You may note that I've appended the title of today's talk from that listed in the program. This is because, as Max Marmor noted in his recent assessment of the state of ArtStor, the landscape of electronic resources in the teaching and learning environment is changing swiftly – and of course it will continue to do so in the future. The purpose of this presentation is to reflect on the changes in the past year since the digital image usage study was conducted at Indiana University. I will focus on the momentum that the NetGeneration are having upon teaching and learning methodologies and ultimately discuss a few options regarding the future of new instructional technologies that may be incorporated into the field of art librarianship.

Changing Modes of Learning The breath, depth and speed of information found on the Internet are commonly cited as the catalysts for a revolution that librarians and educators are trying to harness to our advantage. What has been termed the NetGeneration is currently impacting multiple facets of modern life, and instructional pedagogy is no exception. The younger generation of learners is used to ingesting information in multiple formats from multiple sources. We should not only adjust to these new learning paradigms but also strive to capitalize on them. Involving students in their education through technology is one method that may achieve this goal. Accomodating different learning styles is another facet of this mutlti-modal

Changing Content As cited by Fry in her 2006 article, for art historians, images ARE the content. This is why the recent developments in image presentation systems have been so crucial. However, while some professors continue to focus on single images in lectures, particularly within lower level courses, higher education is moving in interdisciplinary directions. While other disciplines such as the humanities and sciences

and are adding digital images into their didactic patterns, art history should be aware of the possibilities for integrating more than images into its curriculum. For example, the capability of PowerPoint to include hyperlinks and audiovisual clips in presentations provides for interactive situations that can add pedagogical value. For instance, the use of artist interview and performance art clips convey facets of content that further engage NetGeners in a more than visual mode. Changing content is an important issue that faces Art and Visual Resources Librarians as well as the rest of the profession. There is increasing demand for different mediums to convey information to younger generations. We should look beyond digital images and consider various forms of communication.

I began my exploration of these trends within instructional technology through the research conducted in conjunction with Eileen Fry during the spring of 2005. Eileen and I conducted simultaneous quantitative studies to assess the innovations Indiana University art history professors and graduate instructors had made in their digital PowerPoint slideshows. The aim of this study was to determine what the users were doing when given basic guidelines and a variety of tools for arranging and presenting images. I focused on analyzing 59 PowerPoint lectures created by four graduate student instructors. A total of 1089 screens and 2018 images were analyzed for their content and arrangement.

The study's methodology consisted of a visual "count" of images contained in classroom lecture presentations. The separate categories analyzed included Image Type, including Object, Didactic, and Built Environment; three Image per Screen designations consisting of Single, Comparison, and Multiple; and finally the category of Screen Type

which encompasses Image, Image/Text , and Text. I also tracked the number of instances of graphic aids used within each presentation.

The resulting data from our two studies were not dissimilar. The report given by Eileen at last year's ARLIS conference in Houston emphasized not only this liberation from the dual projection format, but the innovative nature that didactic presentations took on with some creative thinking on the part of instructors. Users had not only adapted to the constraints place on them by the system, but they had begun to thrive with a few of the key tools available to them. Among them, I found image/text and multi-image screen types as well as user-created graphics to be the most outstanding innovations.

Image/text screen types constituted 84% of all screens shown which reinforces the now better-understood idea that the image must not necessarily be locked in an ivory tower. This was one of the first steps toward creating a multi-modal presentation of ideas. It may seem simple at this point but it is important to acknowledge the beginning of a progression toward a more flexible situation that accommodates for more than one learning style. Associate Instructors in this study also used multi-image screen types in 18% of their total slides, often with up to eight images projected at once. In a separate analysis it was determined that three images were used over two-thirds of the time, keeping what could be termed as "screen-cluttered" slides in the minority. Students appear able, however, to process this amount of information, especially when it is used for making a general point.

User-generated graphics have great potential for adding a dynamic quality to presentations without crossing over into the territory of the "flashy" tactics sometimes associated with business presentations. Students are actually becoming creative with

their use of these graphics and are going beyond the use of didactic arrows to add emphasis to their lectures. For example, one of my colleagues at Indiana recently gave a talk highlighting the use of Native American figures in the landscapes of Thomas Cole. She began her talk with this image, and spoke at length in her introduction about her thesis before suddenly highlighting the figure within the painting. With assistance from the VR staff she was able to create a series of slides that effectively make her point.

