

# Active learning to Interactive Design: The Rise of Web Rich Media to Engage Art Dialogue

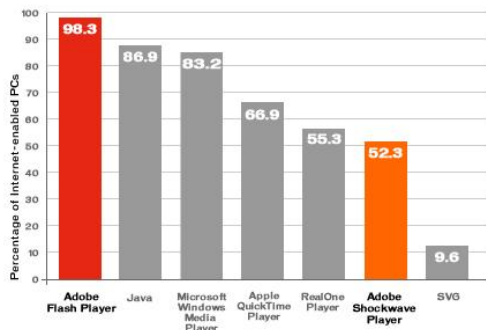
Mei-Fen Chen, Ph.D.  
 Robert Morris College  
 mchen@robertmorris.edu

## Abstract

Flash Player is the world's most adopted pervasive software platform of Internet-enabled desktops. Flash movie becomes the universal client that allows educators to deliver effective rich media interactions not only for online courses but also in classroom settings. This paper fosters the development process of creating interactive Flash movies to engage active art and design learning. With active learning and interactive teaching theory in mind, tips, best practices, common mistakes, and misconceptions about applying technology to deliver curriculum and students projects are interrogated. Skill set and knowledge base about empowering authoring tools in interface design, course architecture development, and the reusability of online assessment are also examined. An open dialogue focuses on sharing thoughts to rethink the impact of interactive learning and how human factors will play in the future of interactive education.

social media of blog, vlog, or podcasting, and those are natural parts of their lives. They belong to the trend of Web 2.0 generation (O'Reilly 2005). The emerging students demand advanced technology-enhanced education, real life hands-on experiences, and non-traditional active learning environment.

According to Edgar Dale's Experience model (Dale 1969), he suggested traditional classroom lecturing teaching style is a very passive approach to in-class instruction. Students need to be thought provoked and inspired by a more effective experience to enhance their learning outcome. In Chickering and Gamson's *Seven Principles of Good Practice in Undergraduate Education* (AAHE Bulletin 1987), they pointed that encouragement of active learning is one of the key practices to improving the learning quality.



Millward Brown survey, conducted December 2006. See [Methodology Section](#) for details on the Millward Brown study.

Figure 1. Flash content reaches 98% of Internet viewers  
 Millward Brown survey, conducted December 2006.

## 1 Introduction

Daniel Pink in his book *A Whole New Mind* (2005) proclaimed our future world belongs to the persons with new conceptual minds. He listed six senses belonging to this category, artists, inventors, designers, storytellers, caregivers, consolers, and big picture thinkers. While we foresee the prophecy for the coming of the conceptual age, visual art communication plays a role of leading innovative change. There are constant dialogues among educators about how to enhance teaching excellence into a creative learning environment for our students. Before we discover the answer for the solutions, we need to make an inquiry of identifying our student group. Who are they? How do we identify their life patterns? What do they want and need? How do we employ the best practice educational modules for the future? How do we motivate a proactive education for them? We need to recognize the new generation Y was born in the Internet age with sufficient knowledge and assumption of cutting edge technology, such as sophisticated computer graphics, cellular phone, ipod, and

## Cone of Learning

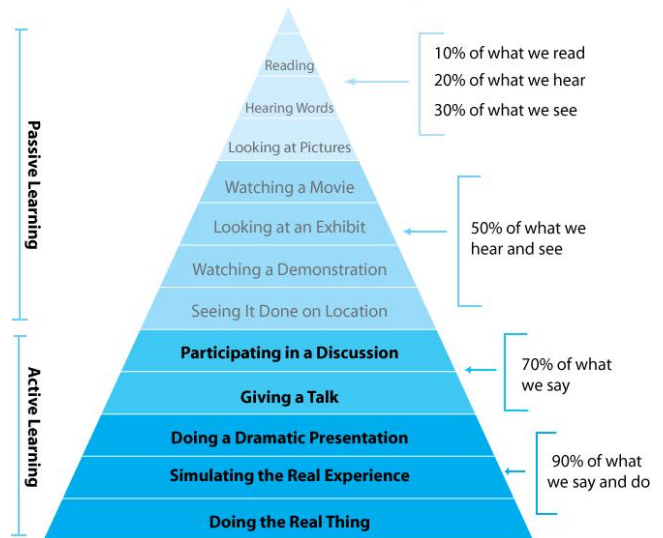


Figure 2. Edgar Dale (1969) Active Learning Study

## 2 Advantages of Using Flash Interaction

The present rich media technology, stimulates new opportunities for researchers and educators to provide and integrate video, text, audio, animation, and graphics into valuable experiences that deliver superior results for interactive presentations, e-learning, and compelling Internet applications. At the same time, they also carry numerous questions and challenges. One of the current quests for many educators is how these technologies can benefit themselves and their students. As we endeavor to bridge the gap between technology and education, there is a necessity to examine the reasons why Flash movie is chosen, as a pervasive and user-friendly vehicle, to enhance the active learning environment.

