websites was illustrated. The role of the museum website has changed a great deal in the years since the inception of the internet. At first it was a means for disseminating general information about the museum and its operation. Later it became a source of controversy as museum professionals argued about whether making collections information available on the internet would decrease visitation. More recently museums have discovered that collections information online does not decrease visitation; in fact, it increases it. The museums discussed in this thesis can serve as examples for museums currently planning for educational resources to be available on their websites.

In Part III, two surveys, the Baltimore Museum of Art's Teacher Resources Survey (1999) and the National Center for Education Statistics' Teacher Use of Computers and the Internet in Public Schools (2000), were discussed. These surveys consider the resources available both to art teachers specifically, and to classroom teachers in general. The surveys document that the biggest problem is not the lack of technology in the classroom or the unavailability of museum resources, but the inability to use these resources effectively. While more money designated for educational technology is necessary to periodically update systems,

hardware cannot teach by itself. More resources need to be allocated for teachers to learn technology, both in school systems, and in museums settings.

In Part IV, the result of a 2002 survey of museum educators concerning their online resources was considered. This survey was emailed or mailed to 100 museum educators nationwide to determine what types of online resources they currently provide, intend to provide or would like to provide, as well as their feelings about those resources. This survey, in light of classroom resources, reveals that if museums can aid in the training of classroom educators by acting as professional development providers they will have a greater chance of effectively reaching their constituency. The inherent flaw in this solution is that primarily local teachers are able to attend museum workshops, defeating the purpose of reaching out beyond the museum's physical constituency. In addition, teachers need an incentive to learn technical skills. Professional development is one method of encouraging teacher participation, but there are already many providers. For a museum to conduct successful programs, their workshops need to provide a unique element teachers are unable to find in existing professional development programs.

The results of this survey lead this writer to hypothesize that teachers are enthusiastic about the possibility of museums providing educational resources via the internet, but may need a great deal of support as they begin to use them. It is also critical that teachers are made aware of the resources that museums provide online, or they may never think to look for them. For online resources to be successful, it is necessary to use a combination of quality online resources and to market those resources to their intended audience.

Museums can only work within their budget, and the budget often poses a problem for them as well. The Institute of Museum and Library Services stated in its *True Needs, True*

Partners 2002 publication that surveys in both 2001 and 2002 indicated that museums with the smallest budgets were least likely to provide technological resources. (IMLS, 2002) It is difficult to provide extremely useful resources on the internet or to provide innovative workshops when the education department is overextended and understaffed.

These surveys also brought to light that many museums do not provide significant resources on their website, and while some are disappointed that they haven't been able to do more in terms of educational resources on their site, some still do not see the need for such resources, clinging to more traditional programs.

Of the more educationally valuable museum sites, several reported disappointment at its low traffic. This illustrates a need for marketing on the part of museums to make sure their target audience is aware of their educational resources.

Teachers do not have time to review the website of every museum to find the one most appropriate for their class. They need an easily accessible resource, possibly through an intermediate organization, to help them find particularly valuable art museum websites.

In creating both resources and training programs, museums must also keep in mind there will inevitably continue to be a significant learning curve for teachers and students. It takes a great deal of time for new technology to reach the classroom, even longer for teachers to learn how to use it and longer still for them to impart the knowledge to their students. Many teachers give up in frustration and their students never learn new technologies at all. In an increasingly internet based society, students cannot afford to miss out on this knowledge.

Many museums have taken their websites a step further by providing many forms of educational resources via the web, from simple collections databases to sophisticated interactive multimedia applications. These museums serve as examples for other museums seeking to

improve upon their current web presence. Many museums, constricted by their tight budgets, find themselves unable to provide more than the most rudimentary information on their websites.

To compound the problem, museums are also providing resources to a body of teachers who are less than adequately prepared to use technology in their classroom. If museums were to market their websites, they could increase teachers' awareness of their resources. In addition, providing training either on the website itself or through teacher workshops could encourage teachers to use the resources they provide. The internet is growing more important in contemporary society, and students must be able to function in this information based culture. The internet provides a particularly useful means for museums and schools to facilitate an education that incorporates technology because it is almost ubiquitously accessible, unlike teleconferencing which has grown in popularity recently among more affluent school districts.

The communication gap between museums and schools seems to be wide, despite the ever growing 'global community'. Museums and schools must make a commitment to work together and support one another to make the most of the resources they are given. They must also be sensitive to one another's limitations and try to find a mutually agreeable way to overcome the conflicts that tight budgets and even tighter schedules inevitably create. As institutions with the similar mission of education, it is critical that schools and museums work together to bridge that communication gap in order to provide the best possible education for those they serve.

These examples of educational online resources illustrate the need for a balance to be struck between creating resources that make use of new technologies, that are based on sound educational theory and that take into consideration the needs of classroom teachers. Though many museums are providing excellent classroom resources, the Getty and the Whitney have

shown an exceptional commitment to providing on-line educational resources and their endeavors can provide guidance for other smaller museum's endeavors.

Appendix A: Museum Education Website Screenshots

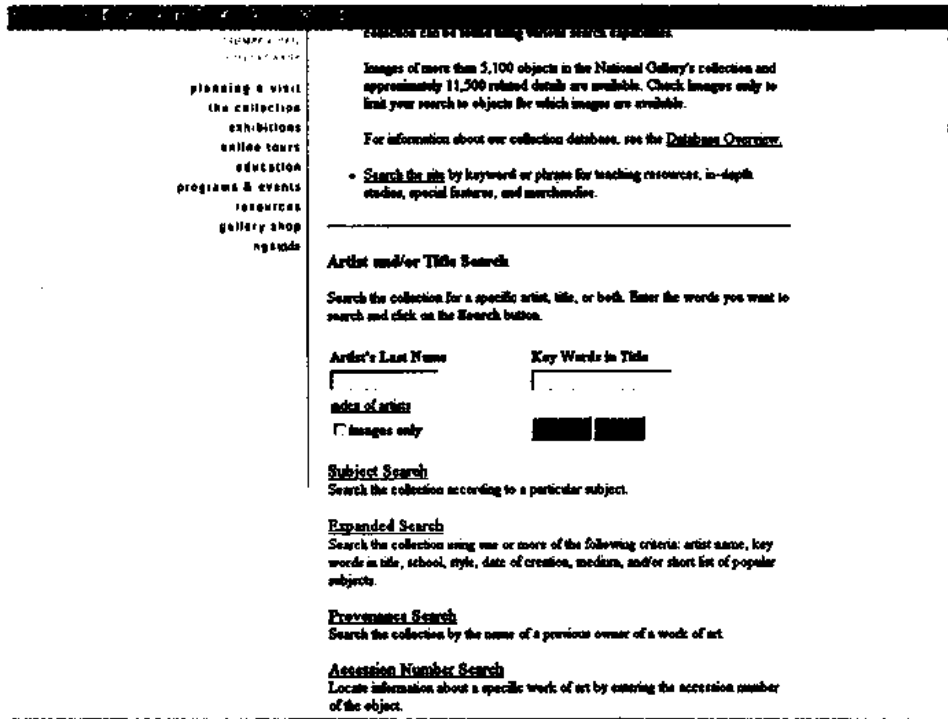


Figure 1: The National Gallery of Art's searchable database, [Online] Available <http://www.nga.gov>

