Teaching Button-Pushing versus Teaching Thinking: The State of New Media Education in US Universities
Edgar Huang
Convergence 2009: 15; 233
DOI: 10.1177/1354856508101584

The online version of this article can be found at:
http://con.sagepub.com/cgi/content/abstract/15/2/233
Teaching Button-Pushing versus Teaching Thinking
The State of New Media Education in US Universities

Edgar Huang
Indiana University-Purdue University Indianapolis, USA

Abstract / Using content analysis and survey, this study examines how the teaching of thinking skills and that of technological skills have been balanced in US new media programs to produce both employable graduates and life-long learners. Findings show that most programs have balanced the two skill sets but that more effort should be made to integrate the teaching of both skill sets in individual courses to give students an expedited, holistic learning experience.

Key Words / new media / education / thinking skills / technological skills / balancing

Introduction
Despite the lack of an agreement on what constitutes new media and the lack of a clear professional identity, new media experts, such as animators, multimedia producers, graphic designers, programmers, sound producers, video producers, and storyboarders, are becoming an important workforce in education, government and industry. Their works are fundamentally changing the way the general public learns, communicates and is entertained (State of California, 2003). This rise of the so-called Creative Class (Florida, 2002) has greatly stimulated new media education offerings from high schools to graduate schools. Since the turn of this century, many schools, departments or programs in universities and community colleges have established programs under names such as new media, digital media, multimedia, digital art, integrated media, interactive media, transmedia, electronic imaging, and art and technology. From August 2007 to January 2008, a search with a search phrase ‘new media’ in the Careers section on The Chronicle of Higher Education website yielded 1412 relevant listings. This fact indicates a high demand for new media education.

With all this frenzy in new media education, some people may wonder what these university programs¹ are teaching their students. Are students mainly learning how to operate software since the learning of software is inevitable in new media education and
many software packages involve a steep learning curve? S. Shyam Sundar, a Pennsylvania State University professor said: ‘No other field takes emerging communication technologies as seriously as journalism and mass communication. Our curricula are quick to get on the latest technology’ (quoted in Dennis et al., 2003: 297). Or are students mainly learning or only learning problem-solving skills since such learning is usually a university’s mission? How have professors balanced the teaching of technological skills and that of critical and creative thinking skills? Are there any obvious differences between these university degree programs and those occupation-training-oriented programs in community colleges?

These questions are not new, but they pose new challenges to universities in the digital era when the teaching of software skills can eat away sizable amounts of time for teaching field knowledge and problem solving skills and when the market’s needs for craft skills and university missions collide. In 2006, when speaking on a teaching panel on how to teach new technology in journalism education at the Association for Education in Journalism and Mass Communication Annual Conference held in San Francisco, the author noticed that many faculty had routinely experienced a disparaging conflict between the time for teaching software and the time for teaching more traditional content, such as history, theory, ethics, law, and criticism, which are often considered essential to achieving critical thinking ability. This study surveyed new media faculty in the USA in an attempt to find solutions that will potentially help new media faculty train employable graduates and life-long learners.

Literature Review

Since new media education is comparatively new, it has yet to build a substantial inventory of empirical research. Much of the literature cited in this article is from the research on new media education in the journalism and mass communication context.

The core of this debate, in fact, is the philosophical positioning of a university in the shaping of the young lives in its charge. The controversy is centered on how we achieve the desired product – a truly educated person. One element in education that has been repeatedly emphasized by different authors (i.e. Beyth-Marom et al., 1987; Robinson, 1987; Ristow, 1988; Gough, 1991) is thinking skills, including critical thinking and creative thinking skills. Gough (cited in Cotton, 1991) wrote:

> Perhaps most importantly in today’s information age, thinking skills are viewed as crucial for educated persons to cope with a rapidly changing world. Many educators believe that specific knowledge will not be as important to tomorrow’s workers and citizens as the ability to learn and make sense of new information.

