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Helping Students Understand Media: Examining the Efficacy of Interdisciplinary Media Training at the University Level

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Abstract
Crowded curriculums and restrictive program requirements often mean that comprehensive media literacy education is impractical at the university level, and that media literacy competencies can be addressed only in the form of narrowly focused lessons integrated into existing classes. This study considers the extent to which such limited lessons can lead to the development of broader, well-rounded media literacy competencies. Data gathered from a quasi-experiment involving 118 participants suggests that narrowly focused media lessons can be used to encourage the development of broader media literacy competencies, but that focused instruction remains necessary as well.

Keywords: *media literacy, higher education, mini-lessons, media production, learning*

When the scholars who formed the New London Group initially suggested that modern life involves multiple literacies that stretch beyond traditional alphabetic expression (New London Group 1996), many of the new information technologies that have come to define contemporary media culture were still in their early stages. The World Wide Web was just five years old, only about 10% of Americans were connected to the Internet at speeds rarely exceeding 28,000 bits-per-second, and cell phones were still an emerging technology owned by just 44 million people in the United States (CNN 1996; US Department of Commerce 2002). Much has changed in the ensuing two decades. Today, over 80% of the approximately 250 million Americans who are connected to the Internet have broadband access (Crawford 2011; Federal Communications Commission 2010; Pew Research Center 2012), Internet connected devices and cell phones outnumber people in the United States, and 55% of adult cell phone users connect to the Web using their mobile device (Choney 2013; Rainie 2012).

Clearly, the omnipresent nature of media content and delivery systems has confirmed that multiple literacies not only exist, but are essential for success in the modern world (Brown 1998; Mackey 2002). Shaped by discourse theories and the sociocultural view of literacy developed by Street (1984, 2001), Heath (1983), Gee (1996, 2000), Barton and Hamilton (1998), the term "multiliteracies" forms a model of contemporary literacy pedagogy that encapsulates the multiplicity of communication channels and modern text forms, and involves teaching the grammars of semiotic systems, including film, photography, and multimedia technology (Stephens 2000).

The relevance of addressing multiple literacies, and media literacy in particular, has been widely recognized by the educational community. In the United States, an initiative has been launched to transform the nation's primary and secondary classrooms into "digital learning centers" (Superville 2013), and topics

related to media have been incorporated throughout the Common Core State Standards (CCSS) developed for compulsory K-12 education and adopted by 45 states. Summing up the necessity of media-related knowledge, the CCSS state:

> To be ready for college, workforce training, and life in a technological society, students need the ability to gather, comprehend, evaluate, synthesize, and report on information and ideas, to conduct original research in order to answer questions or solve problems, and to analyze and create a high volume and extensive range of print and nonprint texts in media forms old and new (National Governors Association 2010, 4).

This view has been adopted internationally as well (Buckingham 2001; Cole and Pullen 2010; Frau-Meigs and Torrent, 2009; Kubey 2003). Extensive research has considered media literacy initiatives throughout Europe, in Hungary, Italy, Malta, Norway, Slovenia, and the United Kingdom; Asia, in China, India, Singapore, and Vietnam; Canada; and Australia (Healy 2008; Lipschultz and Hilt, 2005; Martens 2010). The United Nations Alliance of Civilizations has also identified media literacy education programs in many additional countries including Argentina, Egypt, Finland, Ghana, Mexico, Morocco, South Korea, Spain, Switzerland, Turkey, and Zambia (Frau-Meigs and Torrent 2009).

As media literacy educational programs have expanded, so too have perspectives regarding what media literacy involves (Christ 2004; Hobbs 1994; Pérez-Tornero and Varis 2010). While at least 23 published definitions exist (Potter 2010; see also Fedorov 2003), the definition adopted by the National Association for Media Literacy Education (2007, 2011) as well as the United Nations Educational, Scientific and Cultural Organization (Silver 2009) clearly operationalizes media literacy as a set of competencies associated with accessing, analyzing, evaluating, and communicating messages.

Media access involves finding and selecting media for specific purposes (Koltay 2011; Wulff 1997). Such foundational competencies have become increasingly important because of the nature of modern digital media (Rice 2002). The increasing ease of online publishing means that the lines between professional and amateur, and between entertainment and information, are often blurred. Further, because so much content is passed along through a growing number of social media platforms, it can be increasingly difficult to assess the credibility or even the source of information. As a result, media access competencies are necessary to help individuals effectively sort through the noise and identify useful media.