## 2.1 Small File Size

One of the compelling reasons of using Flash rich media is because of its compressed file size. Flash offers developers a sophisticated programming environment that is optimized for the display of graphical information and which is tailored for operation over the Internet. Flash makes use of Vector graphics to specify images. These describe a picture in terms of shapes and keys. Because of this, Flash files are small, and combined with the vector drawing ability, ideally suited to animation and sophisticated interface layout design. The small size of Flash files ensures users can achieve faster downloads and in more detail in the same bandwidth.

## 2.2 User Friendly and Web Usability

Use of Flash movie to design user time-based interface and navigation authoring is highly flexible. Within the Flash player it is possible to describe an image as a series of layered contents, such as images, text, audio, and video overlapping of each other. Therefore, this enables users to make their own choice of splitting an animation into separate layers and to allow the users to decide which they need to download for further usage. Even if they download all the data, because Flash is interactive, users can add non-linear navigation menus and buttons that allow them to advance their teaching and learning objectives. Moreover, it's easy to add interaction components without writing extra code.

## 2.3 Compatible with Other Web Software and Programming Languages

“Flash is the software that tries to reconcile the big divide that exists in the IT world: between the left brain developers and the right brain designers” (Calwen 2007). Flash is Object-oriented software and also offers a programming environment. Flash movie serves the basic function of slide interaction as in PowerPoint's presentation but carries the perimeter to an advanced learning curve by easily incorporating with other web software such as Photoshop, Firework, Image Ready, and Dreamweaver; or, as well, to integrate with web languages action script, HTML, XHTML, XML, or JavaScript coding. And because this is all being done inside the Flash client, users can do all this without maintaining their link to the Internet, saving on connection and further download costs.

## 2.4 Quick Start Templates

Constructing a whole interactive Flash curriculum would be time consuming and knowledge demanding. One of the key features that serves interactive Flash, as powerful and efficient authoring tools is Flash provides a variety of quiz templates for instructional use. The Quick-start templates, such as drag-and-drop, fill-in-the blank, true-false, multiple choice, multiple correct, and identification quiz templates are very easy for starters to fit on their particular settings and needs. More and more e-learning instructions are using these templates to create a Flash based learning module (Toth, 2007). Within the template set up, even in the beginning level of using Flash quiz template, it can easily keep track of accumulative basic score data within the movie and establish a stable reusability.

## 2.4 Foreign Language Support

The new released Flash movie allows the developers to use Flash in their native languages to create a site in another language. Flash now supports non-Western encodings (languages such as Chinese that don't use the English alphabet), and even languages that read vertically rather than horizontally.

## 2.5 Web Browser Compatibility

As the default set up in most of the Internet browsers, Flash would easily assist to design and develop a web-based multimedia educational application to meet specified educational goals for a specified audience of learners. The updated technologies with all the major Internet browsers have default installation so there is not much concern with the different browser issues when played online. In a word, the major advantage of using Flash, as an authoring environment, is its cross browser, cross platform compatibility. That means Flash provides high-quality interfaces that loads quickly and looks the same on different platforms.

## 3 Building Information Architecture

Interactive rich media networks are two-way streets between active learning and interactive instruction. A well-thought and carefully planned curriculum is still the basic key factor that guarantees the ultimately successful curriculum design. Nevertheless, to deliver a viable interactive instruction relies not only on the appealing elements of technology but focuses on the course architecture and motivation strategies. Course architecture embraces the elements of engineering, aesthetic, and usability aspects in information design. Criteria need to be addressed in web usability of issues to cover objectives set up, target of audience, navigation and architecture, fonts and sizing, images optimization, and interface design. One of the major challenges for interactive developers to face is to package whole architectural elements within the Flash. Hess and Hancock (2004) suggested tip of solutions during the development:

- Create individual Flash content and then link multiple movies together
- Use Flash's built-in presentation templates
- Create an overarching sequential navigation system inside of Flash
- Create an architecture based on an external text file
- Incorporate with other web languages

With the best practice in mind, the end result is to ensure all learners reach the same accessibility of their learning experience.

