

ASSESSING MEDIA LITERACY AMONG STUDENTS ENROLLED  
IN BASIC WRITING AND FIRST-YEAR COMPOSITION

by

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## **DEDICATION**

I dedicate this dissertation to James Henry Knippen—my husband, my best friend, my esteemed colleague, and my light. Also to my parents Joe Threadgill and Kyna Threadgill, who have balanced life-long encouragement with room to flourish.

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## **ABSTRACT**

Systematic media literacy education at the college level is largely nonexistent in the U.S. Because assessment is necessary for the development of curriculum and standards, it is crucial that researchers develop instruments to measure media literacy improvement through media literacy education. The Critical Evaluation and Analysis of Media (CEAM) scale was designed toward that purpose and measures college students' self-reported practice of critically evaluating and analyzing visual media messages online for credibility, audience, and technical design elements.

The goals of this study follow: (a) to chart the development of and examine the factor structure of the CEAM scale, (b) to examine the potential of the CEAM scale to be a generalizable instrument to meet the needs of the research community, and (c) to gather baseline data about the self-reported critical viewing practices of students enrolled in basic writing and first-year composition. Each of these goals is addressed in a separate chapter within the dissertation.

With the exception of the first study, which required two data sets (for an exploratory and confirmatory factor analysis), all other studies use the same data set, which was gathered in Fall 2015. In Fall 2014 and Fall 2015, a purposive sample was taken from students enrolled in the first-year composition sequence at a large public institution in central Texas that is designated as an Hispanic-Serving Institution. During Fall 2014, a total of 323 first-semester students completed the scale. During Fall 2015, a total of 322 first-semester students completed the scale.

The study in Chapter II employs a factor analytic framework for identifying dimensions within the construct of media literacy. Using principal axis factoring with an oblique (Promax) rotation, the exploratory factor analysis revealed a three-factor structure. The first factor accounted for 26.234% of the total variance in the data set; the second factor accounted for 4.069% of the total variance in the data set; and the third factor accounted for 3.574% of the total variance in the data set. Items were retained for each of the three factors if the standardized factor loading was greater than .32. After examining reliability and judging the content of each item with a loading weight below .32, five items were removed, leaving 27 items. Overall reliability for the revised 27-item scale is high ( $\alpha = .91$ ). Reliability for Factor 1 is good ( $\alpha = .87$ ). Reliability for Factor 2 ( $\alpha = .79$ ) and Factor 3 ( $\alpha = .74$ ) is acceptable.

Using principal axis factoring with an oblique (Promax) rotation, the confirmatory factor analysis also revealed a three-factor structure. The three factors were named: (a) questioning credibility, (b) recognizing audience, and (c) recognizing design. The first factor accounts for 31.401% of the total variance in the data set; the second factor accounts for 5.926% of the total variance in the data set; and the third factor accounts for 5.130% of the total variance in the data set. The standardized factor loadings for most items were above .32. Overall reliability for the 27-item scale is high ( $\alpha = .91$ ). Reliability for Factor 1 ( $\alpha = .8$ ) and Factor 3 ( $\alpha = .81$ ) is good. Reliability for Factor 2 ( $\alpha = .78$ ) is acceptable. Overall, the underlying structure of the instrument suggests that there are measurable skills for critically analyzing and evaluating visual media

messages. These skills cut across type of media message (news, entertainment, and advertisement), which suggests that students can use the same set of skills to critically analyze and evaluate different types of media messages.

Building on the results of the study in Chapter II, the study in Chapter III uses item response theory (IRT) analysis to determine the generalizability of the CEAM scale. A unidimensional IRT model was fit to item-level data. Results of the analysis revealed an IRT-based score reliability for the 27-item scale as high ( $\alpha = .93$ ). Additionally, all standardized factor loadings were observed as .42 or above. Examination of expected a posteriori (EAP) values revealed that, as expected, a student with a lower perceived media literacy level will score lower, and a student with a higher perceived media literacy level will score higher. All items on the CEAM scale exhibit moderate discrimination parameter values or higher. Additionally, one trend in the discrimination parameter values is that items about advertising tend to have the highest capacity for differentiating between students of higher and lower perceived media literacy levels. However, items regarding credibility of news stories tend toward only moderately differentiating between students of higher and lower perceived media literacy levels. A second trend in the discrimination parameter values is that items that consider why media messages appeal to different audiences tend to have a high capacity for differentiating between students of higher and lower perceived media literacy levels. Item information function (IIF) and item characteristic curves (ICC) also support the discrimination parameter values and EAP values. The findings of this study do support the use of this instrument as a

generalizable, sample-free instrument, and this analysis also yielded information about trends in how students may engage with different types of media or different media literacy practices at different levels of confidence.

Chapter IV describes the results of an independent samples t-test used to compare the responses on the CEAM scale for students enrolled in basic writing and first-year composition. There was not a statistically significant difference in the scores for students enrolled in basic writing ( $M = 3.12$ ,  $SD = 0.68$ ) and students enrolled in first-year composition ( $M = 3.37$ ,  $SD = 0.62$ ) for the total average on the scale;  $t(320) = -1.998$ ,  $p = .047$ . Additionally, there was not a statistically significant difference in the scores for students enrolled in basic writing ( $M = 3.05$ ,  $SD = 0.79$ ) and students enrolled in first-year composition ( $M = 3.13$ ,  $SD = 0.78$ ) for Factor 2 (Recognizing Audience);  $t(320) = -.86$ ,  $p = .388$ . However, there was a statistically significant difference in the scores for students enrolled in basic writing ( $M = 3.18$ ,  $SD = 0.76$ ) and students enrolled in first-year composition ( $M = 3.35$ ,  $SD = 0.71$ ) for Factor 1 (Questioning Credibility);  $t(320) = -2.03$ ,  $p = .044$ . There was also a statistically significant difference in the scores for students enrolled in basic writing ( $M = 3.04$ ,  $SD = 0.72$ ) and students enrolled in first-year composition ( $M = 3.21$ ,  $SD = 0.71$ ) for Factor 3 (Recognizing Design);  $t(320) = -2.04$ ,  $p = .042$ . However, the effect size for each of these results was small. These results have implications for future research about media literacy in the composition sequence, and for research about digital and media divides that exist between students who come from different backgrounds.

## **I. A SNAPSHOT OF MEDIA LITERACY IN COLLEGE**

Systematic media literacy education at the college level is largely nonexistent in the U.S. (Christ, 2004; Martens, 2010; Schmidt, 2013; Schwarz, 2014). Livingstone and Wang (2014) cite three reasons for this negligence. First, there is little research, and, therefore, little agreement about what elements to include in media literacy curriculum for adults (Livingstone & Wang, 2014). Other researchers agree that there is often little consensus among researchers or instructors about what media literacy competencies to include in college curriculum or how to measure them (Christ, 2014; Schmidt, 2013). Second, there is little or no research about the consequences of not providing media literacy education to adults, and, therefore, no consensus that media literacy education should be expected at the college level (Livingstone & Wang, 2014). And, finally, providing comprehensive media literacy education requires major actions at a policy level, and to enact such policies requires large-scale research and validation, which isn't currently available (Livingstone & Wang, 2014). Additionally, Silverblatt (2014) cites static core curriculum and narrowly-focused standardized tests as a constraint to introducing new media literacy curriculum.

Not only is there little research about what competencies to include in media literacy education for college students, but there isn't even a consensus on where in the college curriculum to include media literacy education. Media literacy education has been provided as a stand-alone course and has been embedded in areas such as communications, English, education, and cultural studies (Baker, 2014; Martens, 2010; Schwarz, 2014; Silverblatt, 2014; Silverblatt, Baker, Tyner, & Stuhlman, 2002). There is some conflicting information with regard to whether the stand-alone course or the

embedded disciplinary instruction is the best fit. For example, Duran et al. (2008) found that a holistic media literacy course diminishes the third-person effect (the idea that individuals believe others are influenced by media but they themselves are not) and improves critical evaluation of media messages. However, other researchers argue that media literacy has merit as an interdisciplinary approach rather than as a course subject (Anderson, 2008; Schmidt, 2013; Schwarz, 2014; Silverblatt, 2014). In fact, there is research that shows students actually benefit from media literacy as an interdisciplinary approach (Schmidt, 2015). As Silverblatt (2014) puts it, “media literacy is an academic discipline that complements other fields of study” (p. 99). This trend can also be seen in interviews Jolls and Walkosz (2015) conducted with media literacy pioneers. For example, in an interview with Kathleen Tyner, an expert on literacy in the digital age, Tyner points out the confusion about where to place media literacy education in college and argues that the division of education into subject areas is the root cause of this problem. In an interview with K-12 media literacy expert Renee Hobbs, Hobbs seconds this idea when she argues “Until we can have truly interdisciplinary programs that connect English education to education to literacy studies to sociology to media and communications... then the scholarship of media literacy is going to continue to be at the margins” (n.p.).