Mediated message communication involves creating and sharing original media (Ascher and Pincus 1984; Hobbs 2004; Lund 1998). With many new media technologies available that break down the barriers for amateurs to create and share media content, being able to communicate across multiple media is increasingly important today (Mihailidis and Thevenin 2013; Snyder and Beavis 2004).

Media analysis and evaluation involves more abstract competencies that are associated with identifying media text and context (Buckingham 1998; Hobbs 2004; Kellner and Share 2007; Lewis and Jhally 1998) and that allow individuals to move away from passive media consumption and toward a more sophisticated relationship with media (Buckingham 2007; Silverstone 2004; Thoman and Jolls 2004).

When developed together, this mix of competencies leads to technical proficiency and an awareness of issues associated with media authors and audiences, meanings and messages, and representation and reality (Ashley, Maksl, and Craft 2013; Primack et al. 2006). Further, the development of well-rounded media literacy competencies encourages individuals to, as Mihailidis (2009) wrote, "be open to different ideas, demand evidence for certain claims, and approach information with a keen sense of interest, independence, and awareness" (53). Such competencies are so important for today's students that Wilson (2010) referred to them as "the new humanities" (qtd. Hobbs 2011, 422) and Scheuer (2009) claimed that they are a necessity

and "a basic stepping stone that enables a human being to fully function, as a discerning citizen, in today's world" (8).

Parallel to this acknowledgement has been the expansion of media literacy educational programs. Much of this growth has focused on K-12 education (Martens 2010). However, some models have also been developed for teaching media literacy at the university level (Mihailidis and Moeller 2010), and a number of scholars have advocated the importance of addressing media literacy at all levels of the educational system, including in post-secondary higher education (Ashley, Lyden, and Fasbinder 2012; Christ 2004; Christ and Potter 1998; Dennis 2004; Kellner and Share 2007; Mihailidis and Hiebert 2006).

Media Literacy in Higher Education

Some colleges and universities have started to offer dedicated media literacy programs. Some institutions offer undergraduate-level media literacy programs. For example, Wheelock College offers a media literacy track for communication students, and Kent State University and Webster University both offer a media literacy minor. Other institutions offer graduate-level media literacy programs. For instance, the University of New Haven offers a program in instructional technologies and digital media literacy for licensed K-12 teachers, the University of Florida offers a media literacy education specialization for graduate students of education, Appalachian State University offers a media literacy master's degree, Sacred Heart University offers a master's degree in media literacy and digital culture, the New School and Brooklyn College offer a master's degree with a concentration in media literacy, and Webster University offers master's and certificate programs in media literacy.

However, such programs are in the distinct minority. Research by Mihailidis (2006) as well as Stuhlman and Silverblatt (2007) found that only a handful of the more than 7,021 post-secondary institutions in the United States (National Center for Education Statistics 2013) offer media literacy courses, and that even fewer offer media literacy degrees (see also Mihailidis 2008). The limited nature of such programs suggests that, of the 3,736,000 students who earned some type of undergraduate or graduate degree in the most recent year for which data was available (National Center for Education Statistics 2013), very few received significant media literacy instruction.

The minimal amount of post-secondary media literacy education is not due to a lack of scholarship on the topic. To the contrary, much scholarship has considered the efficacy of media literacy programs, and Martens' (2010) extensive review identified 165 published conceptual or empirical media literacy articles. While much of this scholarship has focused on media literacy programs at the K-12 level, there has also been some notable research regarding media literacy within higher education (Arke and Primack 2009; Oblinger and Oblinger 2005). Some research has focused on assessing specific media literacy initiatives. Irving and Berel (2001) studied the effect of short-term media literacy instruction on college women's views on body image; Primack and colleagues (2006) investigated the effect of media literacy programs on reducing the rate of cigarette smoking among college students; Ramasubramanian and Oliver (2007) considered the effect of video-based media literacy training for college students about prejudice and racial stereotypes; Duran and colleagues (2008) studied the effect of media literacy instruction on college student media knowledge; Mihailidis (2009) investigated the extent to which a media literacy course can increase college student analytical skills; Watson and Pecchioni (2011) explored the use of video production assignments to foster college student media literacy competencies and course-specific content knowledge.