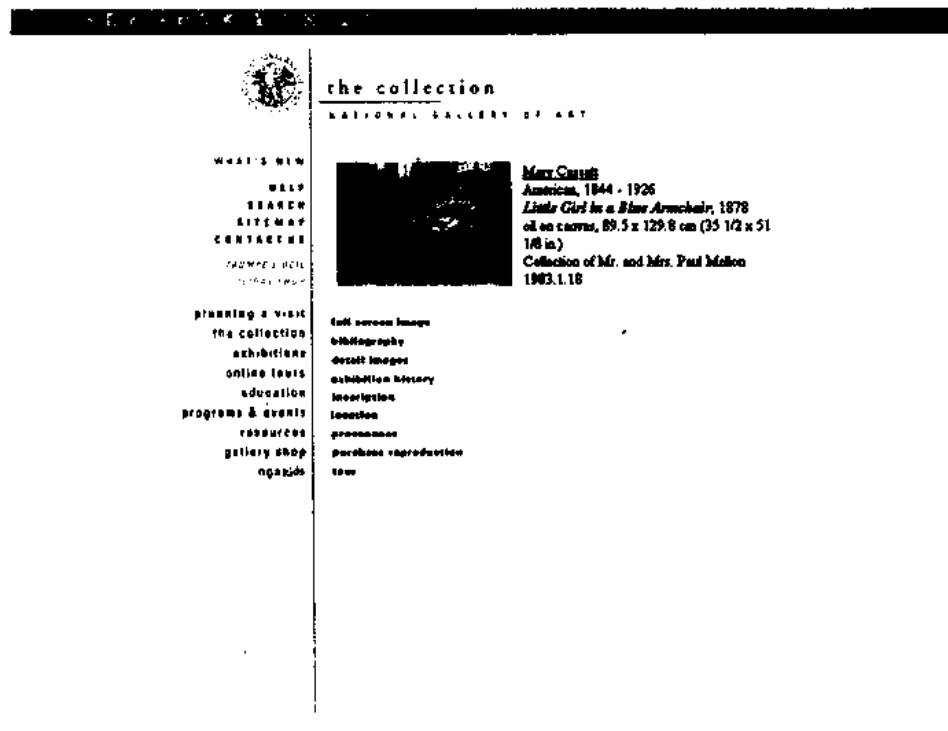


Figure 2: The National Gallery of Art's searchable database, [Online] Available <http://www.nga.gov>

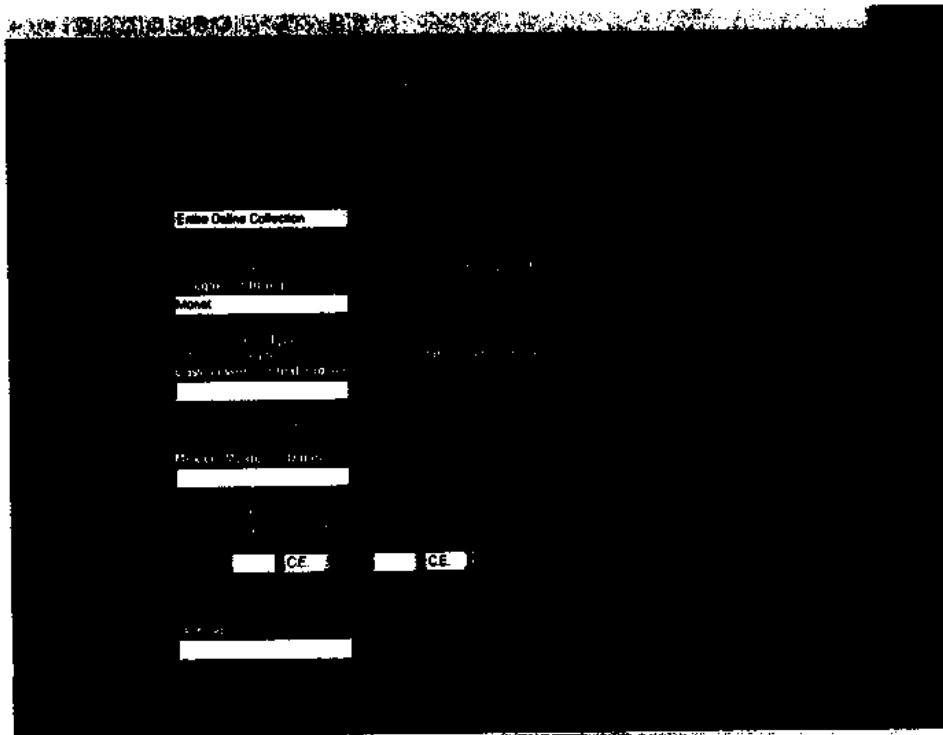


Figure 3: The Metropolitan Museum of Art's searchable database, [Online] Available <http://www.metmuseum.org>

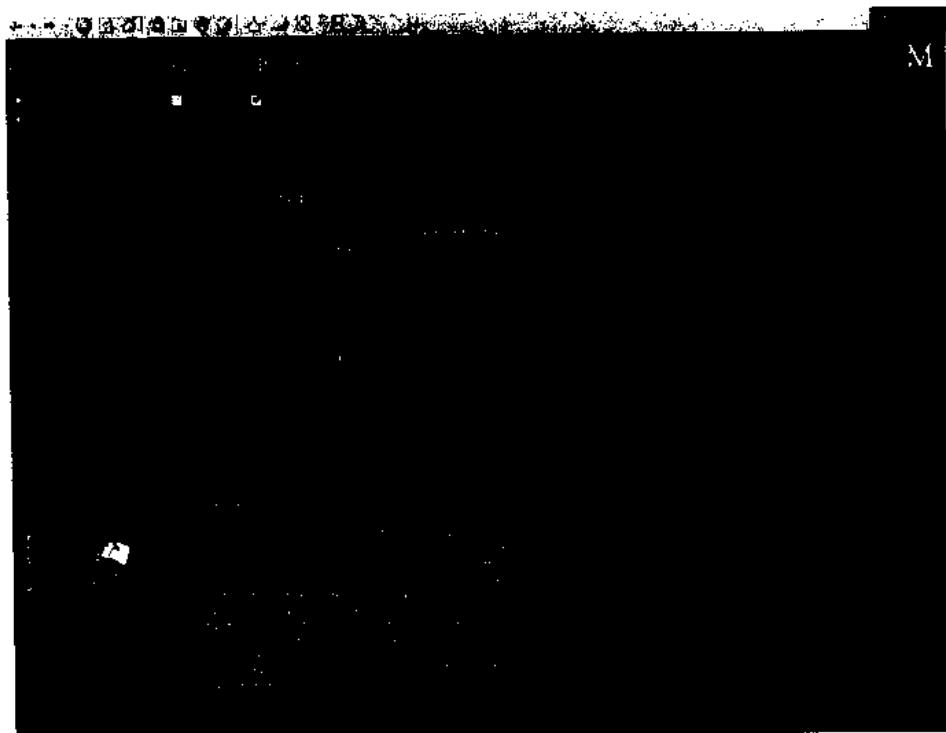


Figure 4: The Metropolitan Museum of Art's searchable database, [Online] Available <http://www.metmuseum.org>

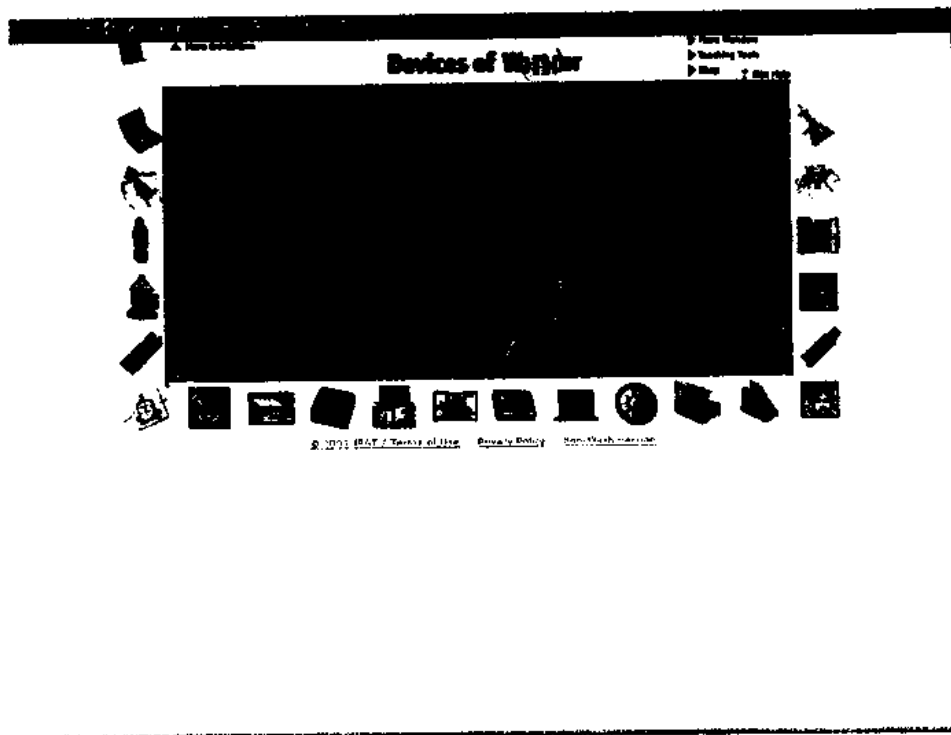


Figure 5: The Getty Museum's *Devices of Wonder* Online Exhibition, [Online] Available <http://www.getty.edu>