Kurfiss (1988) regards critical thinking as a skill that involves analyzing and constructing arguments, as construction of meaning, and as the manifestation of a contextual theory of knowledge. ‘Critical thinking’, she writes, ‘can result in a new way of approaching significant issues in one’s life or a deeper understanding of the basis for one’s actions. Or it might result in political activity’ (1988: 3). Kurfiss calls for faculty to train students as independent, critical thinkers by exposing them to knowledge that is broader than their field and discipline and to different cultures and ideas. Chaffee (1995) concurred:
Developing critically thinking can change a student’s life. Students will develop higher order thinking abilities necessary for academic and job success. But more importantly, students will expand the perspectives from which they view the world. Critical thinking skills will help them navigate the important decisions in learning and in life.

As a movement in education that started from the California State University system in 1980 (Dumke, 1980), the teaching of critical thinking shares common features across the disciplines according to Meyers (1986):

1. Critical thinking is a learnable skill with teachers and peers serving as resources.
2. Problems, questions, and issues serve as the source of motivation for the learner.
3. Courses are assignment centered rather than text or lecture oriented.
4. Goals, methods, and evaluation emphasize using content rather than simply acquiring it.
5. Students need to formulate and justify their ideas in writing.
6. Students collaborate to learn and enhance their thinking.

Sternberg and Lubart (1998), on the other hand, called upon an education that would promote students’ creative thinking skills. They argued: ‘At a societal level, creativity can lead to new scientific findings, new movements in art, new inventions, and new social programs. The economic importance of creativity is clear because new products or services create jobs’ (1998: 3). Harris (2002) defined creativity both as an ability and an attitude, maintaining that creativity is the ability to imagine or invent something new and that it is also the willingness to accept change and newness. He precisely distinguished critical thinking from creative thinking (see Table 1).

Harris said:

In an activity like problem solving, both kinds of thinking are important to us. First, we must analyze the problem; then we must generate possible solutions; next we must choose and implement the best solution; and finally, we must evaluate the effectiveness of the solution. As you can see, this process reveals an alternation between the two kinds of thinking, critical and creative. In practice,

**TABLE 1**

<table>
<thead>
<tr>
<th>Differences between Critical thinking and creative thinking</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Critical Thinking</strong></td>
</tr>
<tr>
<td>Analytic</td>
</tr>
<tr>
<td>Convergent</td>
</tr>
<tr>
<td>Vertical</td>
</tr>
<tr>
<td>Probability</td>
</tr>
<tr>
<td>Judgment</td>
</tr>
<tr>
<td>Focused</td>
</tr>
<tr>
<td>Objective</td>
</tr>
<tr>
<td>Answer</td>
</tr>
<tr>
<td>Left brain</td>
</tr>
<tr>
<td>Verbal</td>
</tr>
<tr>
<td>Linear</td>
</tr>
<tr>
<td>Reasoning</td>
</tr>
<tr>
<td>Yes but</td>
</tr>
</tbody>
</table>

*Source: Harris (2002)*
both kinds of thinking operate together much of the time and are not really independent of each other. (Harris, 1998)

The training of both creative thinking and critical thinking skills, in reality, promotes the upper-level objectives in the well-known Bloom’s Taxonomy (1956) – evaluation, synthesis, and analysis based on the lower-level objectives – knowledge, comprehension, and application. In 2001, Anderson and Krathwohl revised the top two objectives, evaluation and synthesis, into creating and evaluating. Unfortunately, as Cotton (1991) pointed out: ‘American young people, in general, do not exhibit an impressive level of skill in critical or creative thinking.’ Norris (1985) made a typical observation: ‘Critical thinking ability is not widespread. Most students do not score well on tests that measure ability to recognize assumptions, evaluate arguments, and appraise inferences’ (1985: 44).

The antithesis between thinking skills and button-pushing – technological skills, does not necessarily constitute a clear-cut dichotomy because, for instance, the knowledge gained from software learning could help a student evaluate, choose, and deploy software tools for a specific project context. In reality, however, the employment pressure and the ever-increasing crunch for time to teach sophisticated software packages and other digital technologies eat away the time for teaching traditional thinking skills based on theory, ethics, history, research, and so on. As a result, the pain of balancing the two skill sets is felt in many aspects of academic life, such as strategic development, hiring, and curriculum design.