In fact, Hobbs was making this argument about media literacy education in K-12 as early as 1996. A decade later in 2006, the College Board finally came to this same conclusion and recognized the value of integrating media literacy into the curriculum, especially in English language arts as a way to prepare students to interpret, analyze, and

evaluate the variety of texts they will encounter in all subject areas. An excerpt from the College Board's Standards for College Success states the following:

To be successful in college and in the workplace and to participate effectively in a global society, students are expected to understand the nature of media; to interpret, analyze, and evaluate the media messages they encounter daily; and to create media that express a point of view and influence others. These skills are relevant to all subject areas, where students may be asked to evaluate media coverage of research, trends, and issues. (Silverblatt, 2014, p. 424)

Within the College Board's statement are some core elements of media literacy curriculum: (a) interpretation, (b) analysis, and (c) evaluation. In an exploratory qualitative study, Bordac (2009) interviewed 11 faculty members teaching humanities and social sciences in research institutions; these instructors also identified four skills core to media literacy education: (a) applied production skills, (b) critical and theoretical analysis, (c) contextual and situational analysis, and (d) synthesis of and communication about media. Some of the same skills identified by the College Board (2006) and Bordac (2009)—analysis, evaluation, and communication about media—likewise exist within the core elements of media literacy identified by the National Association of Media Literacy Education (NAMLE): (a) access, (b) analysis, (c) evaluation, and (d) communication about and through media. NAMLE's core elements are the most commonly accepted in research about media literacy education at the college level (Ashley, Lyden, & Fasbinder, 2012; Duran, Yousman, Walsh, & Longshore, 2008; Mihailidis, 2011; Schmidt, 2012). Specifically, Schmidt (2013) found that college educators identify analysis as the most



important media literacy competency for college students in any discipline, and Pernisco (2014) points to a combination of analysis and evaluation as the most important, arguing that this combination allows students to think about the context and possible biases that might exist in the media message. As such, these two competencies—analysis and evaluation—form the foundation for this research study.

However, college curriculum has yet to systematically adapt any of these competencies. And, as Livingstone and Wang (2014) argue, there is little information about what is at stake if we don't teach these media literacy competencies in college. So, there are roadblocks that college educators face in systematically including media literacy curriculum in college, which is unfortunate because researchers agree that college students could benefit from additional media literacy education (Ashley, Lyden, & Fasbinder, 2012; Brumberger, 2011; Duran et al., 2008; Pernisco, 2014; Potter & Bryne, 2009; Schmidt, 2013).

So what can we do to move toward systematic inclusion of media literacy curriculum in college? Livingstone and Wang (2014) believe that in order to provide tailored and contextualized media literacy education to such a large population, policy action will need to be taken. In turn, assessment is required to impact policy action. Arke and Primack (2009) argue that because assessment is necessary for the development of standards and the obtainment of accreditation, it is crucial that researchers develop instruments to measure media literacy improvement through media literacy education. As such, developing valid and reliable instruments to measure media literacy competencies is a necessary first step to providing systematic media literacy education in college. This

has been the primary motivation for this research study and for the creation of The Critical Evaluation and Analysis of Media (CEAM) scale.

### **About the Instrument**

The purpose of the Critical Evaluation and Analysis of Media (CEAM) scale is to measure the self-reported practice of critically evaluating and analyzing visual media messages online for credibility, audience, and technical design elements. The CEAM scale is a 27-item, 5-point Likert-type scale that asks students to consider their engagement with visual media commonly available on the internet (including watching or reading the news, viewing entertainment media, and viewing advertisements). On the scale, the responses range from “strongly disagree” to “strongly agree.” This response scale is consistent with the intent (Gable & Wolf, 1993) to measure students’ perceptions of how they engage with media most of the time. Additionally, five gradations allow for balanced optimization of the instrument’s reliability with careful, non-aggravated consideration from the respondents (Gable & Wolf, 1993).

The scale’s framework is derived from the core elements of media literacy identified by the National Association of Media Literacy Education (NAMLE): (a) access media, (b) analyze media, (c) evaluate media, and (d) communicate about and through media. These core elements are commonly accepted in the research (Ashley, Lyden, & Fasbinder, 2012; Duran, Yousman, Walsh, & Longshore, 2008; Mihailidis, 2011; Schmidt, 2012). And, many media literacy instruments (e.g. Arke & Primack, 2009; Ashley, Lyden, & Fasbinder, 2012; Primack et al., 2006) include NAMLE’s framework. However, because critical consumption of media rather than creation of media is of primary interest to the researcher, the CEAM scale only focuses on evaluation and

analysis. This decision is also supported by the review of literature. As mentioned previously, researchers have found that analysis (Pernisco, 2014; Schmidt, 2013) and evaluation (Pernisco, 2014) are the most important media literacy competencies to teach in college. Specifically, analysis involves breaking a text down into its parts to examine how those parts are working together. For example, in the case of an advertisement, that might mean looking at color, lighting, or casting choices. Evaluation—a process that follows from analysis—involves making a judgement about the text. That might mean judging how effectively the parts work together, if it is appropriately reaching its targeted audience, if there is important information missing, or if the text is biased. The three factors within the scale—questioning credibility ( $\alpha = .8$ ), recognizing audience ( $\alpha = .78$ ), and recognizing design ( $\alpha = .81$ )—are interconnected practices that fall under the overarching construct of analysis and evaluation. For instance, one can question credibility by considering which audience members might have been slighted by a generalization, lack of viewpoint, or choice in gender representation.

Finally, while some instruments exist for measuring media literacy, they are not widely used and present issues. One such issue is that only a handful of these instruments focus on college students (e.g. Arke & Primack, 2009; Duran et al., 2008; Engeln-Maddox & Miller, 2008; Literat, 2014; Vraga, 2016). Another issue is that some are too narrowly focused. For instance, the Knowledge of Media Structures and Media Influence scales developed by Duran et al. (2008) are specific to curriculum developed at one institution. Similarly, the Critical Processing of Beauty Images (CPBI) created by Engeln-Maddox and Miller (2008) is only focused on analysis and evaluation of media messages featuring idealized women. Finally, some of these instruments are outdated. For

example, the instrument developed by Arke and Primack (2009) is outdated in that it only measures old media (media available through the traditional routes of television, radio, and print) as opposed to new media (media available on the internet). The CEAM scale is geared toward college students, and to be as comprehensive as possible, items in the CEAM scale address news, advertisement, and entertainment media available online.

### **Overview of Research**

The purpose of this dissertation is to report on the development, testing, and use of this new instrument to measure new media literacy competencies. More specifically, the goals of this study follow: (a) to chart the development of and examine the factor structure of the CEAM scale, (b) to examine the potential of the CEAM scale to be a generalizable instrument to meet the needs of the research community, and (c) to gather baseline data about the self-reported critical viewing practices of first-semester students enrolled in the first-year composition sequence.

### **Conceptual Framework**

Literacy is embedded in culture, as is culture embedded in literacy. I understand that in choosing to create the CEAM scale, I was influenced by my own media enculturation and by my own realization that it is important to question such enculturation. As Freire (1987) famously writes, “Reading the world always precedes reading the word, and reading the word implies continually reading the world” (p. 35). As such, it is crucial to consider the experiences and the review of literature that led me to conduct this research. In particular, the work of the National Association for Media Literacy Education (NAMLE) is important. This framework for media literacy—the ability to access, analyze, evaluate, and communicate about and through media—directly

influences my own framework, which deals with students' practices of critically analyzing and evaluating media online. However, in the spirit of questioning, I recognize that NAMLE's work has primarily focused on K-12 education, and that more attention needs to be paid to college. Other researchers agree that attention on media literacy education in college is lacking (Christ, 2004; Martens, 2010; Schmidt, 2013; Schwarz, 2014).

In particular, there is no attention being paid to media literacy education in developmental education. Freire (1987) writes about the potential of literacy to lift up or oppress student populations. Gee (2015) modernizes Freire's (1987) conversation to include digital and media literacy. Toward that aim, Gee (2015) adapts the concept of the Matthew Cycle. Gee (2015) explains that "gaps of all sorts—literacy, learning, skills, and knowledge gaps—get bigger and bigger over time, even if at the start they were small and potentially manageable" (p. 106). As Gee (2015) explains, this ever-growing divide occurs for digital literacy and media literacy as well as traditional literacy.