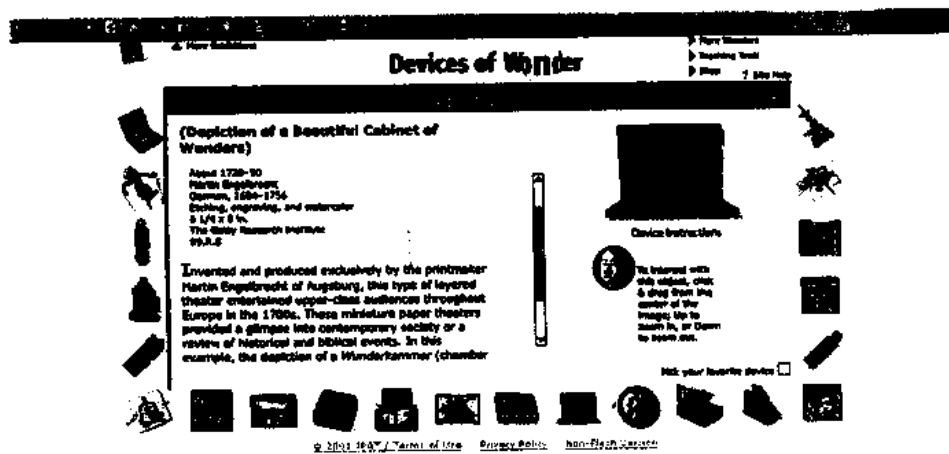


Figure 6: The Getty Museum's *Devices of Wonder* Online Exhibition, [Online] Available <http://www.getty.edu>



Figure 7: The National Gallery of Art's Still Life Online Exhibition, [Online] Available <http://www.nga.gov>

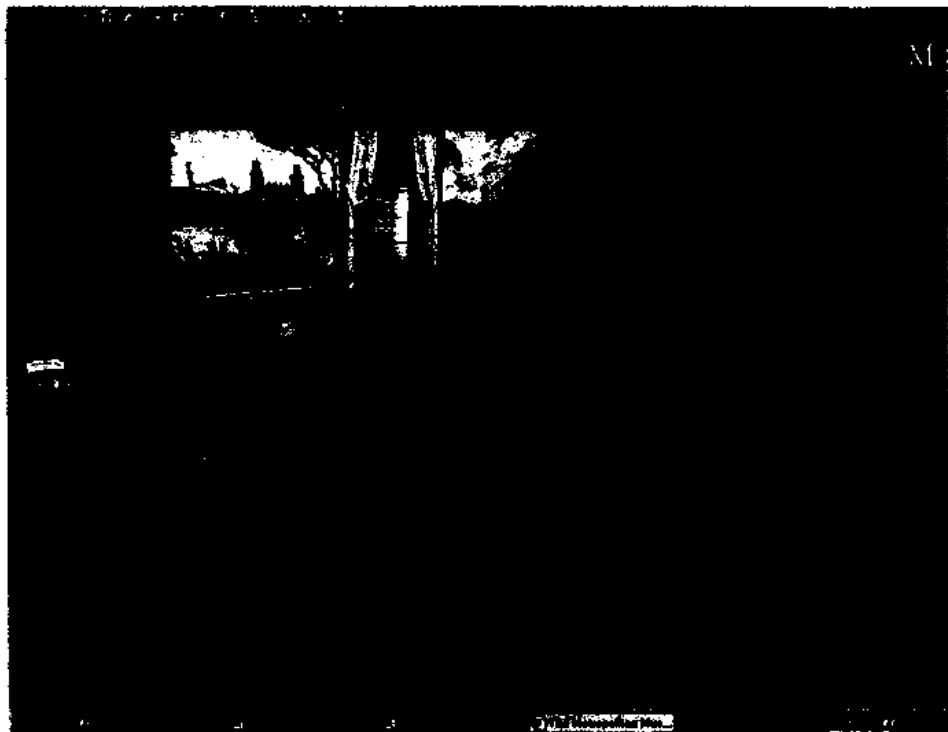


Figure 8: The Metropolitan Museum of Art's Virtual Reality Tours, [Online] Available <http://www.metmuseum.org>

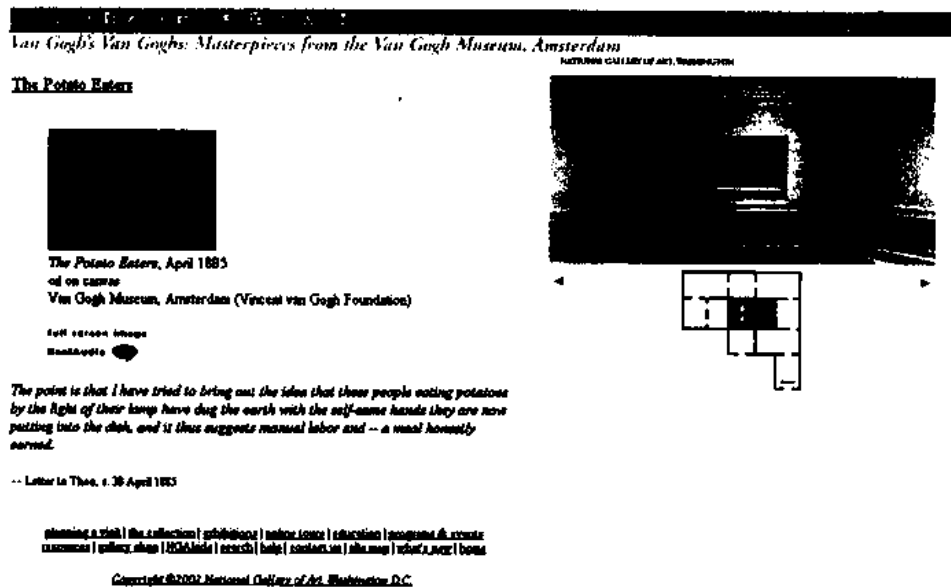


Figure 9: The National Gallery of Art's Virtual Reality Tours, [Online] Available <http://www.nga.gov>