Many university programs in the later part of the 20th century were oriented primarily toward technological skills’ development, turning themselves into no more than trade schools (Ryan and Switzer, 2001). Even though studies (e.g. Reinmann-Rothmeier and Mandle, 1998: 33; Kraak, 2000: 51) have found that experts from economics and education nominated critical thinking as the most important skill in knowledge management, the industry in practice usually prefers to hire graduates with high hands-on skills (Ryan and Switzer, 2001). Philip Meyer, a Knight professor in the School of Journalism and Mass Communication at the University of North Carolina, Chapel Hill said: ‘Every time our growth leads to approval of a new faculty slot, we have to agonize over whether to fill it with a craft person or a theory person. The craft is almost always easier to justify because we can hear the students pounding on the doors, demanding it right now’ (quoted in Dennis et al., 2003: 297). When talking about the development of journalism schools, Medsger (1996) argues that many programs have emphasized conceptual content and integration too much, to the detriment of journalism and mass communication education. Therefore, journalism schools in some universities have traditionally considered the teaching of journalistic craft to be more constructive.

This conceptual education vs. craft education debate found its frontier in Columbia University in 2003, when Columbia University president Lee Bollinger surprisingly suspended the search for a new dean for its Graduate School of Journalism and formed a committee to re-evaluate the School’s core mission, which many had derided for being too centered on craft at the expense of theory (Walsh and Fogg, 2002). President Bollinger (2003) argued: ‘Ideally, a professional school should make the university as a whole integral to its teaching and research missions’. He suggested that journalism students acquire not only basic skills that will enhance their immediate employment prospects but also ‘a mastery of journalism inquiry and expression at their highest, most sophisticated,
level’ (Bollinger, 2003). ‘To pit the teaching of craft against the teaching of intellectual capacity is to pose a false choice’, he warned. Bollinger asked in the same statement how the integration with other forms of learning should occur. This is the question for which this study intends to find a satisfying answer from the faculty members who teach new media courses.

In their 2001 study concerning journalism schools, Ryan and Switzer found that 91.3 per cent of the administrators surveyed said educators should make every effort to assure a balance between skills-based courses and conceptual courses and that the same percentage of the administrators (91.3%) said that their units had succeeded in achieving balance, and virtually all had at least tried (Ryan and Switzer, 2001: 61). The authors concluded: ‘Results suggest that the field has, to an extent, gotten past this argument’ (2001: 65). But has it? Is this also the case in new media training in art schools and interdisciplinary schools? What are some the best practices in balancing the two skill sets? The Ryan and Switzer study did not address the last question.

The general research question for this study is how the teaching of technological skills and that of thinking skills have been balanced in new media education to produce truly educated graduates.

Methodology
To answer this question, the author first conducted a content analysis on the websites of the new media programs to collect background information related to this study, and second, surveyed new media faculty for their input. To maximize the external validity of the conclusions from this study, the author decided to draw a systematic random sample of new media faculty in the USA for survey. Unfortunately, a list of faculty for such sampling did not exist. In a four-month period from late 2007 to early 2008, the author took the first step to conduct a massive search via Google.com for all new media programs in the USA. Different search words/phrases, including ‘new media’, ‘digital media’, ‘multimedia’, ‘digital art’, ‘integrated media’, ‘interactive media’, ‘transmedia’, ‘electronic imaging’, ‘art and technology’, ‘school’, ‘department’, and ‘program’ were used in separate searches for such educational units. For each search, the top 500 entries were investigated. In early 2008, after careful screening, a list of 170 US new media programs was completed. The inclusion of a new media program in this list followed the following criteria:

1. A program must claim itself as a new media program though the name could carry one of the variations in the search. A unit that was going to be a new media program (at least four were about to) or a unit that offered some new media courses but did not call itself a new media program was not included.
2. It must offer at least a bachelor’s degree and treat new media as a major. As a result, universities and community colleges that offered new media associate degrees or certificates only or taught new media as a minor, or a university new media center that had an educational function but did not offer a degree, were all excluded since such units were either largely concerned with hands-on training or with research.
3. A university/college was listed twice if two new media programs existed. For instance, Arizona State University has one both under its art college and its journalism school.
The list can be found online (see Huang, 2008). It is very likely that some qualified new media programs are not included in this list, but this is probably, by far, the most comprehensive list of self-claimed new media programs in the USA that offer at least a bachelor's degree to new media majors. A survey based on this list should have taken into consideration almost all the known qualified new media programs in that time period so that the collected data could represent all these programs.