The power of literacy to lift up underserved populations of students and the power of media literacy education to close the digital, or in this case, media divide is the reason I chose to learn about the self-reported critical viewing practices of students enrolled in basic writing, students who are not college-ready or who are, as Bartholomae (2005) would say, "writing on the margins." Simply put, basic writing is a prerequisite for composition for those students who don't meet the cut-off score on the SAT, ACT, or college placement exam. At this point, it should be noted that I have chosen to conduct my research through the lens of composition. I position myself as a compositionist, and, I believe that basic writing is a composition course. As such, my participants are students

enrolled in what I term the composition sequence—basic writing and first-year composition—and my analyses and discussion of findings (especially for research question #3) are presented in the context of the broader field of composition.

### **Research Questions**

I have developed three research questions to address my goals of testing the CEAM scale and gathering baseline information with that instrument.

- (1) Does the CEAM scale have an effective structure for measuring self-reported practices of evaluating and analyzing visual media messages?
- (2) Is the CEAM scale a generalizable instrument for measuring self-reported practices of evaluating and analyzing visual media messages?
- (3) Is there a difference between the self-reported critical viewing practices of students who are in their first semester and are enrolled in basic writing and students who are in their first semester and are enrolled in first-year composition?

### **Dissertation Structure**

Each of the questions listed in the previous section will be addressed in a separate article within this alternative-format dissertation. Each article includes an introduction with a review of the literature, a methods section, a results section, a discussion section, a limitations section, an implications section, and a references list. This structure was chosen because, while the three articles use the same data pool and while the three research questions chronologically build on each other, the three questions demand different reviews of literature and methodologies; additionally, the findings of each study will have different implications for the assessment of media literacy in college and for

media literacy curriculum in the composition sequence. The dissertation will conclude with a big picture of what the implications taken together might mean for media literacy in college.

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## II. DEVELOPING AND TESTING

### THE CRITICAL EVALUATION AND ANALYSIS OF MEDIA SCALE

The Pew Research Internet Project (2011) has found that college students make up the highest percentage of adult internet users in the U.S. The media that these college students access on a daily basis is more portable than ever—think mobile devices and tablets—and, therefore, more pervasive, persistent, and participatory than ever before (Pew Research Internet Project, 2014). In a review of existing studies on media literacy effects, Potter and Byrne (2009) found that “mass media are continually exerting all kinds of direct and indirect influences on individuals and society” (p. 346), and that these influences are often negative and can impact media consumers at the cognitive, attitudinal, affective, physiological, and behavioral levels. However, Potter and Byrne (2009) also found that media literacy interventions and education can be effective. In fact, when available, media literacy interventions tend to improve (a) critical thinking, (b) information processing, (c) awareness of persuasive techniques, and (d) social cognition (Potter & Byrne, 2009). Indeed, Pernisco (2014) argues that helping students to analyze and evaluate media messages in context may be one way to solve social inequalities. And, yet, review of the curriculum in the U.S. shows that the U.S. lags behind other English-speaking countries in media literacy education (Hobbs, 2011; Kubey, 2003). Unfortunately, this is especially true at the college level (Christ, 2004; Martens, 2010).

The lack of media literacy education at the college level is unfortunate because researchers agree that college students could benefit from additional media literacy education (Ashley, Lyden, & Fasbinder, 2012; Brumberger, 2011; Duran et al., 2008; Pernisco, 2014; Potter & Byrne, 2009; Schmidt, 2013). Specifically, Brumberger (2011)

found that college students actually self-assess their media literacy skills as being limited, and while students may suspect that images they see on the internet have been altered, they do not consistently critically question these images. Similarly, Ashley, Lyden, and Fasbinder (2012) found that when viewing news and advertisement videos online, college students focused on superficial elements, did not raise questions, and believed that media messages are straightforward.

However, while there are exemplar studies like those previously discussed (e.g. Ashley, Lyden, & Fasbinder, 2012; Brumberger, 2011; Duran et al., 2008; Mihaildis, 2011), there is little consensus among researchers or instructors about what media literacy competencies to include in college curriculum or how to measure them (Christ, 2014; Kellner & Share, 2005; Livingstone & Wang, 2014; Schmidt, 2013). It is important, then, that this study identify elements of measureable media literacy skills and a way to measure them.

### **Review of Existing Instruments**

As a first step toward identifying measureable media literacy competencies and a way to assess them, a review of existing instruments was conducted. Qualitative (e.g. Ashley, Lyden, & Fasbinder, 2012; Hobbs & Frost, 2003; Quin & McMahon, 1993), quantitative (e.g. Chang et al., 2011; Engeln-Maddox & Miller, 2008; Literat, 2014; Primack et al., 2006; Vraga, 2016), and mixed measures of media literacy (e.g. Arke & Primack, 2009; Duran et al., 2008) do exist. However, few media literacy instruments address the media literacy of college students. One example of an instrument geared toward college students follows. After watching a video, first-year students respond to three-open ended questions and two scales: (a) Knowledge of Media Structures and (b)

Media Influence (Duran et al., 2008). But because these two scales are specific to curriculum in the media literacy course the intervention group was enrolled in, this scale is not useful for research outside this setting. Another example of an instrument designed to measure the media literacy of college students is the Critical Processing of Beauty Images (CPBI) scale created by Engeln-Maddox and Miller (2008). But the CPBI scale is focused on analysis and evaluation of a singular type of media message: media featuring idealized women (Engeln-Maddox & Miller, 2008). As another example, Arke and Primack's (2009) measure is an example of a more comprehensive instrument for college students, but this measure is outdated in that it only measures old media (media available through the traditional routes of television, radio, and print) as opposed to new media (media available on the internet). By contrast, using the new media literacy skills developed by Jenkins et al. (2006), Literat (2014) developed a more comprehensive and modernized instrument; however, the items in this scale focus more on digital literacy and information literacy than media literacy. Whereas media literacy focuses on the creation and consumption of media messages, digital literacy focuses on use of digital technology. Information literacy is focused on effective research techniques.

Overall, the review of literature uncovered valuable instruments for measuring media literacy, but, for the purpose of examining comprehensive new media literacy competencies among college students, these instruments are not the best fit. This warranted the creation of a new instrument which formed the basis of this study. The Critical Evaluation and Analysis of Media (CEAM) scale will be described in more depth in the instrumentation section of this research study.

## Methods

This quantitative research study has two phases: (a) an exploratory factor analysis of data collected in Fall 2014 and (b) a confirmatory factor analysis of data collected in Fall 2015. During both phases, I have asked the following question: does the CEAM scale have an effective structure for measuring self-reported practices of evaluating and analyzing visual media messages?

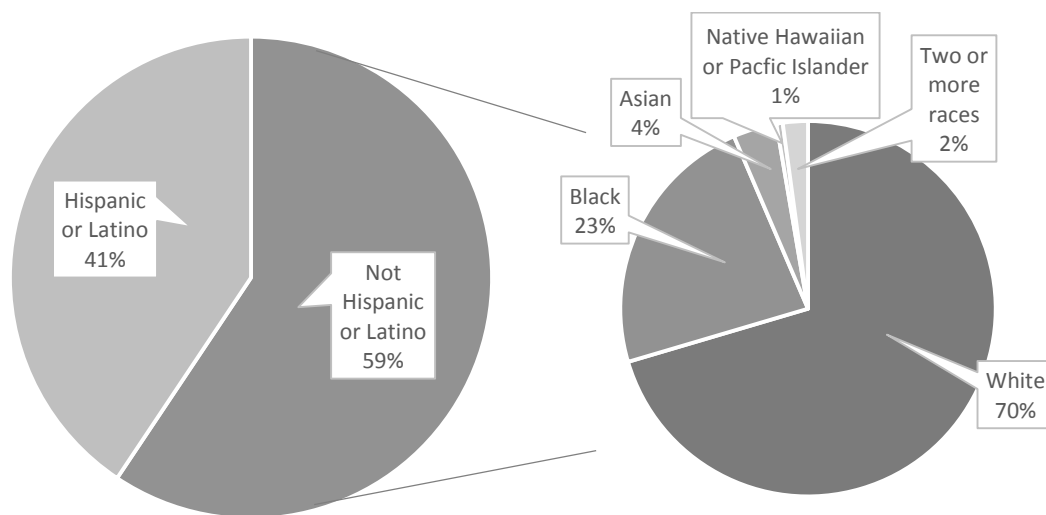
To answer the research question above, this study employs a factor analytic framework for identifying dimensions within the construct of media literacy. The development of items for the CEAM scale assumes that there are related latent variables that can be identified and synthesized to form a fuller representation of the construct of media literacy. Because psychometrics relies on reasoning and logic in explaining outward behavior or aptitude through unseen variables, it is crucial that researchers are guided by existing theory regarding the latent variables. It is also important to use as a guide coherent and consistent steps and standards for developing sound instruments. The CEAM scale is steeped in the available literature and theory about media literacy education as per the recommendation of Potter and Byrne (2009) and follows the standards outlined in *The Standards for Educational and Psychological Testing* (1985), which specify that item selection and test revision are based on “content quality and scope, the weighting of items and subdomains, and the appropriateness of the items selected for the intended population of test takers” (p. 39).