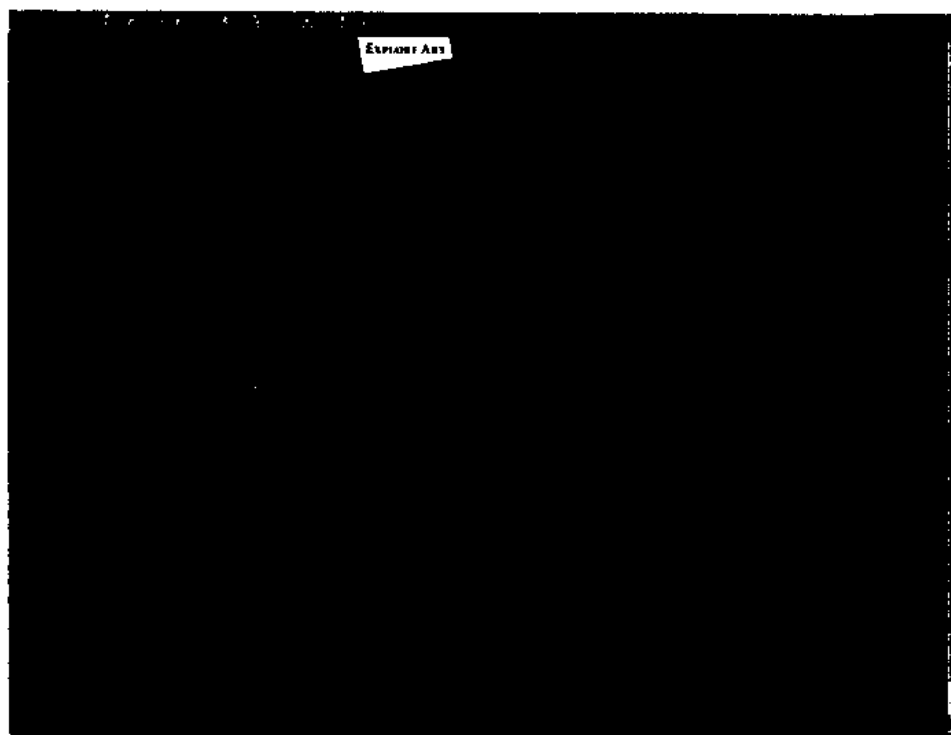


Figure 10: The National Gallery of Art's Digital Video Collection, [Online] Available <http://www.nga.gov>

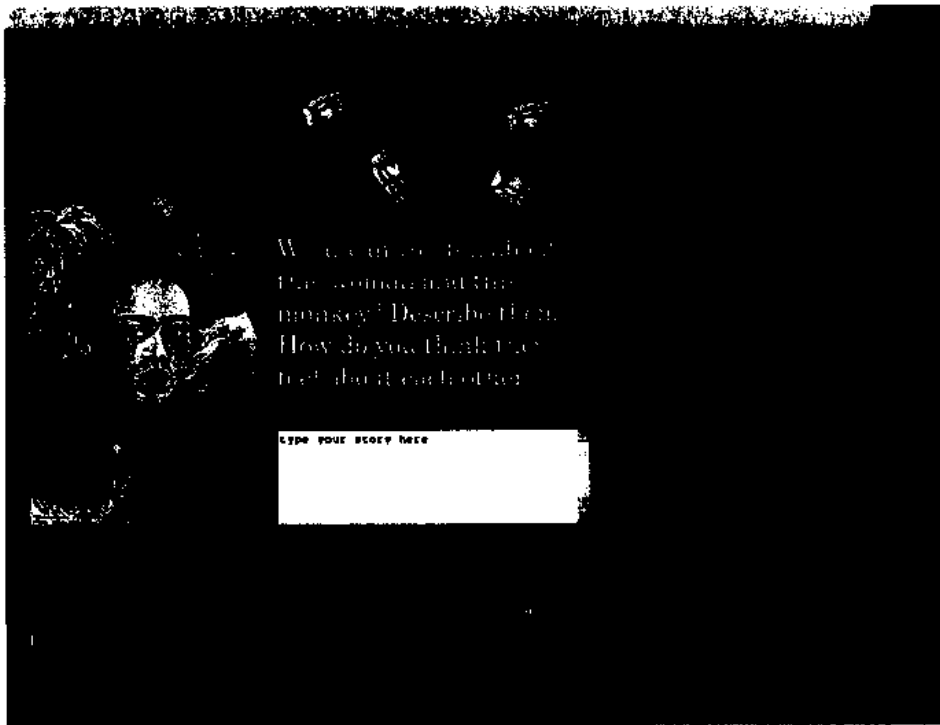


Figure 11: The Museum of Modern Art's Art Safari Program, [Online] Available <http://www.moma.org>

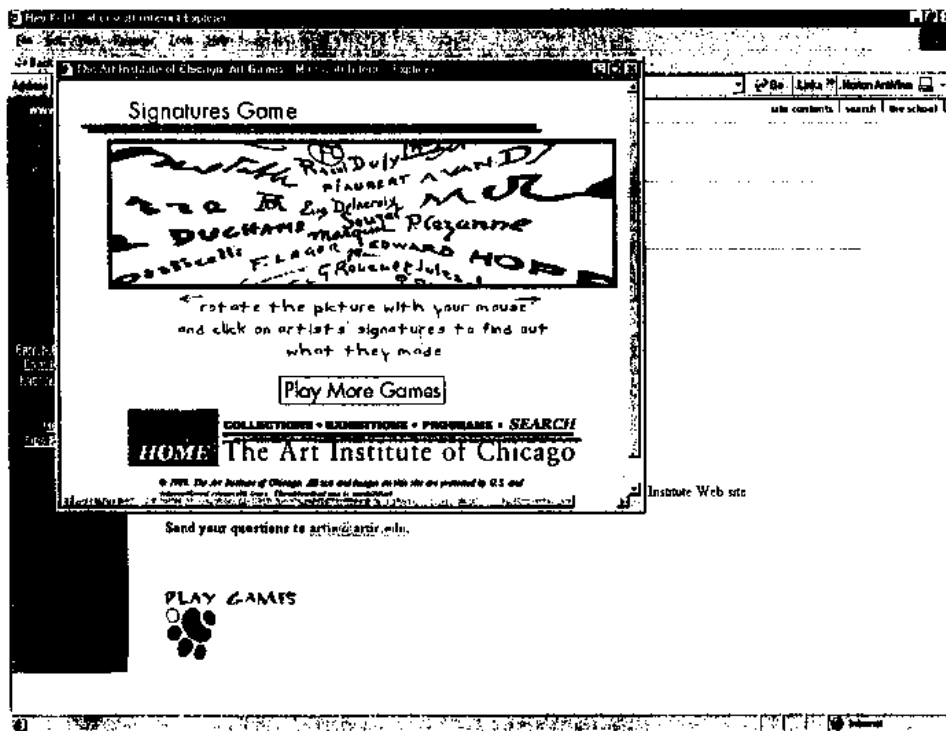


Figure 12: The Art Institute of Chicago's Online Games, [Online] Available <http://www.artic.edu>

<u>Art & Ecology</u>	K-12	1997
<u>Arts of India</u>	K-12	1994
<u>Celebration: Pluralism: Multicultural Approaches to Art Learning</u>	K-12	1997
<u>Cultural Heritage Sites</u>	K-12	1999
<u>Empire: An Ancient World: Four Online Resources</u>	K-12	1998
<u>Jacob Lawrence: Storyteller</u>	K-12	2000
<u>Looking and Learning: Artworks from Los Angeles Museums</u>	K-12	2000
<u>Making Architecture: An Online Exhibition and Curriculum Resource</u>	K-12	1999
<u>Maya Millennium Project</u>	K-12	1999
<u>Mexican American Art</u>	K-12	1994
<u>Multicultural Art Prints</u>	K-12	1994
<u>Native Stories at the Norton Simon Museum</u>	K-12	2000
<u>Philosophical Forum: Address Big Questions About Art</u>	K-12	1999
<u>Pacific Asian Art</u>	K-12	1994
<u>Selected American Indian Artifacts</u>	K-12	1994
<u>Spain: Art through the Ages</u>	K-12	1999
<u>Warren Gribbon: The Sculpture of Jarda Muclova</u>	K-12	1994
<u>The Web of Life: The Art of John Bonner</u>	K-12	1997
<u>Women Artists: Curriculum and Web Resources</u>	K-12	1999
<u>Women Artists of the Americas</u>	K-12	1994