Since the list was not very long, the author visited every site to collect vital information regarding each new media program, including its affiliation in the university structure, the degrees it offered, and the number of full-time faculty members who taught new media courses. Such information will provide a background to the interpretation of the survey findings when necessary.

During the visits, for the survey purpose, the author also collected the email addresses of all full-time faculty members who taught in a new media program. Since some websites did not reveal or reveal enough of their faculty information, the judgment of whom to include sometimes became difficult. To be on the safe side, all potential faculty based on the face value of the descriptions in faculty profiles, if any, were included in the list, which comprised 1425 names/addresses. Since this was not an unmanageably long list, the author decided to turn a systematic random sample into a census to come up with a more precise depiction of the issue.

While designing the survey questionnaire, the author was aware that the participants' specialty areas from their earned highest degrees could vary drastically since new media education was new and that their self-positioning of their program affiliation could easily jump out of predetermined attributes depending on their own understanding. Certainly the ‘other’ category can be provided to be inclusive, but a potentially large chunk of ‘other’ could lose valuable information. Therefore, the author decided not to use an online survey tool. Rather, the survey questionnaire was enclosed inside the research invitation email so that the participants could give ‘freehand’ answers. This decision later proved prescient. Many participants gave ‘freehand’ answers to explain their unique situations for the author to decide which answer to pick. Such ‘freehand’ answers made the data logging slower but more precise.

An individual invitation email was sent to each of those 1425 potential respondents with each person's name addressed. Based on the existing responses, two rounds of reminders were sent to those who had not responded. All such effort was made to boost the response rate. The professors were asked not to answer the questions if they did not teach new media courses. In other words, the professors had to determine for themselves whether they should call themselves new media faculty even if they worked inside a new media program. The data collecting took approximately three weeks. Based on the respondents' self-claiming, referrals, and inside information, the author double-checked new media faculty status on all the professors who did not respond. The list finally dwindled to 825 people. Twelve universities that offered no faculty email information anywhere were unfortunately dropped from the survey. Therefore, the content analysis of this study was based on a census of all the 170 US new media programs and the survey on a census of all the 825 new media faculty members from 158 out of the 170 new media programs that provided email access.

The author did all the coding during the content analysis of all the 170 websites. In the survey, five demographic questions were asked of the respondents. In order to assure
the reliability of the content analysis coding, the survey respondents' aggregated answers to three of the five demographic questions served as a proxy alternative coder and were compared to the author's content analysis coding. The intercoder reliability index using Scott's Pi ranged from 0.85 to 0.92. By incorporating the information from the websites and from the survey, the differences between the survey and the content analysis were adjusted.

Apart from five demographic questions, the survey participants were asked to answer three major open-ended questions:

1. In the new media classes you teach, how have you balanced the teaching of critical thinking and creative thinking skills and the teaching of technological skills? (The question does not assume you have. So please answer accordingly.) If you have any examples, please do share.
2. Based on your experience and/or observation, what skills do new media employers need most from new media graduates?
3. How do you characterize your new media program? Is it largely a technical training program for employment or does it offer more than job skill training classes? Please support your claim with evidence.

In the questionnaire, the interpretation of the major concepts including ‘critical thinking’ and ‘creative thinking’ was open to the respondents in an attempt for honesty and diversity of answers.

After the answers were received, theme detection was done based on the literature review and on the respondents’ own language to each of the three open-ended questions so that answers were coded into different categories. Correlations were made between the detected themes and appropriate demographic information. The preliminary data logging and coding were done in Microsoft Excel, which provided flexibility in handling long texts. The Excel sheets were later imported into SPSS for statistical analysis.