Additionally, this study is as much a study of validity as it is psychometric structure, and, as such, the study is guided by Messick’s (1987) concept of integrated validity. Using this framework, validity is comprehensive, combining traditional

separations such as criterion, content, and construct validity; as Messick (1987) notes, “validity is a matter of degrees, not all or none” (p. 1).

### Participants

In Fall 2014 and Fall 2015, a purposive sample was taken from students enrolled in the first-year composition sequence at a large public institution in central Texas that is designated as an Hispanic-Serving Institution. During Fall 2014, a total of 346 students returned the scale. Twenty-three scales were incomplete and were eliminated before analysis, leaving a total of 323 completed scales. Demographic information was not gathered in Fall 2014 during Phase 1 as this phase was meant only to provide guidance in revising the scale. During Fall 2015, a total of 322 first-semester students returned the scale. All students in the sample completed the scale. Of those students in the Fall 2015 sample with complete demographic information available, 59% of students were female, and 40% were male. See Figure 2.1 for ethnicity/race breakdown.



*Figure 2.1. Ethnicity/race for Fall 2015 sample. This figure illustrates the complex race/ethnicity category for students within the sample.*



## **Data Collection**

During Phase 1 in Fall 2014, instructors of the first-year composition sequence were contacted via e-mail, first with a request for volunteers, and then with instructions for administering the scale in their classrooms. Instructors were directed not to provide extra credit or other incentives for student participation and not to answer any questions about content or directions while students were completing the scale. Each instructor read from a script of directions for the respondents. Seven instructors teaching 21 sections administered the scale. The scale was administered at the beginning of the semester so as to ensure the responses were not a result of instruction in media literacy.

During phase 2 in Fall 2015, instructors of the first-year composition sequence were contacted via e-mail about the study. Sixteen instructors teaching 26 sections agreed to allow the researcher to administer the scale. The scale was administered at the beginning of the semester so as to ensure the responses were not a result of instruction in media literacy. The researcher or one other doctoral researcher—who is certified in the Collaborative Institutional Training Initiative (CITI) Program and who was trained in how to administer the scale—visited each classroom and used a script to administer the scale. In all instances, to alleviate possible effects of social desirability and acquiescence, the instructor of the class left after the instructions were given and remained outside the room until all scales were turned in (completed or blank).

## **Instrumentation**

The purpose of the Critical Evaluation and Analysis of Media (CEAM) scale is to measure the self-reported practice of critically evaluating and analyzing visual media messages online for credibility, audience, and technical design elements. The CEAM

scale is a 27-item, 5-point Likert-type scale that asks students to consider their engagement with visual media commonly available on the internet (including watching or reading the news, viewing entertainment media, and viewing advertisements). On the scale, the responses range from “strongly disagree” to “strongly agree.” This response scale is consistent with the intent (Gable & Wolf, 1993) to measure students’ perceptions of how they engage with media most of the time. Additionally, five gradations allow for balanced optimization of the instrument’s reliability with careful, non-aggravated consideration from the respondents (Gable & Wolf, 1993).

The scale’s framework is derived from the core elements of media literacy identified by the National Association of Media Literacy Education (NAMLE): (a) access media, (b) analyze media, (c) evaluate media, and (d) communicate about and through media. These core elements are commonly accepted in the research (Ashley, Lyden, & Fasbinder, 2012; Duran, Yousman, Walsh, & Longshore, 2008; Mihailidis, 2011; Schmidt, 2012). And many media literacy instruments (e.g. Arke & Primack, 2009; Ashley, Lyden, & Fasbinder, 2012; Primack et al., 2006) include frameworks that cite NAMLE’s framework. However, because critical consumption of media rather than creation of media is of primary interest to the researcher, the CEAM scale only focuses on evaluation and analysis. To be as comprehensive as possible, items address news, advertisement, and entertainment media available online.

### **Results of Phase 1**

Complete data from 323 students for the original 32-item CEAM scale (which was later revised to consist of 27 items) were analyzed. This is satisfactory as per the rule of thumb for factor analysis specifying 10 subjects per item (Nunnally, 1978);

additionally, this is a good sample size based on Comrey and Lee's (1992) scale of sample size. An exploratory factor analysis (EFA) was used to address questions of model fit, validity, and reliability for the CEAM scale. In SPSS (PASW Statistics 18), principal axis factoring using an oblique (Promax) rotation was applied to the 32 items measuring students' self-reported critical viewing practices.

Before analysis, data screening was conducted. While incomplete responses were thrown out ahead of time, the scantron reader was unable to read some responses resulting in minimal missing data. Because less than 5% of the data available for variables was missing, mean-replacement for missing values was appropriate (Tabachnick & Fidell, 2013). Responses were not normally distributed. In particular, the responses were skewed. However, Tabachnick and Fidell (2013) argue that skewness and kurtosis may not make a substantive difference in analysis with samples larger than 200. Factorability and sampling adequacy were favorable. With a Kaiser-Meyer-Olkin (KMO) value of 9.0, the data were highly factorable. Bartlett's test of sphericity ( $\chi^2 = 3474.902$ ,  $df = 396$ ,  $p = .000$ ) demonstrates that there are correlations in the data set appropriate for factor analysis.

Examination of the scree plot (Cattell, 1966) revealed three factors with Eigenvalues above 1 before the factors begin to level off; this suggests three factors should be extracted from the data set. These three factors were extracted from the data set for further analysis. The first factor accounts for 26.234% of the total variance in the data set; the second factor accounts for 4.069% of the total variance in the data set; and the third factor accounts for 3.574% of the total variance in the data set. Items were retained for each of the three factors if the factor loading weight was greater than .32 (Tabachnick

& Fidell, 2013). After examining reliability and judging the content of each item with a loading weight below .32, five items were removed. See Table 2.1 for the remaining 27 items and their respective loading weights.

**Table 2.1** Pattern Matrix for Oblique Three-Factor Solution in EFA

Media Literacy Items	Standardized Factor Weights		
	1	2	3
09 I think about how news stories can be designed to sway me with facts and logic.	.690		
10 I distinguish between expert sources and non-expert sources in news stories.	.670		
17 I recognize that the political affiliations of news providers may influence how news stories are reported.	.650		
03 I consider what viewpoints might be missing when I watch or read the news.	.631		
14 I question a news story when credible sources for the ideas are not included.	.604		
12 I think about how advertisements can be designed to sway me with facts and logic.	.575		
11 If I see that a for-profit company is promoting a social cause in an advertisement, I recognize that the company is still advertising itself.	.572		
27 When watching or reading the news, I think about how images can be altered to fit the content of the news story.	.479		
29 When viewing an advertisement, I distinguish between facts and opinions about the product.	.425		
21 I think about how news stories can be designed to elicit an emotional response.	.409		<b>.361</b>
26 When watching or reading the news, I think about whether or not any images that are included accurately illustrate the content of the story.	<b>.382</b>		
32 I recognize that different news stories are written to appeal to people who have different values.	.377		
13 When watching or reading the news, I think about different purposes the story might have.	<b>.375</b>	.309	
19 When watching a television show, movie, or video, I think about whether or not it would appeal to diverse populations.		.844	
07 When watching or reading a news story, I think about whether or not it would appeal to diverse populations.		.775	
22 When viewing an advertisement, I think about whether or not it would appeal to diverse populations.		.747	
31 I think about why some advertisements may appeal to different audiences.		.416	
04 I think about why some television shows, movies, or videos may appeal to different audiences.		.380	
06 When watching television, movies, or videos, I think about the effect the editing techniques have on me.		.341	
15 When viewing an advertisement, I think about the effect the design has on me.			.692

01 When I watch a commercial, I pay attention to how the music makes me feel.	.618
25 I think about how advertisements can be designed to elicit an emotional response.	.608
02 I think about how television shows, movies, or videos can be designed to elicit an emotional response.	.462
20 I think about how the design of advertisements can draw my attention to specific images.	.446
30 I think about the strategies advertisers use to promote their products.	.418
16 When watching television, movies, or videos, I think about the lifestyles that are being promoted.	.370

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*Note.* For those items that cross-loaded, loading values for the factors with the best content fit are bolded.