Figure 13: The Getty's Online Lesson Plans, [Online] Available <http://www.getty.edu>

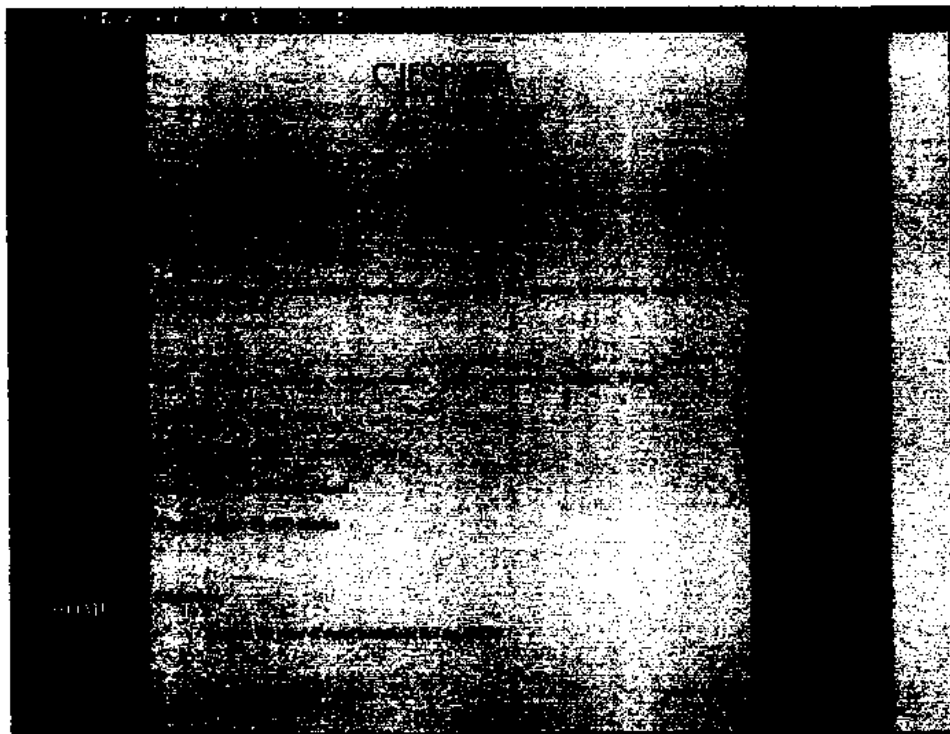


Figure 14: The Art Institute of Chicago's Online Lesson Plans, [Online] Available <http://www.artic.edu>

Starting: Fri Nov 01 2002 - 01:33:50 PST
Ending: Sat Nov 30 2002 - 21:28:58 PST

- Re: black on black poetry Julie (Fri Nov 01 2002 - 05:36:44 PST)
 - Re: black on black poetry Woody Duncan (Fri Nov 01 2002 - 14:21:42 PST)
 - Re: black on black poetry The Austin's (Fri Nov 01 2002 - 14:48:21 PST)
- Re: People not understanding the stress and strains of teaching Inda eastman (Thu Oct 31 2002 - 15:33:10 PST)
 - Re: People not understanding the stress and strains of teaching Winkivoo@aol.com (Fri Nov 01 2002 - 04:34:46 PST)
 - Re: People not understanding the stress and strains of teaching Maggie White (Fri Nov 01 2002 - 06:53:07 PST)
 - Re: People not understanding the stress and strains of teaching Ann Haloneman (Fri Nov 01 2002 - 07:09:37 PST)
 - Re: People not understanding the stress and strains of teaching Janey & Mike Coats (Fri Nov 01 2002 - 14:25:50 PST)
 - Re: People not understanding the stress and strains of teaching Sidney Miller (Mon Nov 04 2002 - 20:17:31 PST)
 - Re: People not understanding the stress and strains of teaching Michele Berlin (Tue Nov 05 2002 - 15:24:53 PST)
 - Re: People not understanding the stress and strains of teaching The Austin's (Tue Nov 05 2002 - 16:49:23 PST)
 - Re: People not understanding the stress and strains of teaching Dacubaloo@aol.com (Tue Nov 05 2002 - 21:47:11 PST)
 - Re: People not understanding the stress and strains of teaching Christie Wise (Wed Nov 06 2002 - 05:47:32 PST)
 - Re: People not understanding the stress and strains of teaching Beth Hinton (Wed Nov 06 2002 - 08:15:38 PST)
 - Re: People not understanding the stress and strains of teaching Inda eastman (Wed Nov 06 2002 - 01:34:37 PST)
 - Re: People not understanding the stress and strains of teaching Ann Carolan (Wed Nov 06 2002 - 16:33:33 PST)
- Re: Important that changed "art" - Holly Larry Seiler (Fri Nov 01 2002 - 05:14:36 PST)
- Re: Kinnua neckless/ elementary. are more relevant class lessons? Brenda robbson (Fri Nov 01 2002 - 06:04:36 PST)
- Re: Kinnua neckless/ elementary. are more relevant class lessons? Brenda robbson (Fri Nov 01 2002 - 06:10:51 PST)
 - Re: Kinnua neckless/ elementary. are more relevant class lessons? Betty Brown (Fri Nov 01 2002 - 06:59:35 PST)
- Re: Writing in Photograph V Martina Komando (Fri Nov 01 2002 - 06:30:44 PST)
- Re: Halloween history V Martina Komando (Fri Nov 01 2002 - 06:45:39 PST)
 - Re: Halloween history wildape@swcpj.com (Sat Nov 02 2002 - 01:46:57 PST)
- re:cinema connection Maggie White (Fri Nov 01 2002 - 07:10:30 PST)
- re: black on black poetry Harold (Fri Nov 01 2002 - 08:11:30 PST)
- Re:de la Torre Tula Brucetas daum (Fri Nov 01 2002 - 08:39:45 PST)
- People not understanding... jh31@columbia.edu (Fri Nov 01 2002 - 08:50:53 PST)
 - Re: People not understanding... Aaron Hopkins (Fri Nov 01 2002 - 12:24:37 PST)
 - Re: People not understanding... Michele Berlin (Fri Nov 01 2002 - 14:41:36 PST)
 - Re: People not understanding... Dacubaloo@aol.com (Fri Nov 01 2002 - 21:19:33 PST)
 - Re: People not understanding... arccment@stator.net (Sat Nov 02 2002 - 11:48:43 PST)
 - Re: People not understanding... Christie Wise (Mon Nov 04 2002 - 05:37:38 PST)
 - Re: People not understanding... Mjancero@aol.com (Tue Nov 05 2002 - 19:08:21 PST)

Figure 15: The Getty's Online Discussion Forum, [Online] Available <http://www.getty.edu>