The results were conclusive that educators were heading into new, uncharted waters in comparison to the known world of dual analog slide projection. At the close of the Spring 2004 semester I concluded that although PowerPoint was not the definitive answer to the Visual Resources community's image presentation needs, but that it provided an excellent environment to experiment with new forms of visual pedagogy. Professors and students had begun to think outside of the dual-projection box, and I was convinced that this was just the beginning of new ways of thinking about image presentation. One of the most significant changes in this landscape of instructional technology has been the release of the ArtStor Offline Image Viewer. So I, and not to mention Eileen, were intrigued when ArtStor announced the release of its OIV software as freeware. I turn now to examining the features and capabilities of the OIV while taking into account the previous discussion of pedagogical liberation cited by the IU PowerPoint study.

This program has increased functionality tremendously in the past year, introducing an environment that provides the user the ability to place multiple images on one screen, combine them with text, and, most importantly from the perspective of a PowerPoint user, dynamically pan and zoom local as well as ArtStor images at will.

Associate Instructors mentioned in a qualitative survey of the PowerPoint study that these were the major frustrations of their experience with the program. The addition of this functionality, as well as the layouts which allow for image/text combination, graphics, and multiple images per screen, provides a dynamic environment from which lecturers can engage their students.

With these changing issues surrounding image presentation I began to look for technologies that would engage NetGeners in more than exclusively visual ways. The Horizon Report released by Educause and the New Medium Consortium in early 2006 cites clickers and Podcasts as two of the emerging trends with which instructors can engage NetGeners. Clickers are handheld electronic devices that transmit data from students to instructors during a classroom lecture via short-range infrared waves. These specially designed devices have two important effects on the classroom learning environment. The results are calculated for the instructor and allow for quick feedback on issues such as learning comprehension or quick surveys of students' preferences in instruction. The instructor may take attendance, use clickers to calculate classroom participation, or offer extra credit opportunities. The most important element from this perspective is the increased facility to receive feedback from students and adjust teaching methodologies, and ultimately, the syllabus, accordingly. For the student they may provide a sense of engagement with the lesson that could awaken their interest as the professor asks questions. This could be revolutionary in many art history lectures in which students passively accept information in a dim lecture hall.

I also looked at ways to integrate audio material into the art historical teaching and learning environment. Individuals created some of the first Podcasts as freely

downloadable guides to museums in an audio format. All one has to have is an Internet connection and an MP3 player. Since then iPods and podcasts have been co-opted by some museums, as well as educational institutions. The most well known of these initiatives is the Duke University First Year Experiment, in which all incoming first year students were supplied with a 20 GB ipod for educational use. Instructors have created a wide range of opportunities for experimental teaching and learning methods, including one digital photography class, in which students stored and shared images on their iPods.

Many educational institutions associated with museum collections already integrate its collections into art historical curriculum by taking their students outside of the classroom to the museum where students may engage with artworks individually. Opportunities for more informal partnerships between professors and instructional librarians should be explored to integrate podcast technology within the educational museum experience. Instructors may record podcasts of lectures in the museum for their students to listen to individually instead of shepherding large groups through at once. Conversely, students may take advantage of voice recording technology to record their thoughts on artworks in the galleries for assignments. Transfer of these files can be facilitated through Course Management software.

As patterns of teaching and learning become more interdisciplinary and interactive, it should be no surprise that the materials and methodologies integrated into traditional Art History courses follow this same trend. While the images are still the primary source of study in many situations we can begin to incorporate other media and methods to create a richer learning environment for the NetGen learner.   Librarians and VR professionals should think strategically and creatively about the adoption of these

technologies and ensure, of course, that they are meaningful in terms of enriching the educational environment. Also worth considering are different learning styles and the inclusion of an increasing number of non-traditional students in university settings. Instructors and Information Professionals must take these factors into account when planning for new the implementation of new technologies. Whether theorists who analyze market trends or the local visual resources professional trends spot these trends, librarians, faculty, graduate instructors, and students need to look around as well as to each other for inspiration. The tools for innovative, effective educational technology are emerging around us daily – we just need to recognize them as opportunities to engage with new content in a dynamic way.