Other research regarding media literacy and higher education has considered related topics, such as developing media literacy assessment tools (Arke and Primack 2009), the media literacy competencies of students who are not enrolled in media literacy classes (Schmidt 2012; Hargittai 2010), challenges associated

with connecting critical theory to media production assignments (Kavoori 2007; Kavoori and Matthews 2004), information literacy among college-age students (Dunn 2002; Fitzgerald 2004; Maughan 2001), and mobile phone usage among college-age students (Mihailidis 2014).

Accordingly, scholarship regarding media literacy at the college level has developed over time, and shows that the field is ripe for growth. Yet, the limited extent of college-level media literacy classes underscores just how difficult it can be to integrate media literacy lessons into post-secondary education. Many majors already have very crowded curriculums, and the increasing popularity of professionally focused majors (Carnevale, Strohl, and Melton 2011) means that there is added pressure to ensure that classes are clearly connected to specific professional outcomes. This presents a special challenge for students in majors not related to the study of media and communication. While students of media and communication are likely to gain exposure to many concepts associated with media literacy in their courses, students in other majors may never be exposed to any media instruction in their classes.

Nevertheless, media literacy competencies are necessary for all of today's college graduates. On a personal level, individuals are increasingly reliant on media technology for everyday social interaction (Mihailidis 2014). On a professional level, employers continually rate general communication skills as essential for graduates planning to enter a variety of fields (National Association of Colleges and Employers 2012), and media-related skills are increasingly important for a variety of professions as well (Sabhlok 2013). It is not just technology-based skills that employers desire; rather, surveys have suggested that employers also consider higher order critical analysis skills to be important as well (Association of American Colleges and Universities 2013). As Mihailidis (2008) wrote, "In the 21st century media landscape, it is important for all university students to graduate with a basic understanding of the ways in which mediated information influences individuals, societies, and democracy" (p. 10).

Similarly, both faculty members and students at the university level have rated media literacy competencies as important to develop (Schmidt 2012, 2013). However, research has found that university students lack media literacy and analysis competencies (Ashley, Lyden, and Fasbinder 2012), and university faculty members have reported that students currently lack all but the most basic media-related competencies (Schmidt 2012). As such, a real need exists for today's universities to help students, as Hobbs (2011) suggested, by developing "pedagogical practices that support . . . the broad range of communication competencies that support a lifetime of learning with and about mass media, popular culture, and digital technology" (428).

Integrating Media Literacy into Higher Education Coursework

One way in which to strike a balance between a recognition of the importance of media literacy and the challenges associated with adding new content to the curriculum is by integrating limited media literacy coursework into existing courses in an interdisciplinary fashion (Ashlock 2011; Schmidt 2013; Denski 1994; Hobbs 2010; Kamerer 2013; Mihailidis 2008; Scheibe and Rogow 2008; Sholle 2006; Watson and Pecchioni 2011). Such focused media instruction might involve concentrating on only a particular dimension of media literacy. For instance, while students in an English class might address media analysis while analyzing themes in a film, they might not have the time or occasion to study media access or mediated message communication. A research methods class might include lessons that address the media access dimension of media literacy, but never move on to consider media analysis or mediated message communication (Kamerer 2013). Or, while a graphic arts class might address mediated message communication with projects involving multimedia design, the media analysis and access dimensions of media literacy might not be discussed.

While such narrow approaches might not be optimal, they are often the only viable option for educators seeking to address media literacy. Furthermore, there is reason to believe that a limited focus on only one dimension of media literacy might also lead to at least limited gains in overall media literacy competencies. For instance, Hobbs (1998) and Sefton-Green (1999) have suggested that the development of mediated message communication competencies associated with media creation can help individuals understand the conventions of professional media. This understanding that is gained from creating original media can, in turn, serve as a foundation upon which analytical competencies (Messaris 1998; Potter 2004; Williams and Medoff 1997) and critical thinking skills (Denski 1991) can develop. As Lund (1998) wrote: "By designing and producing their own media, students become effective evaluators of similar media. . . . They know in their bones that what they see on television is a manufactured product created by a string of decisions made by people along the way" (81).