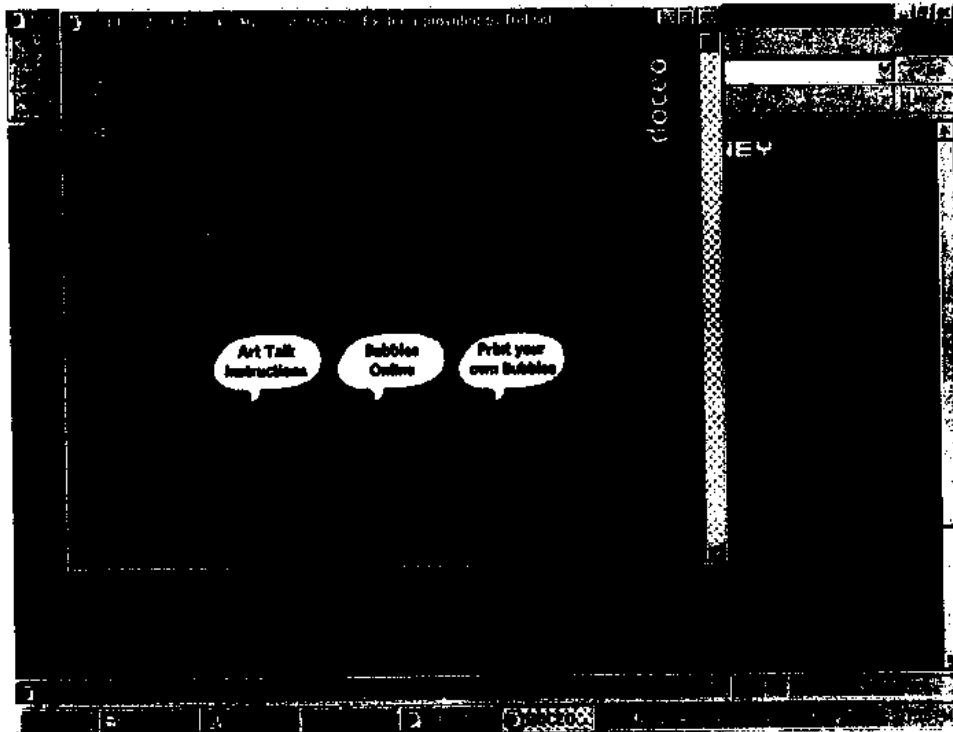


Figure 16: The Whitney Museum's DOCEO site in 2001

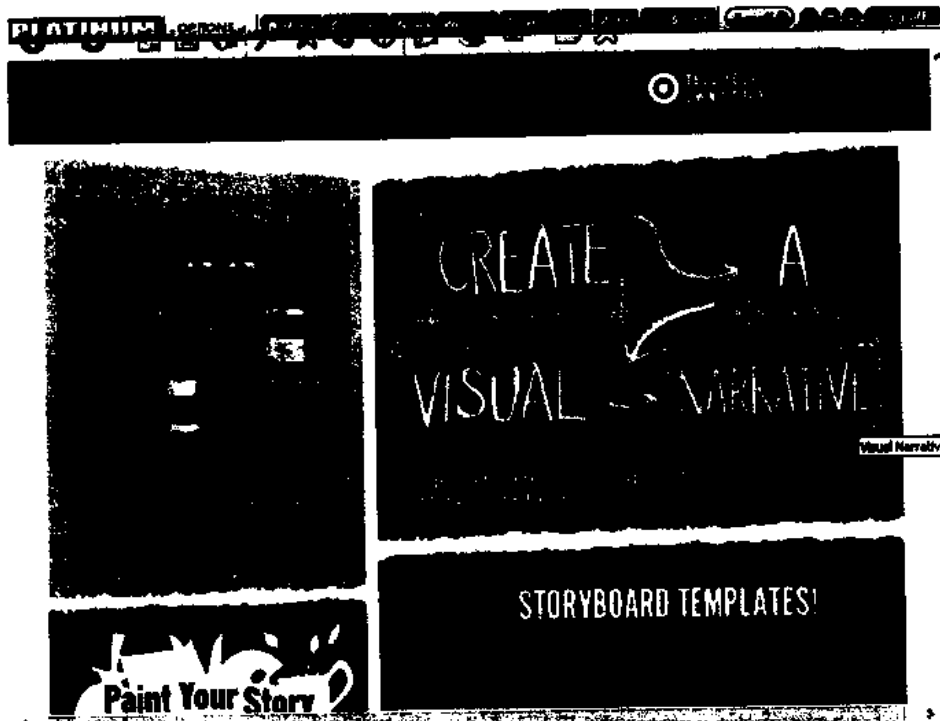


Figure 17: The Whitney Museum's Jacob Lawrence website, [Online] Available <http://www.whitney.org>

Appendix B: Baltimore Museum of Art Teacher Resources Survey

*Number in blue = number of responses
 inside circles = percentage response to that particular question*



The Baltimore Museum of Art Teacher Resources Survey June, 1999

Your answers to these questions will be an enormous help in helping us plan our
 Teacher Resources to suit your needs over the next few years.

Please mail to: Linda Lindsey, Education & Community, Baltimore Museum of Art,
 10 Art Museum Drive, Baltimore, MD 21218
 Or Fax: 410-396-6562
 Or e-mail: lindsey@artima.org

Do you have access to a computer?

- NO 3 (4%)
- No, but I anticipate access within 3 years.
- YES 176 (96%)
- at home 161 (92%)

If you answered Yes, how would you prefer to receive Teacher Materials?

- Written materials on paper, in packets. 150 (85%)
- Written materials on disk. 26 (15%)

Do you have Internet access?

- NO 27 (15%)
- No, but I anticipate access within 3 years. 19 (11%)
- YES 154 (85%)
- at home 110 (72%)
- at work 44 (28%)

If you answered Yes, how often do you use the Internet as a teaching resource?

- Daily 8 (5%)
- Weekly 37 (24%)
- Monthly 61 (40%)
- Never 32 (21%)
- Occasionally 13 (8%)

How often do your students use the Internet for class assigned work?

- Daily 5 (2%)
- Weekly 15 (9%)
- Monthly 31 (19%)
- Never 45 (29%)
- Occasionally 7 (5%)

Please tell us how useful the following materials would be to you if they were made available on a BMA website.

Item	Very Useful	Useful	Not Useful	Not Applicable
145. 24 3. (15%) 71 (27%) 108 (43%) 108 (43%)	24	71	108	108
146. 76 17 122 4	76	17	122	4
149. 37 5 2 2	37	5	2	2
156. 12 4 2 2	12	4	2	2
147. 86 7 4 10	86	7	4	10
144. 64 52 17 3	64	52	17	3

10 ART MUSEUM DRIVE BALTIMORE, MD 21218 TELEPHONE 410-396-6562 FACSIMILE 410-396-6563
 Linda Lindsey

How often do you use BMA Teacher Packets for aides or references?

- About one lesson per year 24 16%
- About 2-5 lessons per year 54 37%
- About 6-10 lessons per year 25 17%
- More than 10 lessons per year 11 7%
- Never 14 9%

Do you share BMA Teacher Packets with other teachers?

- Yes 11 7%
- No 14 9%

How often do you bring a group of your students to the BMA?

- More than once a year 13 9%
- Once a year 53 37%
- Once every 2-5 years 25 17%
- Never 11 7%

If you do not bring any students, do you bring your students "self-guided"?

- Yes 7 5%
- No 27 19%

Please check the box which best describes your primary subject area:

- Visual Arts/Arts/Art History 140 98%
- General All Subject 2 1%
- Social Studies/History 2 1%
- Language Arts/Literature 1 1%
- Mathematics/Science 1 1%
- Music/Dance/Theater 2 1%
- Foreign Language 10 7%
- Other 1 1%
- Gifted/Talented 1 1%

Please check all that apply:

- Most of my students are:
- Pre-school age 7 4%
 - Elementary age 44 30%
 - Middle school age 25 17%
 - High school age 19 13%
 - College age 5 3%
 - Other 3 2%

Most of my students visit an art museum:

- Once a year or more 209 142%
- About once during their years at my school 53 36%
- Never 14 9%

Most of my students come from:

- an urban area 149 102%
- a suburban area 119 83%
- a rural area 53 38%

The families of most of my students would be considered:

- low income 24 17%
- middle income 149 102%
- high income 53 38%

Please provide any comments about this survey. Please feel free to provide any information about your school, district, or community, or the type of institution you are.