In an effort to build a comprehensive view of validity (Messick, 1987), qualitative and quantitative methods of ascertaining validity were used. Qualitative item analysis was used to improve face validity—that items, on the surface, appear to measure what they are intended to measure—and content validity—the appropriateness of the items and test format. To improve face validity, items were cross-checked with another instructor who teaches media literacy within first-year composition; she confirmed that the content of the items match objectives appropriate at the college level, and that the wording of the items was appropriate for first-year college students. Additionally, items were reviewed for clarity by a research community consisting of literacy specialists and assessment specialists; members of the research community participated in think-alouds (Cohen, Swerdlik, & Sturman, 2012) to help narrow the item pool and revise the wording for stronger content validity. During think-alouds, these researchers were asked to read each item aloud, stopping to point out areas that were confusing and using word association to point out possible word and item meanings. The feedback these researchers provided was used to simplify wording in the items in order to alleviate possible effects of item difficulty and item discrimination. Analysis of item-to-total correlations also helped to determine the validity of the instrument; a correlation of at least .3 is preferable (Cohen,

Swerdlik, & Sturman, 2012). The remaining items in the revised scale that were not deleted all fall within acceptable ranges of item-to-total correlations. Additionally, correlations among factors did not exceed .90, so it can be assumed that while the items are all measuring the same construct, they are providing distinct information about the construct (Brown, 2006).

Finally, internal consistency score reliability should be .80 or above (Price, 2016; Nunnally, 1978). Overall reliability for the revised 27-item scale is high ( $\alpha = .91$ ). Reliability for Factor 1 is adequate ( $\alpha = .87$ ). Reliability for Factor 2 ( $\alpha = .79$ ) and Factor 3 ( $\alpha = .74$ ) is acceptable.

## **Results of Phase 2**

Complete data from 322 students for the revised 27-item scale were analyzed. This is satisfactory as per the rule of thumb for factor analysis specifying 10 subjects per item (Nunnally, 1978); additionally, this is a good sample size based on Comrey and Lee's (1992) scale of sample size. A confirmatory factor analysis (CFA) was used to address questions of model fit, validity, and reliability for the CEAM scale. In SPSS (IBM Statistics 23), principal axis factoring using an oblique (Promax) rotation was applied to the 27 items measuring students' self-reported critical viewing practices.

Before analysis, data screening was conducted. There were no missing values. Normality was also examined, with particular attention to skewness and kurtosis because of predicted issues with social desirability and acquiescence that came up in Phase 1 of the study. Responses were not normally distributed. However, Tabachnick and Fidell (2013) argue that skewness and kurtosis may not make a substantive difference in analysis with samples larger than 200. Factorability and sampling adequacy were

favorable, though. With a Kaiser-Meyer-Olkin (KMO) value of 9.1, the data were highly factorable. Bartlett’s test of sphericity ( $\chi^2 = 3053.231$ ,  $df = 351$ ,  $p = .000$ ) demonstrates that there are correlations in the data set appropriate for factor analysis.

Based on a review of the bivariate correlation analysis and an analysis of the content of the items, three factors were extracted using principal axis factoring with an oblique rotation. The first factor accounts for 31.401% of the total variance in the data set; the second factor accounts for 5.926% of the total variance in the data set; and the third factor accounts for 5.130% of the total variance in the data set. The loading weights for most items were strong. Loading weights should be above .32 (Tabachnick & Fidell, 2013). See Table 2.2 for items and their respective loading weights.

**Table 2.2** Pattern Matrix for Oblique Three-Factor Solution in CFA

Media Literacy Items	Standardized Factor Weights		
	1	2	3
12 I question a news story when credible sources for the ideas are not included.	.662		
03 I consider what viewpoints might be missing when I watch or read the news.	.633		
22 When watching or reading the news, I think about whether or not any images that are included accurately illustrate the content of the story.	.627		
08 I distinguish between expert sources and non-expert sources in news stories.	.561		
07 I think about how news stories can be designed to sway me with facts and logic.	.558		
24 When viewing an advertisement, I distinguish between facts and opinions about the product.	.464		
20 I think about the strategies news reporters use in news stories.	.380		
11 When watching or reading the news, I think about different purposes the story might have.	.336		
18 I think about how news stories can be designed to elicit an emotional response.	.303		<b>.294</b>
16 When watching a television show, movie, or video, I think about whether or not it would appeal to diverse populations.	.	.809	
19 When viewing an advertisement, I think about whether or not it would appeal to diverse populations.		.774	
26 I think about why some advertisements may appeal to different audiences.		.703	
06 When watching or reading a news story, I think about whether or not it would appeal to diverse populations.		.611	

10 I think about how advertisements can be designed to sway me with facts and logic.	<b>.214</b>	.398	
27 I recognize that different news stories are written to appeal to people who have different values.		.369	
04 I think about why some television shows, movies, or videos may appeal to different audiences.		.350	
01 When I watch a commercial, I pay attention to how the music makes me feel.		.346	<b>.279</b>
02 I think about how television shows, movies, or videos can be designed to elicit an emotional response.		.336	<b>.115</b>
05 When watching television, movies, or videos, I think about the effect the editing techniques have on me.			.737
13 When viewing an advertisement, I think about the effect the design has on me.			.722
17 I think about how the design of advertisements can draw my attention to specific images.			.573
09 If I see that a for-profit company is promoting a social cause in an advertisement, I recognize that the company is still advertising itself.	.337		<b>.486</b>
25 I think about the strategies advertisers use to promote their products.			.455
21 I think about how advertisements can be designed to elicit an emotional response.			.356
14 When watching television, movies, or videos, I think about the lifestyles that are being promoted.			.297

*Note.* Items with content that do not fit well into the factors they loaded on are highlighted. For these items, the loading values for the factors with more applicable content are bolded. One other item—Item 9—cross-loaded; the loading value for the factor with the best content fit is bolded.

Factor 1 (Items 12, 3, 22, 8, 7, 24, 20, 11, and 10) appears to measure the practice of questioning credibility. Factor 2 (Items 16, 19, 26, 6, 27, and 4) appears to measure the practice of recognizing different audiences. Factor 3 (Items 18, 1, 2, 5, 13, 17, 9, 25, 21, and 14) appears to measure the practice of recognizing strategies used in the design of a media message. Thus, the three subscales of the CEAM scale have been named: (a) questioning credibility, (b) recognizing audience, and (c) recognizing design.

Analysis of item-to-total correlations also helped to determine the validity of the instrument. Item-to-total correlations were all above .3; a correlation of at least .3 is preferable (Cohen, Swerdlik, & Sturman, 2012). Additionally, correlations among factors did not exceed .90, so it can be assumed that while the items are all measuring the



same construct, they are providing distinct information about the construct (Brown, 2006).

Finally, internal consistency score reliability should be .80 or above (Price, 2016; Nunnally, 1978). Overall reliability for the 27-item scale is high ( $\alpha = .91$ ). Reliability for Factor 1 ( $\alpha = .8$ ) and Factor 3 ( $\alpha = .81$ ) is good. Reliability for Factor 2 ( $\alpha = .78$ ) is acceptable.

### **Discussion**

The exploratory factor analysis revealed that a 3-factor structure was the best fit for the data. However, upon examination of loading weights, reliability, and content, several items were deleted from the original 32-item scale. The confirmatory factor analysis of the revised 27-item scale also revealed three factors: (a) questioning credibility, (b) recognizing audience, and (c) recognizing design. This underlying structure of the instrument suggests that there are measureable strategies that students can practice for critically analyzing and evaluating visual media messages. These skills cut across type of media message (news, entertainment, and advertisement), which suggests that students can use the same set of skills to critically analyze and evaluate different types of media messages. As such, the CEAM scale addresses the concern researchers (Ashley, Lyden, & Fasbinder, 2012; Brumberger, 2011) have that students do not critically question media messages online. See Table 2.3 for a list of the items in each factor or subscale.

**Table 2.3** Subscales of the Critical Evaluation and Analysis of Media (CEAM) Scale

Questioning Credibility	Recognizing Audience(s)	Recognizing Design
12 I question a news story when credible sources for the ideas are not included.	16 When watching a television show, movie, or video, I think about whether or not it would appeal to diverse populations.	18 I think about how news stories can be designed to elicit an emotional response.
03 I consider what viewpoints might be missing when I watch or read the news.	19 When viewing an advertisement, I think about whether or not it would appeal to diverse populations.	01 When I watch a commercial, I pay attention to how the music makes me feel.
22 When watching or reading the news, I think about whether or not any images that are included accurately illustrate the content of the story.	26 I think about why some advertisements may appeal to different audiences.	02 I think about how television shows, movies, or videos can be designed to elicit an emotional response.
08 I distinguish between expert sources and non-expert sources in news stories.	06 When watching or reading a news story, I think about whether or not it would appeal to diverse populations.	05 When watching television, movies, or videos, I think about the effect the editing techniques have on me.
07 I think about how news stories can be designed to sway me with facts and logic.	27 I recognize that different news stories are written to appeal to people who have different values.	13 When viewing an advertisement, I think about the effect the design has on me.
24 When viewing an advertisement, I distinguish between facts and opinions about the product.	04 I think about why some television shows, movies, or videos may appeal to different audiences.	17 I think about how the design of advertisements can draw my attention to specific images.
20 I think about the strategies news reporters use in news stories.		09 If I see that a for-profit company is promoting a social cause in an advertisement, I recognize that the company is still advertising itself.
11 When watching or reading the news, I think about different purposes the story might have.		25 I think about the strategies advertisers use to promote their products.
10 I think about how advertisements can be designed to sway me with facts and logic.		21 I think about how advertisements can be designed to elicit an emotional response.
		14 When watching television, movies, or videos, I think about the lifestyles that are being promoted.