The process of creating and sharing original media may also encourage individuals to develop media access competencies and become more critical of the legitimacy of other media content that they select for their own use. As Jenkins and colleagues (2007) wrote, "As students make their work accessible to a larger public, they face public consequences. . . . It involves understanding the social and cultural contexts within which different information emerges, when to trust and when not to trust others to filter and prioritize relevant data" (51).

Accordingly, it is clear that it is often possible for educators – especially within higher education – to address only certain dimensions of media literacy within their classes. Additionally, it has been suggested that by developing the mediated message communication competencies associated with creating and sharing media, students might also come to a better, more intuitive understanding of the constructed nature of media and develop improved media access and analysis competencies as well. Yet, empirical research has yet to document the extent to which this may occur. While extensive studies have considered the effectiveness of stand-alone and well-rounded media literacy education programs (Jeong, Cho, and Hwang 2012), research has yet to investigate the potential benefits of limited media instruction integrated into classes across multiple academic disciplines (Watson and Pecchioni 2011). However, this topic is worthy of consideration; if programs of instruction focused on just one dimension of media literacy can also lead to at least limited gains related to other dimensions of media literacy, then a new model for addressing media literacy in an interdisciplinary, higher-education context may exist.

Research Questions

Bearing in mind the importance of media literacy competencies and existing scholarship which suggests that the development of mediated message communication competencies might also lead to broader media analysis and access competencies, the following hypothesis was formed.

> H_1: Exposure to instruction focused narrowly on mediated message communication competencies leads to the development of broader media literacy competencies.

To test this hypothesis, the following three research questions were raised:

> RQ_1: To what extent does a program of study focused exclusively on developing mediated message communication competencies affect perceived media literacy competencies?

RQ_2: To what extent does a program of study focused exclusively on developing mediated message communication competencies affect perceived awareness of media literacy-related concepts in everyday life?
RQ_3: To what extent does a program of study focused exclusively on developing mediated message communication competencies affect demonstrated knowledge of concepts associated with media literacy?

Research Methods

This study employed a one-group pretest-posttest quasi-experimental design. While a quasi-experiment lacks the internal validity of a true experiment and does not have randomly assigned treatment and control groups, situating the research within a real-world setting allows for higher external validity. Such a method has been shown to be effective in educational research, and in media literacy research where the goal is "to evaluate instructional innovations under circumstances when experimental designs are impossible to employ" (Hobbs & Frost 2003, 399). Further, the threats to validity associated with maturation, history, and attrition were minimized by limiting the duration of this study and ensuring, as recommended by Shadish, Cook, and Campbell (2002), that the interval between pretest and posttest was short.

Sample. Participants were drawn from classes at a large public university with multiple satellite campuses. To ensure that a diverse population was represented, classes were sampled from 10 campuses across the state. Further, because media literacy competencies are important for everyone, and not just media or communication majors, classes from a mix of 10 different fields were included (biology, business, communication, criminal justice, English, information sciences and technology, integrative arts, marketing, natural science, radiological sciences).

In the study, 156 individuals completed the pretest and 121 completed the posttest. Responses from individuals who did not complete both the pretest and posttest were discarded, leaving responses from 118 individuals for analysis. The resulting sample included a mix of students. Participants ranged in age from 18 to 43 years (M = 21.92, SD = 4.82), and 50.00% (n = 59) were female and 49.15% (n = 58) were male (1 participant did not respond to this item). Additionally, 40.68% (n = 48) of participants were first year students, 20.34% (n = 24) were sophomores, 14.41% (n = 17) were juniors, and 22.88% (n = 27) were seniors (2 participants did not respond to this item).

Procedure. Email invitations to participate in this study were sent to instructors who had previously expressed an interest in incorporating a video design component into their courses. After instructors agreed to participate in the study, students in their classes were exposed to a series of three video design lessons over the course of the fall 2013 semester. In order to ensure that all students in the different classes were exposed to the same lessons, the instructor of record in each class did not teach the media lessons. Instead, one of two other, trained media instructors traveled to all classes and delivered the same, standardized, approximately 60-minute lessons in each class.

The first video design lesson, which was given during the first three weeks of the semester, included a general introduction to video planning, filming, and editing, as well as an overview of the video editing software program that would be used for student assignments. Specifically, the instructor briefly summarized the storyboarding process, and explained basic concepts associated with effective filming. The instructor also explained basic video editing techniques including the use of cutaways, transitions, soundtracks, voiceovers, and on-screen graphics. A step-by-step demonstration of how these techniques could be applied within the computer video editing program was also provided.