Appendix C: National Center for Education Statistics Survey

Table 1.—Percent of teachers indicating they use computers or the Internet "a lot" at school to accomplish various objectives, by school and teacher characteristics: 1999

School and teacher characteristics	Create instructional materials	Administrative record-keeping	Communicate with colleagues	Gather information for planning lessons	Multi-media classroom presentations	Access research and best practices for teaching	Communicate with parents or students	Access model lesson plans
All public school teachers with access to computers or the Internet at school	39	34	23	18	8	7	7	8
Teaching experience								
3 or fewer years	43	38	30	21	10	11	8	11
4-8 years	47	38	30	22	8	10	10	8
10-19 years	38	35	22	14	9	7	8	6
20 or more years	35	30	19	11	6	5	5	5
School instructional level								
Elementary school	37	29	25	14	7	7	7	6
Secondary school	44	47	21	19	8	8	6	7
Percent of students in school eligible for free or reduced-price school lunch								
Less than 11 percent	52	43	31	20	11	9	9	8
11-30 percent	42	37	27	19	7	9	8	8
31-49 percent	35	35	23	13	6	5	6	4
50-70 percent	35	30	15	18	8	5	4	4
71 percent or more	32	24	19	15	8	7	5	8

NOTE: Less than 1 percent of all public school teachers reported no computers or Internet were available to them anywhere in their school. These teachers were not included in the estimates presented in this table.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Public School Teachers Use of Computers and the Internet," FRSS 70, 1999.

U.S. Department of Education National Center for Education Statistics, Stats in Brief: Teacher Use of Computers and the Internet in Public Schools, April 2000, [Online] Available <http://www.nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2000090>, 1.

Table 2.—Percent of teachers reporting using computers or the Internet for instruction and the percent assigning various uses to students to a moderate or large extent, by school and teacher characteristics: 1999

School and teacher characteristics	Teacher assigns to a moderate or large extent									
	Teacher uses for classroom instruction	Computer applications	Practice drills	Research using the Internet	Basic problems and analysis data	Research using CD-ROMs	Produce multimedia reports/projects	Question presentations of materials	Demonstrations/simulations	Correspond with others ¹
All public school teachers with access to computers or the Internet at school	63	41	31	38	27	27	24	19	17	7
School instructional level										
Elementary school	59	41	30	35	31	27	22	17	15	7
Secondary school	44	42	12	41	20	27	27	23	21	7
Percent of students in school eligible for free or reduced-price school lunch										
Less than 11 percent	61	55	25	39	25	32	29	26	22	7
11-30 percent	62	45	29	35	29	27	23	18	16	9
31-49 percent	65	39	33	29	26	30	23	18	17	11
50-70 percent	47	33	33	25	27	24	25	19	13	5
71 percent or more	30	21	35	18	27	19	22	18	16	3
Hours of professional development										
0 hours	30	21	19	20	14	16	18	10	8	4
1-8 hours	48	38	26	36	24	24	20	16	13	7
9-32 hours	61	47	35	32	30	31	28	21	19	8
More than 32 hours	71	55	43	42	41	34	37	31	29	9

¹ Use computer applications such as word processing, spreadsheets, etc.

² Correspond with experts, authors, students from other schools, etc., via e-mail or Internet.

NOTE: Less than 1 percent of all public school teachers reported no computers or Internet access were available to them anywhere in their school. These teachers were not included in the estimates presented in this table.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Public School Teachers Use of Computers and the Internet," FRSS 70, 1999.

U.S. Department of Education National Center for Education Statistics, Stats in Brief: Teacher Use of Computers and the Internet in Public Schools, April 2000, [Online] Available <http://www.nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2000090>, 2.

Appendix D: Survey of Museum Educators



September 25th, 2002

Dear Museum Educator:

I am a graduate student at Seton Hall University completing my master's thesis in Museum Professions.

My thesis is an inquiry into the educational resources art museums provide via the internet and their feasibility and success in the classroom.

Participation in this survey is voluntary and you need not answer every question. Completing the survey, however, will enhance my research and allow me to better reflect the voice of museum educators responsible for providing internet resources for art teachers. All responses will be kept anonymous and confidential.

Please complete the survey and return it in the enclosed self-addressed, stamped envelope by November 1st. If you choose not to participate, please return it to me for my records.

If you have any questions, please contact me at the telephone number or email address listed below.

Your time and consideration is appreciated.

Sincerely,

Carri L. Manchester
(973) 347-0900, x34
cmanchester@waterloovillage.org

Department of Art and Music
MA Program in Museum Professions
Tel: 973.761.7966 • Fax: 973.275.2368
400 South Orange Avenue • South Orange, New Jersey 07079

**Museums and Educational Outreach on the Internet
Survey for Museum Educators**

1. Which of the following internet resources does your museum currently provide?

- (a) the virtual field trip
- (b) online collections databases
- (c) lesson plans
- (d) discussion boards
- (e) online classrooms
- (f) online exhibitions
- (g) other _____

2. Does your museum have future plans for providing any of the following?

- (a) the virtual field trip
- (b) online collections databases
- (c) lesson plans
- (d) discussion boards
- (e) online classrooms
- (f) online exhibitions
- (g) other _____

3. Which of the following non-internet outreach resources do you provide?

- (a) video conferencing
- (b) classroom visits
- (c) loaner collections
- (d) other _____

4. Did you provide support to classroom educators who use your museum's resources?

If yes, how do you communicate with them?

- (a) Telephone
- (b) Email
- (c) onsite support
- (d) other _____

5. Approximately how many students and teachers were serviced by your internet resources last year?

How is this figure ascertained?

6. How do you evaluate the successfulness of the site?

7. What do you like best about the resources you provide?

8. What do you plan to improve?

9. Do you feel the internet resources you provide significantly improve the quality of your museum's educational programming? If yes, how?

10. How have teachers responded to your resources?

11. Comments/Please feel free to include any other information you feel to be of relevance that is not covered elsewhere in the survey.

Museums and Educational Outreach on the Internet

Fall 2002

Carri Manchester

Survey for Museum Educators - Results 27 respondents/100 surveyed

1. Which of the following Internet resources does your museum currently provide?

Answer	Number of positive responses	Comments
No Response	9	
a. the virtual field trip	2	yes, limited distance learning is available
b. online collections databases	6	No database, some examples from collections
		not off site, only on Intranet
c. lesson plans	13	yes, through (gives education website address)
		we have downloadable lesson plans in PDF format
		yes, teacher pre-visit materials (not fully developed lesson plans)
d. discussion boards	1	No longer
e. online classroom	0	I don't really know what this is
f. online exhibitions	4	online programs that support exhibitions
g. other	14	We have just done our first online 'materials for teachers' in connection with a special exhibition website.
		Web site
		Online purchasing, event and program announcements, email announcements
		A virtual tour of our permanent collection
		education website(s): (gives URL; also developing an educational website in conjunction with our (lists specific collection) collections for both in-gallery kiosks and off-site use
		class and program listings
		Information about our collections in a general way from our main museum web site
		Teaching tools, not quite lesson plans
		many works from our collection, video clips, audio clips, and lots of text about the art and artists
		visual resources, art image database
		timeline of art history, etc.
		curriculum resource units on permanent collection
		links to other programs, overview of membership info, volunteer opportunities, exhibitions, general info, museum marketplace, [local] artists
		events calendar and museum store

2. Does your museum have future plans for providing any of the following?

Answer	Number of positive responses	Comments
No response	8	we are currently going through a planning process to decide
a. the virtual field trip	4	yes, but more as a pre-visit, post-visit tool

b. online collections databases	11	perhaps
c. lesson plans	10	suggestions for curricula related to our collection will be the same for the near term
d. discussion boards	4	
e. online classroom	2	
f. online exhibitions	8	perhaps possibly
g. other	6	interactive learning activities for youth/families online educational game for children make your own gallery games expanding teacher site informational marketing

3. Which of the following non-internet outreach resources do you provide?

Answer	Number of positive responses	Comments
No response	7	
a. video conferencing	2	
b. classroom visits	15	
c. loaner collections	8	slide sets and videos only for statewide museums
d. other	12	teacher workshops, teacher slide packets, purchased and/or loaned out to teachers statewide and beyond A-V materials sending information and slides teacher resource center with loan materials the museum serves at-risk youth after school art in some schools and in community centers throughout the city slides, video, objects with information arts and language arts program - a professional development program for teachers, we also send busses out to bring people here for family days on weekends after school, senior outreach, and mentorship outreach programs are in effect most of the year inservice for teachers speakers bureau for adult groups collaboration between local artsits and local schools and public programs slide sets to loan

4. Did you provide support to classroom educators who use your museum's resources?

Yes	No	No response
22	0	5

If yes, how do you communicate with them?