A few items were problematic (Items 18, 10, 1, and 2) and loaded onto factors which they did not best fit under from a content perspective, but were moved to the factor under which they did best fit as per the recommendations in *The Standards for Educational and Psychological Testing* (1985), which specify that item selection and test revision be based not just on the weighting of items but also the content of the items and the appropriateness for the intended population. Item 10 represents thought about whether

or not there are facts present in a given advertisement, an aspect of credibility. As such, this item represents questioning credibility (Factor 1). Items 18, 1, and 2 represent thought about a design element a media producer uses to elicit an emotional response. As such, these three items represent recognizing design (Factor 3). Despite these three weaker items being moved to Factor 3, the reliability for Factor 3 has improved from Phase 1 ( $\alpha = .74$ ) to Phase 2 ( $\alpha = .81$ ).

In fact, the reliability for all three factors is good or adequate: Factor 1 ( $\alpha = .8$ ), Factor 2 ( $\alpha = .78$ ), and Factor 3 ( $\alpha = .81$ ). However, it is not recommended that these subscales be used in isolation. Media literacy is a complex construct and should not be winnowed down to one aspect. Researchers can learn more from a complex instrument that considers multiple aspects of media literacy; the high reliability of the instrument as a whole ( $\alpha = .91$ ) supports its use as a whole.

### **Limitations of the Study**

The primary limitation to the study is that data were collected at a single institution, making the findings of the study less generalizable. Additionally, while efforts were made to alleviate social desirability and acquiescence by asking the instructor to leave the room during the administration of the scale in Phase 2, social desirability and acquiescence among the respondents was still a likely cause of the skewness in the data. This is especially true among a generation of students that have been told they have a high aptitude for engaging with media on the internet, a generation of students who have been (however falsely) labeled “digital natives” (Prensky, 2001).

## **Implications**

Unfortunately, there is limited empirical research available to inform the content of media literacy curriculum or to examine the impact of media literacy education and interventions (Hobbs & Frost, 2003; Livingstone & Wang, 2014). While there are a handful of studies demonstrating the need for or the impact of media literacy education at the college level (e.g. Ashley, Lyden, & Fasbinder, 2012; Brumberger, 2011; Duran et al., 2008; Mihaildis, 2011), there is still much work to be done. Toward this goal, assessments are needed, especially if policy makers who rely on numbers in decision making are to see the need for media literacy education. As Livingstone and Wang (2014) argue, policy will be necessary for systematic and inclusive media literacy curriculum for adults. Jolls and Walkosz (2014) similarly argue that it will be necessary to impact media literacy through policy. The CEAM scale may provide a way to gather data for policy decisions. For instance, the CEAM scale may prove useful in pre- and post-tests to evaluate the effectiveness of different types of media literacy interventions. The CEAM scale may also provide important baseline information about the media literacy skills students bring to different levels of study.

In a more localized setting, the CEAM scale may be a useful reflective tool in the classroom. The CEAM scale could be used as a self-assessment tool before and/or after a media literacy lesson. The scale could be used as a conversation-starter paired with discussions of social justice or marketing to increase awareness of the manipulation of images to uphold the status quo or to influence the consumer. However, it is not recommended as a formal evaluative tool. The ultimate goal of this research and this instrument is to increase awareness about the pervasive nature of visual media messages

online. If our goal as educators is to encourage students to be responsible citizens and consumers in the world, then it is crucial that our students develop agency in media literacy through activities that are self-reflective and allow room for risk.

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### **III. AN ITEM RESPONSE THEORY ANALYSIS OF THE CRITICAL EVALUATION AND ANALYSIS OF MEDIA SCALE**

Media literacy has important implications for critical thinking, self-advocacy, and tolerant global citizenship (De Abreu & Mihailidis, 2014; Schwarz, 2014). As such, the importance of media literacy education is not in question. However, media literacy education is lacking in the U.S. (Christ, 2004; Hobbs, 2011; Kubey, 2003; Martens, 2010), and there is often little consensus among researchers or instructors about what competencies to include in curriculum or how to measure them (Christ, 2014; Hobbs, 2004; Kellner & Share, 2005; Livingstone & Wang, 2014; Schmidt, 2013). Arke and Primack (2009) argue that because assessment is necessary for the development of standards and the obtainment of accreditation, it is crucial that researchers develop instruments to measure the impact of media literacy education. And, similarly, Livingstone & Wang (2014) argue that assessment is needed to impact policy decisions. However, arguably because of the complexity of media literacy as a construct, it is difficult to measure (Arke & Primack, 2009; Christ, 2004; Hobbs & Frost, 2003).

Because of that complexity, assessing media literacy begins with defining the competencies of media literacy education (Martens, 2010). The core elements of media literacy identified by the National Association of Media Literacy Education (NAMLE) follow: (a) access media, (b) analyze media, (c) evaluate media, and (d) communicate about and through media. These core elements are commonly accepted in the research (Ashley, Lyden, & Fasbinder, 2012; Duran, Yousman, Walsh, & Longshore, 2008; Mihailidis, 2011; Schmidt, 2012). And, many media literacy instruments (e.g. Arke & Primack, 2009; Ashley, Lyden, & Fasbinder, 2012; Primack et al., 2006) include

frameworks that cite NAMLE's media literacy competencies. Additionally, researchers and theorists (e.g. Duran et al., 2008; Kellner & Share, 2005; Martens, 2010; Pernisco, 2014; Potter, 2010) agree that it is important to understand that, by nature, media messages are constructed. For this reason, it is crucial that instruments that measure media literacy are critical and consider the design of media messages. Finally, as Martens (2010) points out, while qualitative studies can provide rich information about media literacy education, quantitative studies, and therefore quantitative assessments, are often the norm because of the ability to provide hard data which is more likely to impact systematic change.

Some instruments already exist for measuring media literacy, but they are not widely used. Existing instruments include qualitative (e.g. Ashley, Lyden, & Fasbinder, 2012; Hobbs & Frost, 2003; Quin & McMahon, 1993), quantitative (e.g. Chang et al., 2011; Engeln-Maddox & Miller, 2008; Literat, 2014; Primack et al., 2006; Vraga, 2016), and mixed measures of media literacy (e.g. Arke & Primack, 2009; Duran et al., 2008). Only a handful of these instruments focus on college students (e.g. Arke & Primack, 2009; Duran et al., 2008; Engeln-Maddox & Miller, 2008; Literat, 2014; Vraga, 2016). But these instruments present issues. For example, the Knowledge of Media Structures and Media Influence scales developed by Duran et al. (2008) are specific to curriculum developed at one institution. The Critical Processing of Beauty Images (CPBI) created by Engeln-Maddox and Miller (2008) is only focused on analysis and evaluation of media messages featuring idealized women. And, the instrument developed by Arke and Primack's (2009) is outdated in that it only measures old media (media available through

the traditional routes of television, radio, and print) as opposed to new media (media available on the internet).

The purpose of this study is to determine the generalizability of an instrument designed to measure college students' self-reported practice of analyzing and evaluating visual media messages online. This instrument has been titled the Critical Evaluation and Analysis of Media (CEAM) scale. As a sample-free measurement, Item Response Theory (IRT) allows for such a determination (Hambleton, Swaminathan, & Rogers, 1991; Price, 2016). Item response theory (IRT) also allows researchers to examine both the ability (a.k.a. latent trait) of persons and the characteristics of items in an instrument (de Ayala, 2009; Price, 2016).

### **Methods**

This quantitative research study builds on a previous study in which an exploratory factor analysis and confirmatory factor analysis were conducted to gather data about model fit, validity, and reliability. The previous study found that the CEAM scale has a valid three-factor structure with a high overall reliability ( $\alpha = .91$ ), and good reliability among each of the subscales: Questioning Credibility ( $\alpha = .8$ ), Recognizing Audience ( $\alpha = .78$ ), and Recognizing Design ( $\alpha = .81$ ). The present study is designed to answer the following question: is the CEAM scale a generalizable instrument for measuring college students' self-reported practice of evaluating and analyzing visual media messages online?