The second video design lesson, which was given between the eighth and eleventh weeks of the semester, included a hands-on tutorial in which students completed tasks in the video editing software program with the instructor's assistance. During this approximately 60-minute session, the instructor focused exclusively on video editing, and students were encouraged to work within small groups and follow along with each step on a classroom computer as it was being demonstrated. After each stage was explained, the instructor briefly checked with each group to ensure that they understood the instructions and had completed the step.

The third video design lesson, which was given during the final three weeks of the semester, included additional hands-on instruction during which students worked with the instructor while editing their own video projects. During this session, instruction was individualized and tailored to the needs of the different students working on creating their own video projects in each class. Student participants were given an online pretest during the first week of the semester, prior to the first lesson, and an online posttest during the last week of the semester, after the last lesson.

Measures. The pretest and posttest were designed to address all three research questions posed by this study, and included 26 items to which students responded on seven-point Likert-style scales. The first two research questions involved a consideration of *participant self-assessment* of competencies. Regarding the first research question, student participants were asked four questions designed for students to self-assess different dimensions of media literacy. Specifically, participants reported the extent to which they perceived that they were capable of locating and accessing media content for use, the extent to which they perceived that they were capable of creating original media content, the extent to which they perceived that they were capable of sharing original media, and the extent to which they perceived that they were capable of analyzing or evaluating media content. For instance, participants responded to the item, "I feel that I am capable of sharing original media content online (e.g. posting videos I created)," on a scale ranging from Strongly Disagree (1) to Strongly Agree (7).

To address the second research question, student participants were asked a series of seven questions involving the *application of media literacy concepts in daily life,* reflecting the extent to which they perceived thinking about a variety of media literacy topics when interacting with media in their everyday lives. Specifically, participants reported the extent to which they perceived thinking about the planning and writing, production, and editing stages when viewing television shows and films, as well as the extent to which they perceived thinking about the intended audience, motives, and constructed nature of television shows and films. For instance, participants responded to the item, "How likely are you to think about who the intended audience is for a television show or movie that you are viewing?" on a scale ranging from Very Unlikely (1) to Very Likely (7).

Regarding the third research question, student *knowledge of media* was measured directly by using an adapted form of a media literacy knowledge scale developed and validated by Ashley, Maksl, and Craft (2013). This scale included 15 items designed to measure overall media literacy competencies associated with three themes: authors and audiences, messages and meanings, and representation and reality (see also Primack et al. 2006). Items related to the authors and audiences category addressed ownership of media institutions, audience ratings, and political media. Items related to the messages and meanings category addressed how audience members seek out and interpret media as well as how media attract audience attention, affect political viewpoints and overall perceptions, exert influence, frame individuals, and portray certain topics as important. Items related to the representation and reality category addressed the truth and accuracy of media content, as well as how media create drama, promote conflict, and use images to attract attention. Because the scale developed by Ashley, Maksl, and Craft originally focused on media literacy related to news content, some phrasing was adjusted. For example, an item which originally read, "People are influenced by news

whether they realize it or not" was adjusted for a more general application and rephrased as, "People are influenced by media content whether they realize it or not." Participants responded on a scale ranging from Strongly Disagree (1) to Strongly Agree (7).

A trial study (N = 48) was conducted to validate the measure. The trial study involved two communication classes at the same university where the study was conducted, and was completed during the semester prior to the study. The Cronbach alpha coefficient was determined, and analysis indicated that the measure had a good internal consistency (α = .922).

The measure also had a good internal consistency (α > .70) in the study. Analysis of all data gathered from the pretest and posttest combined indicated that there was good internal consistency overall (α = .875), and specifically for items related to perceived media literacy competencies (α = .924), items related to perceived thinking about media literacy topics (α = .914), and the media literacy knowledge scale (α = .765).

Analysis of all data from the pretest indicated that there was a good internal consistency overall (α = .792), and specifically for items related to perceived media literacy competencies (α = .828), items related to perceived thinking about media literacy topics (α = .918), and the media literacy knowledge scale (α = .711).