Answer	Number of positive responses	Comments
No response	6	
a. Telephone	19	
b. Email	18	
c. onsite support	12	teacher resource center
d. other	13	flyers, brochures
		professional development programs
		postal service
		onsite support includes programs for teachers
		We use regular mail and "pony express" mail through the public school district
		snail mail
		brochures, teacher's night
		mailed guides
		workshops, snail mail, brochures
		through workshops
		mail, teacher packets prior to tour, vocab, reproductions, bibliography, curriculum ties
		mail and fax

5. Approximately how many students and teachers were serviced by your internet resources last year?

No response	Answer	Comments
21	10,000	Since our first effort just went up a month ago, I cannot answer these questions.
	1,000	The site is just about to be launched
	3,500	Unable to compile such figures
	50	Unknown
		I don't know at this time
		Over the videoconferencing network we connect via fiber optic cable (not the internet) with approximately 96 schools throughout the US just last school year reaching 6,400 students and teachers
		no way to know
		do not know
		no idea really
		we do not have that figure
		we do not currently get use figures from our webmaster
		no record of use

How is this figure ascertained?

No response	Answer	Comments
21	hit counter on education site	I keep records of each broadcast
	number of classes visiting museum	there is no accurate way to ascertain this
	Webtrends	most teacher communication is via snail mail and the telephone
	guessed	We do not have a system for tracking this in place yet.

	Supposedly there is an invisible counter on one of the pages, but I have never accessed it.
--	---

6. How do you evaluate the successfulness of the site

No response = 15

Answers

We have tried to show that a scholarly exhibition can be approached in such a way as to make the material relevant to the state visual art standards.
Our website managers evaluate the number of hits and the comments on the website. Teachers and educators occasionally give me individual/verbal comments about our website.
Software that analyzes "hits" to various pages and external evaluator. Also developing some form of user survey within the site.
Informal evaluation and through written teacher evaluation at the time of the museum visit.
We don't, it's just there.
We actually have two different things going on here. The [gives URL] site, and a newer education section of [gives URL] that we are currently developing. The [original] site has not been updated for over two years. It is still used and is one of the most popular sections of our web site, in terms of traffic. However, [gives URL] does not meet many of the internal goals of the [museum], and thus, we are developing the newer Education section which is to be posted within the next month. So, we haven't been able to gauge the successfulness of the new site yet.
Currently revamping site
We surveyed teachers last year to find out what they liked about our teacher site. 37 teachers responded to the survey. Out of that 37, only 10 had previously been to the site. What this told us was that most teachers do not know about the site, or they have not taken the time to find it.
We had meetings with teachers to evaluate and make recommendations.
Hired independent educational evaluation of one set of lesson plans
Comments from users
We are actually re-working our web site. It is information based to provide a better program. We have been working with community members, computer support and staff members.

7. What do you like best about the resources you provide?

No response = 15

Answers

It's availability to the worldwide community
The resources are directly related to the class visit and there is always a person to contact should you have any questions or need further information.
Multi-disciplinary, object-based, newly linked to local curricula.
The online lessons are also available in printed form. I prefer the book.
Live interaction with educators and our permanent collection.
Access to information seems to be one of the most useful things for teachers. We have a lot of good information on the site. The challenge seems to be presenting it in a way that is useful for teachers.
Children's guide to contemporary art
Lesson plans are thought provoking and interesting and easy to do. Source materials are a wonderful resource. Student gallery is highly appreciated by teachers and students alike.
At this point, our museum is on the verge of expanding on-line resources for teachers and schools. Currently we connect with our teachers primarily on site at the museum or in the schools. We plan on making electronic resources available for area schools and teachers in the future.

The diversity
We work with teachers to provide classroom related content.
They reach out to a very broad audience and get people in touch with art that might not have the chance.

8. What do you plan to improve?

No response = 13

Answers

The quantity and quality of the information on our web site.
Add more from the collections, add more educational materials.
The materials and options available to schools that visit the collection outside of our formal education program.
Seeking to develop more in-gallery, object-based online resources.
If we had the funds we might do a lot more.
Always updating programs and materials based on teacher input.
We are adding more lessons that are tied directly into our collections. We want to create a forum for community, and feedback where teachers can come to talk to other teachers, get ideas, give ideas, etc.
Definitely
Everything in [URL] will be improved! Design, content, interactivity, marketing, teacher training, etc. As I said, we are creating curriculum for [specific program] and redesigning [URL] to reflect new content in language arts, visual arts and history/social science.
Ease of use, among other things.
Revise and add more [illegible] under a separate Educator section.
Everything, we are always assessing and changing the way we do things.
We are doing a new website
all

9. Do you feel the internet resources you provide significantly improve the quality of your museum's educational programming?

If yes, how?

No response = 14

Answers

Not adequately enough at this time.
Yes, they provide an additional avenue by which to reach our statewide audience.
The website provides a great deal of general information that is very helpful in planning a meaningful visit. The [Specific Collection] is an unusual museum and the website highlights its unique features to help schools and teachers plan their visits accordingly.
Too early to tell. Intent is that they will enhance onsite and off-site experiences.
No, because it is pretty "sleepy".
Yes and no. The collections online are invaluable for teachers bringing their students to the museum on fieldtrips. Much of the material available on [URL] is not supported by our education staff.
Yes, our online offerings are one of the many cutting-edge programs that we provide our visitors. Interactive Educational Technology has been one of our focuses for the past ten years, long before many museums were using technology in the galleries, or on the Web.
No
Yes, by providing additional information that teachers could use with their students in the classroom.
Yes, the museum becomes a relevant teaching resource.
Yes
What it does is provide information about educational activities that are available to a broad public.
No

10. How have teachers responded to your resources?

No response = 13

Answers

Favorably

We include an evaluation in the package of educational materials we send out and a number of teachers have mailed in their responses.

Teachers have participated enthusiastically in a development component of the website specially for them.

Very positively, as they tie to state standards and parallel high stakes testing format that demands higher level thinking skills.

We DO offer teacher workshops, and those are very well-attended.

The Collections online are a great resource. Though many teachers express the desire to have this information presented to them in a format that is more amenable to their teaching.

Favorably

Very favorably! We hope with the new curriculum project to work with teachers in the creation of content, as well as in the training of others around the state. It will be very interesting to see how teachers use [the new online resource] in the classroom

Very well. We have strong relationships with our area teachers, but we do need to build our onsite resources.

Very well.

We are currently assessing this

They are enthusiastic but always want more

We have over 2,500 registered borrowers who use our materials.

Yes, its an easy way for teachers and educators to gain access to the events at the museum

11. Comments/Please feel free to include any other information you feel to be of relevance that is not covered elsewhere in the survey.

No response = 25

Comments

We need to develop ways to provide images to teachers that both meet our needs for visual quality and adherence to copyright and meet educators' needs to have accessible images in a variety of platforms they can access on-line, download and print.

We are currently updating our website. It is my hope to use it more for downloadable teacher/student materials before a broadcast and having a searchable database for students to check out the artwork prior to a program.

Webography

- The J. Paul Getty Museum, Los Angeles, CA. <http://www.getty.edu/artsednet>
- The National Gallery of Art, Washinton, D.C.. [http:// www.nga.gov](http://www.nga.gov)
- The Metropolitan Museum of Art, New York, NY. <http://www.metmuseum.org>
- The Museum of Modern Art, New York, NY. <http://www.moma.org>
- The Art Institute of Chicago, Chicago, IL. <http://www.artic.edu>
- The Whitney Museum of American Art, New York, NY. <http://www.whitney.org>

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