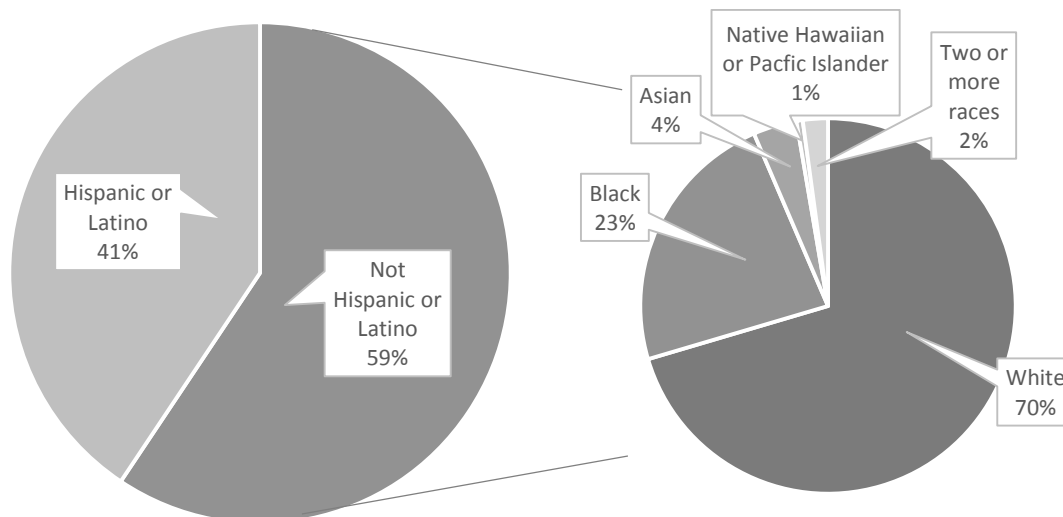
Because psychometrics relies on reasoning and logic in explaining outward behavior or aptitude through unseen variables, it is crucial that researchers are guided by existing literature and theory in developing an instrument. It is also important to use as a

guide coherent and consistent steps and standards for developing sound instruments. The CEAM scale is steeped in the available literature and theory about media literacy education and follows the standards outlined in *The Standards for Educational and Psychological Testing*, which specify that item selection and test revision are based on “content quality and scope, the weighting of items and subdomains, and the appropriateness of the items selected for the intended population of test takers” (1985, p. 39).

Additionally, this study is as much a study of validity as it is psychometric structure, and as such, the study is guided by Messick’s (1987) concept of integrated validity. Using this framework, validity is comprehensive, combining traditional separations such as criterion, content, and construct validity; as Messick (1987) notes, “validity is a matter of degrees, not all or none” (p. 1).

### **Participants**

In Fall 2015, a purposive sample was taken from students enrolled in the first-year composition sequence at a large public institution in central Texas that is designated as an Hispanic-Serving Institution. A total of 322 first-semester students completed the scale; all students in the sample completed the scale. For the 27-item scale, the total of 322 participants is satisfactory as per the rule of thumb for factor analysis specifying 10 subjects per item (Nunnally, 1978); additionally, this is a good sample size based on Comrey and Lee’s (1992) scale of sample size. Of those students in the Fall 2015 sample with complete demographic information available, 59% of students were female, and 40% were male. See Figure 3.1 for the ethnicity/race breakdown.



*Figure 3.1. Ethnicity/race for Fall 2015 sample. This figure illustrates the complex race/ethnicity category for students within the sample.*

### **Data Collection**

In Fall 2015, instructors of the first-year composition sequence were contacted via e-mail about the study. Sixteen instructors teaching 26 sections agreed to allow the researcher to administer the scale. The scale was administered at the beginning of the semester so as to ensure the responses were not a result of instruction in media literacy. The researcher or one other doctoral researcher—who is certified in the Collaborative Institutional Training Initiative (CITI) Program and who was trained in how to administer the scale—visited each classroom and used a script to administer the scale. In all instances, the instructor of the class left after the instructions were given and remained outside the room until all scales were turned in (completed or blank).

### **Instrumentation**

The purpose of the Critical Evaluation and Analysis of Media (CEAM) scale is to measure the self-reported practice of critically evaluating and analyzing visual media

messages online for credibility, audience, and technical design elements. The CEAM scale is a 27-item, 5-point Likert-type scale that asks students to consider their engagement with visual media commonly available on the internet (including watching or reading the news, viewing entertainment media, and viewing advertisements). On the scale, the responses range from “strongly disagree” to “strongly agree.” This response scale is consistent with the intent (Gable & Wolf, 1993) to measure students’ perceptions of how they engage with media most of the time. Additionally, five gradations allow for balanced optimization of the instrument’s reliability with careful, non-aggravated consideration from the respondents (Gable & Wolf, 1993).

The scale’s framework is derived from the core elements of media literacy identified by the National Association of Media Literacy Education (NAMLE): (a) access media, (b) analyze media, (c) evaluate media, and (d) communicate about and through media. These core elements are commonly accepted in the research (Ashley, Lyden, & Fasbinder, 2012; Duran, Yousman, Walsh, & Longshore, 2008; Mihailidis, 2011; Schmidt, 2012). And, many media literacy instruments (e.g. Arke & Primack, 2009; Ashley, Lyden, & Fasbinder, 2012; Primack et al., 2006) include frameworks that cite NAMLE’s framework. However, because critical consumption of media rather than creation of media is of primary interest to the researcher, the CEAM scale only focuses on evaluation and analysis.

The CEAM scale has a valid three-factor structure with a high overall reliability ( $\alpha = .91$ ), and good reliability among each of the subscales: (a) Questioning Credibility ( $\alpha = .8$ ), (b) Recognizing Audience ( $\alpha = .78$ ), and (c) Recognizing Design ( $\alpha = .81$ ). To be



as comprehensive as possible, items within each of these subscales address news, advertisement, and entertainment media available online.

## **Results**

In this investigation, a unidimensional IRT model was fit to item-level data based on the structure identified in the factor analysis conducted in the previous study. One assumption underlying IRT is unidimensionality—that the underlying set of items measures a single construct (Brown, 2006). In order to verify unidimensionality—that the subscales or factors are all measuring one construct or dimension—the model was first tested using a second-order confirmatory factor analysis in Mplus (version 7.4). The results of the unidimensional second-order factor analysis revealed adequate model-data fit,  $\chi^2(351) = 3159.53, p \leq .001, RMSEA = .07 (.06-.07), CFI = .90$ . The chi-square global test of model fit was rejected indicating a lack of adequate model-data fit. However, the chi-square is highly sensitive to sample size (e.g., sample sizes  $> 100$  nearly always yield statistically significant findings). To address this challenge, additional measures of fit were used to evaluate the fit of the model to the sample data. Specifically, the RMSEA point estimate was .08 with an upper confidence interval less than .08, which is considered acceptable (Schumacker & Lomax, 2004). Additionally, while the comparative fit index (CFI) was originally too low at .82, correlated error terms for the items were added to improve CFI. A CFI level of .90 or higher is viewed as being acceptable (Schumacker & Lomax, 2004). Based on the factor analytic results, application of IRT to the item-level response data was deemed appropriate.

Item response theory analysis was run using the Item Response Theory for Patient Reported Outcomes (IRTPRO, version 3.1) software. Specifically, a MULTILOG

graded response model (GRM) was used. Embretson and Reise (2000) recommend this model for data from Likert-type instruments in which the number of response options is consistent throughout. Results of the analysis revealed an IRT-based score reliability for the 27-item scale as high ( $\alpha = .93$ ). Internal consistency score reliability should be .80 or above (Nunnally, 1978; Price, 2016). Additionally, all standardized factor loadings were observed as .42 or above; factor loadings are satisfactory if above .32 (Tabachnick & Fidell, 2013; Price, 2016). See Table 3.1 for the standardized factor loading weights for each item.