**Findings**

The new media faculty members who participated in the survey represented 134 (79%) of all the 170 new media programs in the USA. If we take out those 12 programs that did not provide email access, then 85% of these 158 programs were represented. In total, 356 (43%) of the 825 new media professors responded to the survey. Although the response rate in both senses is encouraging and the survey is based on a census, potential data bias could still exist.

**Overview of New Media Programs**

New media programs in US universities have been largely affiliated to the following three contexts: (1) art schools (37%), (2) independent or interdisciplinary new media programs housed directly under their respective universities to enjoy the status of a traditional school either for emphasizing the importance of such a program or for collaboration among existing traditional schools (28%), and (3) journalism, communication studies, and
telecommunication schools (23%). The rest are scattered in information technology, computer sciences, informatics schools (6%), film schools (4%), and education, music, humanities, and social sciences schools (2%). While the majority of the new media programs offered up to a bachelor’s degree (65%), which usually serves the purpose of providing sources for employment, some did offer more research-oriented master degrees (30%). The rest of the 5 per cent of the new media programs in universities such as Brown, Georgia Tech, Michigan State, North Carolina State, UC Berkeley, and UC Santa Barbara, offered a doctoral degree.

A new media program consisted from 1 to 71 faculty members who taught new media courses, but the mode was 3 and median 4 (SD = 8.4). Most the new media faculty (57.1%) earned a master’s degree, including master of fine arts, which is usually creativity-driven, and a little more than one-third (36%) earned a doctoral degree, which is usually research-oriented. Most new media faculty earned their highest degrees from art (34.5%), journalism, communication studies, telecommunication or equivalent programs (20.5%), or new media (10.5%), which could be from any school. Other areas include education, film, English or literature, computer sciences, or music. Such expertise areas went as far as business, electronic engineering, math, aerospace technology, sociology, anthropology, history, economics, law, public administration, and American studies.

Faculty’s Perceived Desirable Qualities in a New Media Graduate

Based on their experience or observation, faculty members were asked to list the qualities a new media graduate should demonstrate to their employers. The answers to this question reveal more of the faculty’s wishes than employers’ actual perception, which could be a topic for another study. All the answers went through theme detection using faculty’s own language. Most faculty perceived that employers were either looking for thinking skills (46.4%) or at least a balance between the technological skills and thinking skills (32.3%). Few regarded sheer grasp of technological skills as adequate for employment (17.4%). Further analysis of the faculty answers shows that, although many respondents stated that what employers need from new media graduates varies depending on areas, they agreed that new media graduates should possess the following nine non-mutually exclusive categories of skills (see Figure 1).

1. Hands-on skills, such as using commercial software, programming, operating equipment (60%).
2. Creativity and innovation, such as conceptualization, storytelling, visual design and so on (34%).
3. Problem-solving skills and analytical skills (28%).
4. Project experience, including integrating design and technology, project management, experience in working with client, time management, business knowledge about production, reflecting strong field knowledge, cultural knowledge and awareness of the world, rigorous art training, and a grounding in the liberal arts and sciences (27%).
5. Being easily adaptive to new software and creative environment, versatile, flexible, and ideally, being jacks of all trades (23%).
6. Teamwork mentality and strong people skills (18%).
7. Good oral and written communication skills (18%).
8. Positive work attitude and strong work ethics, responsible, reliable, ethical, persistent, patient, highly motivated, hard-working, curious, multitasking, and taking the initiative to learn new things (12%).

9. Leadership, envisioning directions in media and technology, adventurous, self-sufficient, the ability to follow directions with minimal supervision, independent (7%).

**Big Picture of the Balancing Game**

Did the faculty think that their new media programs had balanced teaching to achieve these comprehensive goals? Faculty were asked to self-evaluate their new media programs to show whether theirs were largely a technical training program for employment or whether it offered more than job skills training. Many programs had more than one faculty member who answered the survey questions, and the majority opinion ruled. Faculty from an overwhelming majority of the new media programs (87.7%) believed they provided more than just technology training to their students while 12.3 per cent of the programs did provide largely technology training.