Analysis of all data from the posttest indicated that there was a good internal consistency overall (α = .858), and specifically for items related to perceived media literacy competencies (α = .906), items related to perceived thinking about media literacy topics (α = .943), and the media literacy knowledge scale (α = .796).

Results

Perceived Media Literacy Competencies

After participating in the narrowly focused media lessons, students perceived an increase in media literacy competencies from pre-test to post-test. An analysis of the difference between pretest and posttest scores using an independent samples t-test showed that average student perceptions of their own media literacy competencies increased significantly between the pretest and posttest (p < .001, two-tailed), as shown on Table 1. Each dimension of media literacy was also considered individually.

An independent samples t-test showed significant differences between the pretest and posttest regarding perceived media literacy competencies associated with media access (p < .001, two-tailed), media creation (p < .001, two-tailed), media sharing (p < .001, two-tailed), and media analysis (p < .001, two-tailed).

Table 1
Participant Self-Assessment of Competencies

Item	Pretest		Posttest		Mean Difference	T-Test (Two-Tailed)	
	M	SD	M	SD		T	P
Media access	4.85	1.10	6.48	1.05	1.63	-11.301	.000
Media creation	4.03	1.35	6.16	1.23	2.13	-12.208	.000
Media sharing	4.85	1.13	6.42	1.11	1.57	-10.474	.000

Media analysis	4.58	1.17	6.26	1.15	1.68	-10.784	.000
Average of all items	4.57	.96	6.32	.99	1.75	-13.373	.000

Application of Media Literacy Concepts in Daily Life

Regarding the second research question, data show that students reported that they applied media literacy-related concepts in the context of daily life after a program of narrowly focused media instruction. An independent samples t-test showed a significant increase in the extent to which students reported thinking about media literacy concepts between the pretest and posttest ($p < .001$, two-tailed). Table 2 displays these results. Specifically, an independent samples t-test showed significant increases between the pretest and posttest regarding the extent to which students reported thinking about the filming process ($p < .001$, two-tailed), editing ($p < .001$, two-tailed), script writing ($p < .001$, two-tailed), storyboarding ($p < .001$, two-tailed), intended audience ($p < .001$, two-tailed), the motivation of the media creator ($p < .001$, two-tailed), and the constructed nature of media ($p < .001$, two-tailed).

Table 2
Thinking about Media Literacy Concepts in Daily Life

Item	Pretest		Posttest		Mean Difference	T-Test (Two-Tailed)	
	M	SD	M	SD		T	P
Think about filming	3.62	1.61	4.75	1.77	1.13	-5.018	.000
Think about editing	3.41	1.64	4.41	1.97	1.00	-4.107	.000
Think about script writing	3.41	1.74	4.68	1.78	1.27	-5.363	.000
Think about storyboarding	3.20	1.65	4.18	1.78	.98	-4.260	.000
Think about the intended audience	3.77	1.57	4.99	1.43	1.22	-6.045	.000
Think about the motivation of the media creator	3.87	1.63	5.10	1.60	1.23	-6.771	.000

Think about the constructed nature of media	3.43	1.53	4.88	1.68	1.45	-6.400	.000

Knowledge of Media Literacy Concepts

Regarding the third research question, data show that student knowledge of concepts related to media literacy did improve after exposure to instruction focused only on mediated message communication. Specifically, an independent samples t-test showed a significant improvement in average scores on the media literacy knowledge scale between the pretest and posttest ($p < .001$, two-tailed). However, a consideration of the three components considered by this scale demonstrates the limits of what can be accomplished with narrowly focused media instruction.

Table 3
Knowledge of Media Literacy Concepts, Individual Items

Item	Pretest		Posttest		Mean Difference	T-Test (Two-Tailed)	
	M	SD	M	SD		T	P
Media ownership	5.48	1.12	5.54	1.23	.06	-.388	.699
Media decisions and audience ratings	6.01	1.02	6.04	.84	.03	-.261	.794
Individual use of political media	5.71	1.03	5.79	.96	.08	-.571	.569
How people seek out media based on beliefs	5.69	1.22	5.99	1.04	.30	-1.968	.050
How media content is interpreted	6.02	1.05	6.08	.98	.06	-.479	.632
Influence of media	6.09	1.03	5.75	1.05	-.34	2.441	.015
How media affect political opinions	5.79	1.10	5.88	1.03	.09	-.639	.524