## 4 Make a Difference

Chickering and Gamson (1987) stated, “Learning is not a spectator sport. Students do not learn much just by sitting in classes listening to teachers, memorizing pre-packaged assignments, and spitting out answers. They must talk about what they are learning, write about it, relate it to past experiences and apply it to their daily lives. They must make what they learn part of themselves”. In traditional classrooms, educators are used to delivering blocks of content through lecture, books, screens, movies, bullet slides and then, give a quiz. Within repeat approaches of instruction, students already predict the pattern of study. While the convergence of technology with variety rich media elements is available in Flash movie, the future of active learning with interactive rich media platforms would be promising. Active learning would be achieved through a well-planned “Learning Dynamic” instead of dry and boring lectures replicated in everyday classroom.

## 5 Empower Learning Curve

In motivating learning and classroom interaction, many educational institutes and museums are engaging on this design support in different disciplines and settings. According to my teaching experiences by bringing life-enhancing active learning and interactive teaching modules together, the impact of using visual art study strategies was well received and very well accepted by students (Fleming 2001). Having the class material encourages opportunities to engage in collaborative and hands-on interactive learning in the classroom, and students experience the whole learning process by real case scenario. Once you encourage the thought of self-expression and creativity, they soon

utilize Flash as their multi layered canvas. At the same time, students would simulate a real case experience from sketching the idea to final implementation. They are required to initiate well-organized and structured management planning approaches, conduct inquiry-based research, develop critical and reflective thinking in story boarding, articulate their experimental minds of visual creativity, and cope with team or independent problem solving settings. In so doing, when project-based learning goals are set up in the classroom, my students apply these interactive informational designs to deliver a wide variety of interactive movies which include their electronic portfolio presentation, professional website development, inquiry-based simulation, e-publication design, and self-expressional movie. The final implementation presents visually eye-catching, layout sophisticating, and dynamically interfaces functioning multi-effects animation movies. The journey of interactive learning facilitates students to assess the practices of plan, design, integration, and social networking along with the components of critical thinking, and problem solving skills. "The important thing was that they took the time to discover what they were passionate about, and used that as a vehicle for motivation" (Sierra 2005).

On the whole, Flash movie is not a solution to all. For one thing, there are arguments and doubts of using Flash system. Flash carries certain drawbacks and limitations in current capacities. To name a few, many web developers argue, Flash is search engine friendless, and doesn't support quick response in chat rooms unless sophisticated coding is added. It lacks back button support, has problems of images downloading, and has no book marking and right click functions. In many cases, what we need to recognize and remind our students is to use the best of the practice on all available resources, understand its limitation, and explore its boundary. Creating dynamic and entertaining interactive Flash movies, in a suitable form, to engage our students learning outcome is not inaccessible.

The drive of building viable interaction not only depends on giving digital lectures, delivering elaborate high tech simulations, or posting a syllabus online but more importantly, "the essential dynamic demands the meaningful, memorable, and motivational forms of quality interaction inspired for our learners" (Allen, 2004). An ideal interaction model would build upon the combination of emerging technology, cognitive science, and human needs.