However, had the faculty themselves balanced the teaching of technological skills and thinking skills in their own classes? Most faculty (68%) believed they did the juggling job well, 20 per cent taught dominantly thinking skills with little to no tech skills, and 12 per cent taught almost nothing but technological skills. What respondents believed about new media graduates’ employable qualities was highly correlated to what they believed should be taught in terms of the two skill sets (p<0.05, N=322). In other words, if a respondent believed that the industry needed nothing more than tech skills, chances were he or she taught nothing more than tech skills.

How did the faculty balance their teaching of technological skills with thinking skills? The analysis of the data shows that the faculty had the following four favorite strategies...
(see Figure 2). These categories are not mutually exclusive and are stated in the faculty's own most often used words.

1. **Integration in teaching.** The teaching of technological skills and that of thinking skills are integrated into the same class in various manners. One comes either before or after the other or side by side (32.1%).
2. **Projects.** The courses are made projects-based, some real-world projects-based, in which both thinking skills and technological skills have to be demonstrated (28.6%).
3. **Critiquing and analysis.** Students’ analysis skills are developed through their peer reviews and self-critiques on their new media projects; case studies of professional works are conducted to trigger discussions and solutions (21.3%).
4. **Reading and research.** Students are made to do in-depth research by reading books, articles and online resources, conducting field investigations, and writing research reports for each project (14.5%).

Close to a quarter of the respondents (24%) mentioned using a variety or combination of these strategies in their teaching.

Because of the high level of homogeneity of the faculty answers to the three main questions, no statistically significant differences were detected among the respondents when their affiliations, highest degree offered and faculty's highest degree were used as independent variables in Chi-Square tests.

**In Their Own Words**

Many professors stated that it is important that such balance be achieved. Professor Denise Bennett from University of Idaho said:

> Without technology and equipment, the art form ceases to exist, but emphasizing the mere technique and operation of equipment often results in artistically and emotionally flat work. My mentor, friend and former colleague Tom Mullin is fond of saying, “You can teach monkeys to type Hamlet but that doesn’t make them Shakespeare”.

**FIGURE 2**

How new media faculty balance the teaching of two skill sets
Instructor Patrick Watson from California State University Monterey Bay also said that technology is no more exciting than the phone book and that the web is, in essence, a database, and to make it interesting, there has to be drive and imagination.

But is it easy to balance the teaching of the two skill sets in a class within the limited time in a semester? About a third of the respondents (34%) said it was not easy. ‘Striking a balance between theory and application continues to be a major challenge for me’, said Patrick Watson. Professor Angela Love from the Art Institute of Pittsburgh echoed by saying: ‘I struggle every day with trying to find a balance between teaching the HOW of animation and the WHY. Often we’re hustling just to get the procedural across much less the luxury of why’. Harrison Higgs from Washington State University Vancouver said:

*Within my own classes I am always attempting to achieve the right balance between creative thinking and technical skills, but I do not feel I have succeeded (I have been teaching in the field for 11 years). Teaching the technical skills can take the entire semester (and still not cover everything). The skill sets in this field are a moving target as well, exacerbating the problem.*

All these quoted professors tried to provide balance in their courses because they believed that ‘the intent is to not only use a range of existing “industry standard” software but more importantly is the confidence and awareness to learn how to CONTINUE TO LEARN and critically solve art, design, and media production problems’, as articulated by Professor Carlos Rosas from Penn State.

Many respondents provided their examples of execution, and, as many of them pointed out, integration is the key. Washington State University Vancouver is a case in point on the program level. When Dr Dene Grigar, director of its Digital Technology and Culture Program, joined the program about two years ago, she found that the program offered several courses that aimed at only theory and several only at practice. That approach did not make sense to her. So now, the faculty are expected to offer a more integrative approach by teaching theory and practice together. ‘What we did this year in DTC 375, for example’, wrote Grigar,

*was to follow up a discussion about theory with a hands on activity designed to apply theory to practice. At the end of that activity, students were asked questions that took them back to the theory we had been studying. In this way we established a recursiveness to the course and ideas students learned.*

All faculty followed the approach. Through listserv, town hall meetings and classes, Grigar learned that students were happy with the new approach. ‘But more importantly’, she said, ‘the retention and enrollment rates are both extremely high. In terms of the latter, we are at a 92 per cent enrollment for all DTC courses.’