How media catches an audience's attention	4.94	.99	5.76	1.17	.82	-5.627	.000
How lighting is used to frame individuals	4.81	1.12	5.58	1.36	.77	-4.598	.000
How production affects perception	4.85	1.04	5.85	1.15	1.00	-6.783	.000
How media producers frame importance	4.43	1.19	5.54	1.26	1.11	-6.672	.000
How media can be edited to increase drama	4.84	1.11	5.59	1.20	.75	-4.742	.000
Role of pictures in attracting attention	6.19	.85	5.76	1.17	-.43	3.137	.002
Awareness of conflict in media content	5.62	1.16	5.78	.97	.16	-1.108	.269
Truth and accuracy in media production	4.16	1.91	4.34	1.85	.18	-.711	.478
Average of all items	5.35	.53	5.68	.59	.33	-4.463	.000

Messages and meanings. Overall, student participant knowledge of concepts associated with messages and meanings increased significantly between the pretest and posttest ($p < .001$, two-tailed). Specifically, an independent samples t-test showed that scores increased significantly between the pretest and posttest regarding awareness of how lighting is used to frame individuals ($p < .001$, two-tailed), how production affects perception ($p < .001$, two-tailed), how media producers frame importance ($p < .001$, two-tailed), and how media catches an audience's attention ($p < .001$, two-tailed).

However, there were no significant differences between the pretest and posttest regarding perceptions of how people seek out media based on beliefs ($p = .050$, two-tailed), how media affect political opinions ($p = .524$, two-tailed), or how media content is interpreted ($p = .632$, two-tailed). Further, scores dropped regarding awareness of the influence of media ($p = .015$, two-tailed).

Representations and reality. Overall, student knowledge of concepts associated with representation and reality did not increase significantly between the pretest and posttest ($p = .518$, two-tailed). An independent samples t-test showed that scores did not increase significantly between the pretest and posttest regarding awareness of conflict in media content ($p = .269$, two-tailed) or regarding truth and accuracy in media production ($p = .478$, two-tailed). Further, participant awareness of the role of pictures in attracting

attention decreased (p = .002, two-tailed). Only one item associated with representation and reality saw a significant improvement in participant scores; scores did increase significantly regarding awareness of how media can be edited to increase drama (p < .001, two-tailed).

Authors and audiences. Overall, student knowledge of concepts associated with authors and audiences did not increase significantly between the pretest and posttest (p = .626, two-tailed). Specifically, an independent samples t-test indicated that there were no significant changes between the pretest and posttest associated with awareness of media ownership (p = .699, two-tailed), media decisions and audience ratings (p = .794, two-tailed), or individual use of political media (p = .569, two-tailed). Table 4 shows the means and standard deviations for knowledge gain in the domains of messages and meanings, authors and audiences, and representations and reality.

Table 4
Demonstrated Knowledge of Media Literacy Concepts, Mean Scores for Each Category

Item	Pretest		Posttest		Mean Difference	T-Test (Two-Tailed)	
	M	SD	M	SD		T	P
Authors and audiences	5.73	.93	5.79	.80	.06	-.488	.626
Messages and meanings	5.30	.58	5.81	.71	.51	-5.916	.000
Representation and reality	5.24	.66	5.32	.74	.08	-.648	.518
Average of all categories	5.35	.53	5.68	.59	.33	-4.463	.000

Discussion

Overall, data from this study indicate that students benefitted from brief, narrowly focused media lessons that introduced them to how messages are constructed using digital tools and technologies. Regarding the first research question, data show that perceived student media literacy competencies associated with each dimension of media literacy improved after lessons dealing only with mediated message communication. Regarding the second research question, data also show that students reported thinking more about media literacy-related topics and considering the constructed nature of media more frequently after exposure to lessons focused specifically on mediated message communication. Finally, regarding the third research

question, demonstrated student knowledge about concepts associated with media literacy improved overall after exposure to mediated message communication lessons. Accordingly, students perceived improving in overall media literacy competencies, perceived thinking more about media literacy concepts, and demonstrated an increase in general knowledge about media literacy. As such, this study's central hypothesis, that exposure to instruction focused on mediated message communication competencies can lead to broader media literacy competencies, was supported.