Figure 3 Student's self-expression Flash movie presentation



Figure 4 Students' team project for inquiry-based activities

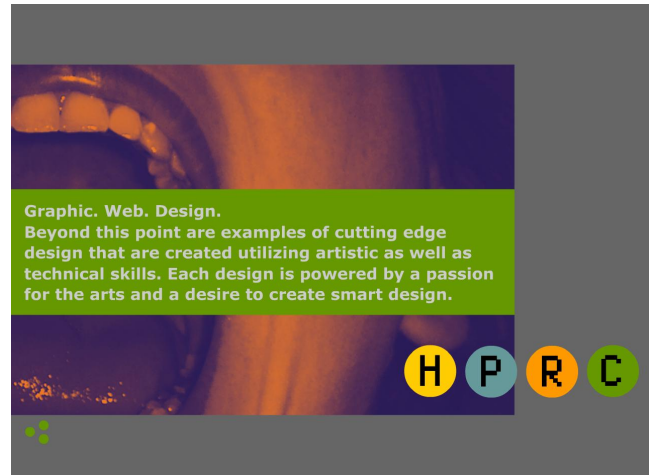


Figure 5 Student's e-portfolio sample

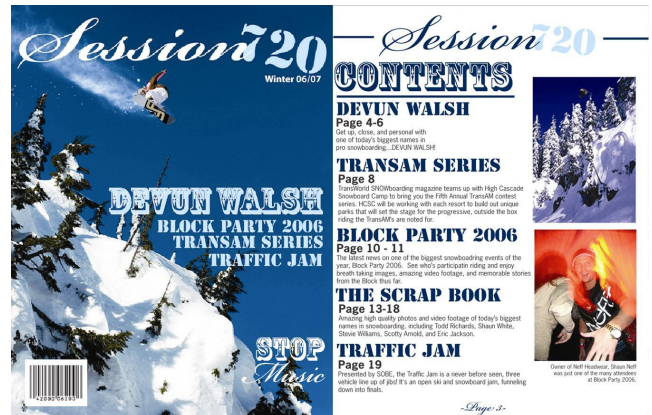


Figure 6 Students' e-publication design project

## 6 Conclusions

The rise of rich media provides a new landscape for us to cope with the opportunity for interactive education; it would actively pursue a diversity of insight and concept as well by doing something that actually leads to greater knowledge. In so doing, the whole new mind should constantly question the advancement of knowledge and concept development. The question is how do we offer our students the opportunity to be successful in a conceptual age. Rich media assist us to reach our aim. Yet our

challenges in the future lie in the revisiting intellectual landscape, in our development of academic practices, and academic support that enable us to emerge as intellectual leaders in that landscape.

Bridging the gap between technology and education is an ongoing process. Educators who learned from their experiences found new disclosure to respond to the challenges of their environments and developed new capacities with which to face the future successfully. In order to thrive and excel, Daniel Pink (2005) stated, "Seeing the big picture"; we should take this change as challenge and recognize that change is not prevalence. Rather it is an ongoing and evolving process. Rethinking education is requires a reflective way of thinking landscape to information structure, faculty development, assessment, and links to the constantly changing society. The initiative would make the change intriguing if we could invite more dialogue on sharing thoughts on the issues of problem solving, informational technology, critical thinking, and the making of productivity.

## 7 Acknowledgements

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## Web Site Links

*Adobe Flash Player Adoption Rate Statistic Report, Dec 2006*  
[http://www.adobe.com/products/player\\_census/flashplayer/](http://www.adobe.com/products/player_census/flashplayer/)

*Adobe Showcase*  
<http://www.adobe.com/cfusion/showcase/index.cfm>

Actionscript Adobe Flash Resources and Tutorials  
<http://www.actionscripts.org/tutorials.shtml>

*Architect Studio 3D*  
Frank Lloyd Wright Reservation Trust  
<http://www.architectstudio3d.org/AS3d/home.html>

*The Artist's Toolkit Explore Line*  
Minneapolis Institute of Arts  
[http://www.artsconnected.org/toolkit/watch\\_edge\\_outline.cfm](http://www.artsconnected.org/toolkit/watch_edge_outline.cfm)

Center for Technology and Teacher Education, University of Virginia  
<http://www.teacherlink.org/content/math/interactive/flash/>

*Cycles African Life Through Art*  
<http://www.ima-art.org/cycles/index.html>

*Digital History*  
<http://www.digitalhistory.uh.edu/timeline/timelineO.cfm>

*e-Learning Centre Using Macromedia Flash*  
<http://www.elearningcentre.co.uk/eclipse/Resources/usingflash.htm>

*E-Learning Fundamentals*  
<http://www.learningcircuits.org/fundamentals.html>

*Exploratorium Ten Cool Sites Arts*  
[http://www.exploratorium.edu/learning\\_studio/cool/arts.html](http://www.exploratorium.edu/learning_studio/cool/arts.html)

*Flash Valley*  
[http://www.flashvalley.com/fv\\_articles/index.php](http://www.flashvalley.com/fv_articles/index.php)

*Flash Free Template*  
<http://www.freelayouts.com/templates/display/flash>

-- *The Museum of Modern Art Tall Buildings --*  
[http://www.moma.org/exhibitions/2004/tallbuildings/index\\_f.html](http://www.moma.org/exhibitions/2004/tallbuildings/index_f.html)

*Generation X and The Millennial*  
[www.abanet.org](http://www.abanet.org)

*Himalayan Art Resources*  
<http://www.tibetart.com/welcome.cfm>

*MoMA.org Destination Modern Art*  
<http://www.moma.org/destination/>

*MERLOT*  
<http://www.merlot.org/merlot/index.htm>

*Multimedia Resources for Use on Curriculum Web Pages*  
<http://www.witc.edu/library/staffdev/mediaresources.htm>

*Poynter.org Color Contrast & Dimension in News Design*  
<http://poynterextra.org/cp/colorproject/color.html>

*What Is a Print*  
<http://www.moma.org/exhibitions/2001/whatisaprint/flash.html>