In his insightful answer, Professor James Coupe from University of Washington Center for Digital Arts and Experimental Media spoke for many new media faculty. Coupe reduced his teaching philosophy to two essential statements: ‘Practice your theory, and theorize your practice.’ After teaching for eight years at three universities from the UK to the USA, he summarized his methods for teaching digital art into three key components: practicing theory, community learning, and students as researchers. Regarding ‘practice theory’ Coupe typically began his classes with a theoretical/historical overview of the territory he would cover. For mechatronic art, he said, he would define systems art according to three main criteria and asked his students to constantly refer
back to these three criteria in qualitatively assessing the work that they produced in his class. Coupe wrote: ‘This is a theoretical framework . . . based upon a deep understanding of the conceptual territory with which we are engaged as artists today, and also of the possibilities of the tools that we use to make art.’ Coupe would present many examples of previous work by other artists to generate debate, to challenge those students who believe art is only subjective, and to galvanize those students who have very limited experience of art. For community learning, Coupe considered it important to see classes as ‘convergence zones for opportunistic individuals’. He said:

My classes are shared experiences, populated by students ranging from freshmen to PhD, yet based around common themes and common goals. Whilst students each explore their own vector, they need to work together to develop work that is both technically and conceptually sophisticated. The critique is central to this model: I like to run long critiques that go far beyond a simple explanation of each student’s project. I look to draw out themes from each student’s work that can then be picked out in other students’ work. This allows each student to remain engaged throughout the critique as they develop a deep understanding of where their work fits inside the class.

Finally, for students to be researchers, Coupe wrote:

Empowering students to work together and individually as researchers requires a commitment to process. It also necessitates a highly synergistic relationship with their teacher: it is vital that I present myself as a practitioner engaged in solving similar problems, and that I encourage them to both understand the complexity of these problems and feel confident in suggesting solutions.

The percentage of new media programs that balanced the teaching of two skill sets (87.7%) is much higher than that of those professors who did the balancing in their courses (68%). This statistical fact, coupled with the faculty’s textual answers, shows that about 14 per cent of the new media programs in the nation have done the balancing through combining technological skills courses and thinking skills courses. They have taught largely technological skills in settings like workshops in lower-level classes and culture, ethics, history, theory, and principles of design in upper-level classes or vice versa. The majority of the programs and faculty, however, have balanced through integration of the two skill sets in individual courses and regarded successful integration as the key both for teaching and learning.

Professor Shannon Mattern from The New School stated a compelling case of integration. Its Media Studies Graduate Program regarded the fundamental integration of theory and practice as the core of its philosophy. She wrote:

Our production courses are framed so that they are not about ‘video production’ or ‘ProTools’ or ‘web design’. Rather, we encourage our students to think first about what ‘communications problem’ they want to solve, then ask them to consider which media would best enable them to accomplish their goals. Although students do acquire advanced production skills in our higher-level production courses, they do so in service of a larger goal – e.g. to create an advocacy campaign, to create an exhibition, to publish a journal, to design a networking site for students, etc . . . Our students can select from many hybrid courses that combine theory and production in the classroom. Students emerge from our program as media creators, critics, activists, academics, etc – and regardless of their path, all benefit from this integration.

As Harvey Goldman from University of Massachusetts Dartmouth said: ‘We do not separate the technology from the creative thinking. In our experience, the past 15 years
of teaching digital media has clearly demonstrated that when the technology is dissociated from the thinking, we end up with less competent students graduating.