This research shows that there is reason to believe that integrating even very limited media lessons – such as instruction focused on creating and sharing a multimedia project – across the higher education curriculum can be an effective method of exposing students to the principles of media literacy and encouraging the development of certain general media literacy competencies. This finding gives educators who would like to expose non-media and communication students to foundational tenets of media literacy reason for optimism. While offering dedicated media literacy courses for students of all academic majors is a worthy, but often unrealistic, goal (Mihailidis 2009), this research shows that incorporating limited media lessons into a variety of existing classes across the curriculum, and encouraging students to create multimedia projects about topics related to the course material, can be a practical and effective alternative.

Such projects are naturally suited to the classes into which they are embedded, and help to make media literacy into a "common thread" that runs through all levels of the educational system and across all academic disciplines (Kellner and Share 2007, 68). Many opportunities for the implementation of such lessons exist. Some institutions or educators may wish to draw on the model used in this study, in which trained media instructors travel from class to class, tailoring their media lessons to suit the needs of each setting. Or, other institutions may focus on providing additional professional development opportunities and training for all instructors, so that educators in a variety of disciplines can develop basic media skills that they can then teach about within their classes.

Either way, as findings from this study suggest, incorporating even small media literacy lessons into class projects in courses across many disciplines can be an effective, and practical, method of exposing students to media instruction that they might not otherwise have received and encouraging the development of a range of foundational media literacy competencies as well as a broader understanding of the modern, media-saturated world (see also Jenkins et al. 2007; Lund 1998; Potter 2004). Further, implementing these limited lessons in courses across the curriculum might have an additional benefit, and may also help to ignite a spark of interest that spurs students to investigate more on their own.

Yet, there is more to media literacy education than just raising awareness or providing basic foundational knowledge, and results from this study also suggest that there are still limits to what can be accomplished with a narrowly-focused media training program. Participants in this study did demonstrate real improvement associated with an understanding of media messages and meanings, yet did not significantly improve in their knowledge regarding concepts associated with authors and audiences or representation and reality.

Accordingly, when more sophisticated outcomes are the goal, limited media instruction may not be adequate. Results suggest that there is still no substitute for more focused instruction when trying to fully address each dimension of media literacy in detail. Therefore, such limited instruction would likely not be sufficient for students majoring in a communication- or media-related field. For such students, more than introductory lessons are important, and the need exists for more detailed, incremental instruction that fosters the development of specialized competencies associated with all dimensions of media literacy (Denski 1994).

This study has some strengths and limitations. This study was designed to allow for the involvement of a diverse mix of participants from different campuses and different academic majors. This diverse sample had some notable advantages, and increased the generalizability of the findings. Yet, there were also some notable

limitations associated with this research design. First, while a one-group quasi-experiment allowed for the measurement of changes associated with a treatment group, there was no control group against which to make comparisons. Future research could improve on this design by also recruiting a sample of student participants who could comprise a control group. Second, this study employed a Web-based pretest and posttest to ensure confidentiality and encourage the honest response of participants at a variety of campus locations. Nevertheless, there may have been a priming effect, and social desirability bias may have caused participants to respond with what they considered to be more appropriate answers when completing the posttest. Third, this study measured the effect of a series of mediated message communication lessons focused on media creation and sharing over the course of one semester. Limiting the duration of this study to one semester allowed one group of students to be followed from the start to the end of one course and matched the existing academic schedule. However, it remains unknown if the observed improvements in media literacy competencies were lasting, or if they were only short-term gains. Future research could address this issue by also including a follow-up questionnaire designed to measure the competencies of participants later in their academic careers.

Conclusion

In an optimal situation, there would be plenty of opportunities and time to ensure that each and every student is exposed to level-appropriate media literacy instruction in the context of their varied and diverse learning experiences in higher education. Yet, the realities of a crowded curriculum and the existing educational system often dictate that media literacy can only be addressed to a limited extent within higher education. Such limited, narrowly-focused media lessons might not be comprehensive in nature. Yet, they can nevertheless be an effective tool for exposing students to basic media literacy concepts and encouraging the development of some broader media literacy competencies. Accordingly, this study's findings suggest that it may be possible for skilled educators to work within the limited confines of the existing educational framework to achieve significant improvement and develop well-rounded, media literate students with an enduring interest in media.

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