Some respondents showed their creative approaches in the balancing game. Mimi Sheiner, an instructor from University of San Francisco and San Francisco State University, taught students design skills in her Introduction to Graphic Design class by asking them to compose a two-page spread on trash. ‘Trash is defined as what is disordered in our society’, she wrote. ‘Looking at trash helps define what is valued and ordered by our society. By composing a two-page spread on the subject, students create order from disorder, giving trash value.’ Professor Benjamin J. Dunkle from Canisius College often challenged his students to be engaged in technological self-teaching during production by joining user forums at Adobe.com, kirupa.com, phpfreaks.com and so on while he tended to stay clear of their problem-solving process. ‘The empowerment they feel by doing so is apparent’, wrote Dunkle.

Discussions and Conclusions

The evidence from this study confirms Ryan and Switzer's 2001 study and shows that most new media programs in the USA have balanced the teaching of technological skills and that of thinking skills. However, such endeavors are not without struggles, and new media education is far from getting past this argument.

At the core of this balancing game is the integration endeavor. If the combining of buffet-style tech courses and thinking courses on the program level gives students opportunities to savor different skill sets, then faculty’s integration of the teaching of both skill sets in each individual course gives students an expedited, holistic experience of solving problems with new media. The new media faculty regarded the latter as more efficient in reflecting the spirit of creative thinking elaborated by Harris (2002) and common features of critical thinking listed by Meyers (1986).

Integration, for students, is most typically reflected in the approach of working on projects, especially real-world projects, as recommended by more than a quarter of the respondents. The project approach makes good sense to them because working on a project requires a great depth of planning and persuasion based on research and reading. It mandates students to have a solid grasp of hands-on skills and to learn more if necessary, especially when they have made mistakes. In addition, it allows students an opportunity to combine creative and critical thinking skills as they learn how to communicate in team environments and self-evaluate their outcome through shared learning experiences. In short, working on a project covers all the qualities the respondents perceived as desirable for a new media graduate. The project approach embodies all the integration endeavors in the balancing game and truly reflects the full spectrum of Bloom’s Taxonomy. Considering the fact that only 24 per cent of the respondents used a variety of combinations of the four balancing strategies in their teaching, more faculty should consider integrating the two skill sets in their teaching, assign projects, especially real-world projects, for students to work on, let them do research and reading for their projects, and (not or) make them learn more through peer reviews, self-critiques and case study analyses.

The findings of this study support the Columbia University president, Lee Bollinger's insistence that the teaching of craft be integrated with other forms of learning so that
students’ learning can incorporate university missions and principles of learning. Such integration can be done and has been done successfully by many though many others are still exploring. A truly educated new media graduate, as perceived by most new media faculty, must possess both skill sets – technological skills and creative and critical thinking skills.

This study has been limited to the faculty perspective. More research needs to be done from the employers’ and students’ perspectives so that triangulation can be implemented and a more complete picture of the balancing game can be observed.

Acknowledgement

The author would like to thank all the new media faculty around the nation who took the time to answer the survey questions and provided insight for this study. This study would have been impossible without their participation.

Notes

1. For the sake of convenience, all variations of educational units will be called ‘programs’ in this article.
2. The closest list could be the College/University members of the New Media Consortium (n.d.) at http://www.nmc.org/members/colleges-universities. However, the colleges or universities that offer new media courses are not all its members and the listed members do not all offer new media courses.
3. The New York University's Skirball Center for New Media – Cinema Studies was included even though one of its faculty members claimed in the response that it is ‘more a name than a reality’.
4. 3.9 per cent of respondents said ‘Don’t know’.
5. All names of the faculty quoted in this study were released with the quoted faculty’s permissions.

References


**Edgar Huang** is an associate professor in the School of Informatics, Indiana University-Purdue University Indianapolis, USA. His articles on youth news consumption, media convergence, streaming media, copyright issues concerning DVD ripping, online imaging, documentary photography history, digital imaging manipulation, and the internet and national development have been published in various journals, including Convergence, Newspaper Research Journal, Journalism and Communication Monographs, Visual Communication Quarterly and Information Technology for Development. Huang has won national awards for his multimedia productions.

**Address** New Media Program, School of Informatics, Indiana University-Purdue University Indianapolis, 535 W. Michigan Street, Suite IT 481, Indianapolis, IN 46202–3103, USA. [email: ehuang@iupui.edu]