**Table 3.1** Standardized Factor Loadings

Media Literacy Items	Standardized Factor Weights
01 When I watch a commercial, I pay attention to how the music makes me feel.	.42
02 I think about how television shows, movies, or videos can be designed to elicit an emotional response.	.63
03 I consider what viewpoints might be missing when I watch or read the news.	.59
04 I think about why some television shows, movies, or videos may appeal to different audiences.	.68
05 When watching television, movies, or videos, I think about the effect the editing techniques have on me.	.46
06 When watching or reading a news story, I think about whether or not it would appeal to diverse populations.	.57
07 I think about how news stories can be designed to sway me with facts and logic.	.60
08 I distinguish between expert sources and non-expert sources in news stories.	.54
09 If I see that a for-profit company is promoting a social cause in an advertisement, I recognize that the company is still advertising itself.	.51
10 I think about how advertisements can be designed to sway me with facts and logic.	.52
11 When watching or reading the news, I think about different purposes the story might have.	.59
12 I question a news story when credible sources for the ideas are not included.	.59
13 When viewing an advertisement, I think about the effect the design has on me.	.55
14 When watching television, movies, or videos, I think about the lifestyles that are being promoted.	.56
15 I recognize that the political affiliations of news providers may influence how news stories are reported.	.49
16 When watching a television show, movie, or video, I think about whether or not it would appeal to diverse populations.	.65
17 I think about how the design of advertisements can draw my attention to specific images.	.73
18 I think about how news stories can be designed to elicit an emotional response.	.74

19 When viewing an advertisement, I think about whether or not it would appeal to diverse populations.	.68
20 I think about the strategies news reporters use in news stories.	.66
21 I think about how advertisements can be designed to elicit an emotional response.	.77
22 When watching or reading the news, I think about whether or not any images that are included accurately illustrate the content of the story.	.58
23 When watching or reading the news, I think about how images can be altered to fit the content of the news story.	.75
24 When viewing an advertisement, I distinguish between facts and opinions about the product.	.78
25 I think about the strategies advertisers use to promote their products.	.73
26 I think about why some advertisements may appeal to different audiences.	.63
27 I recognize that different news stories are written to appeal to people who have different values.	.62

Next, item discrimination values were examined to determine how well each item can successfully differentiate between responses of students with a lower perceived level of media literacy and a higher perceived level of media literacy. Baker (2001) provides useful labels for discrimination parameter values: very low (.01-.34), low (.35-.64), moderate (.65-1.34), high (1.35-1.69), and very high, (greater than 1.70). All items on the CEAM scale exhibit moderate discrimination parameter values or higher. Specifically, 15 items exhibit moderate discrimination parameter values (Items 01, 03, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14, 15, 22, and 27); six items exhibit high discrimination parameter values (Items 02, 04, 16, 19, 20, and 26); and six items exhibit very high discrimination parameter values (Items 17, 18, 21, 23, 24, and 25). See Table 3.2 for discrimination parameter values for each item.

**Table 3.2** Discrimination Parameter Values

Media Literacy Items	Discrimination Parameter Values		
	Moderate	High	Very High
01 When I watch a commercial, I pay attention to how the music makes me feel.	.78		
02 I think about how television shows, movies, or videos can be designed to elicit an emotional response.		1.37	
03 I consider what viewpoints might be missing when I watch or read the news.	1.26		

04 I think about why some television shows, movies, or videos may appeal to different audiences.		1.58
05 When watching television, movies, or videos, I think about the effect the editing techniques have on me.	.88	
06 When watching or reading a news story, I think about whether or not it would appeal to diverse populations.	1.17	
07 I think about how news stories can be designed to sway me with facts and logic.	1.29	
08 I distinguish between expert sources and non-expert sources in news stories.	1.10	
09 If I see that a for-profit company is promoting a social cause in an advertisement, I recognize that the company is still advertising itself.	1.02	
10 I think about how advertisements can be designed to sway me with facts and logic.	1.03	
11 When watching or reading the news, I think about different purposes the story might have.	1.24	
12 I question a news story when credible sources for the ideas are not included.	1.26	
13 When viewing an advertisement, I think about the effect the design has on me.	1.11	
14 When watching television, movies, or videos, I think about the lifestyles that are being promoted.	1.15	
15 I recognize that the political affiliations of news providers may influence how news stories are reported.	.96	
16 When watching a television show, movie, or video, I think about whether or not it would appeal to diverse populations.		1.45
17 I think about how the design of advertisements can draw my attention to specific images.		1.82
18 I think about how news stories can be designed to elicit an emotional response.		1.88
19 When viewing an advertisement, I think about whether or not it would appeal to diverse populations.		1.56
20 I think about the strategies news reporters use in news stories.		1.50
21 I think about how advertisements can be designed to elicit an emotional response.		2.07
22 When watching or reading the news, I think about whether or not any images that are included accurately illustrate the content of the story.	1.21	
23 When watching or reading the news, I think about how images can be altered to fit the content of the news story.		1.91
24 When viewing an advertisement, I distinguish between facts and opinions about the product.		2.09
25 I think about the strategies advertisers use to promote their products.		1.82
26 I think about why some advertisements may appeal to different audiences.		1.39
27 I recognize that different news stories are written to appeal to people who have different values.	1.33	

Expected a posteriori (EAP) values were also examined to determine if respondents will perform as expected, those with a lower perceived media literacy level scoring lower and those with a higher perceived media literacy level scoring higher.

Table 3.3 represents a snapshot of the EAP results.

**Table 3.3** Perceived Media Literacy Proficiency

Average Score	Expected A Posteriori
1	-1.59
2	-0.25
3	1.07
4	3.69

As expected, a student with a lower perceived media literacy level will score lower, and a student with a higher perceived media literacy level will score higher on the assessment.

Finally, item information function (IIF) and item characteristic curves (ICC) were also examined for each item in the scale. These results support the discrimination parameter values and EAP values.

### **Discussion**

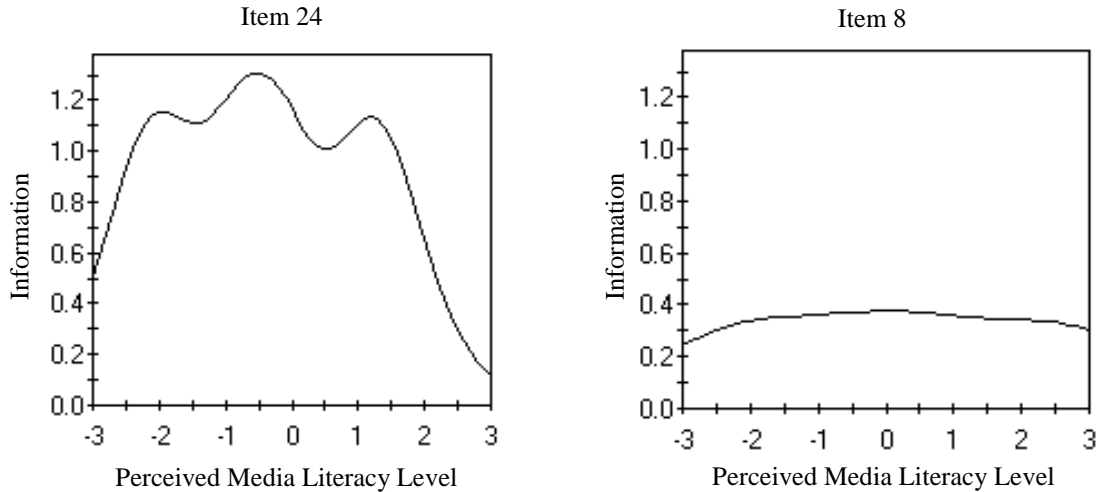
One major benefit of IRT over CFA is that researchers have the opportunity to examine more item-level statistics, whereas the strength of CFA is in examining the factor-level structure. One of several item-level statistics unique to IRT is the discrimination parameter values. Item discrimination parameter values signify how well each individual item can differentiate between respondents of different abilities. In this case, the item discrimination parameter values signify how well each item differentiates between students with lower perceived media literacy levels and higher perceived media literacy levels.

As can be seen in Table 3.2, one trend in the discrimination parameter values is that items about advertising tend to have the highest capacity for differentiating between students of higher and lower perceived media literacy levels. However, items regarding credibility of news stories tend toward only moderately differentiating between students of higher and lower perceived media literacy levels. A second trend in the discrimination parameter values is that items that consider why media messages appeal to different audiences tend to have a high capacity for differentiating between students of higher and lower perceived media literacy levels.

Item information function (IIF) graphs and item characteristic curves (ICC) are also unique to IRT and can help to explain some of these trends. IIF graphs represent how well the item differentiates between responses of students with a lower perceived level of media literacy and students with a higher perceived level of media literacy. A flatter line in the graph means this item differentiates less, while a line with peaks means the item differentiates more. ICCs graphically represent the probability that a student with a lower or higher perceived level of media literacy will choose one of the five responses on the item, each represented by a different numbered and colored line.

An examination of IIF graphs provides additional evidence for the first trend that while items about advertising tend to have the highest capacity for differentiating between students of different perceived media literacy levels, items about credibility in new stories tend toward only moderately differentiating between students of different perceived media literacy levels. Figure 3.2 represents IIFs for Item 24, “When viewing an advertisement, I distinguish between facts and opinions about the product” (very high

discrimination) and Item 8, “I distinguish between expert sources and non-expert sources in news stories” (moderate discrimination).

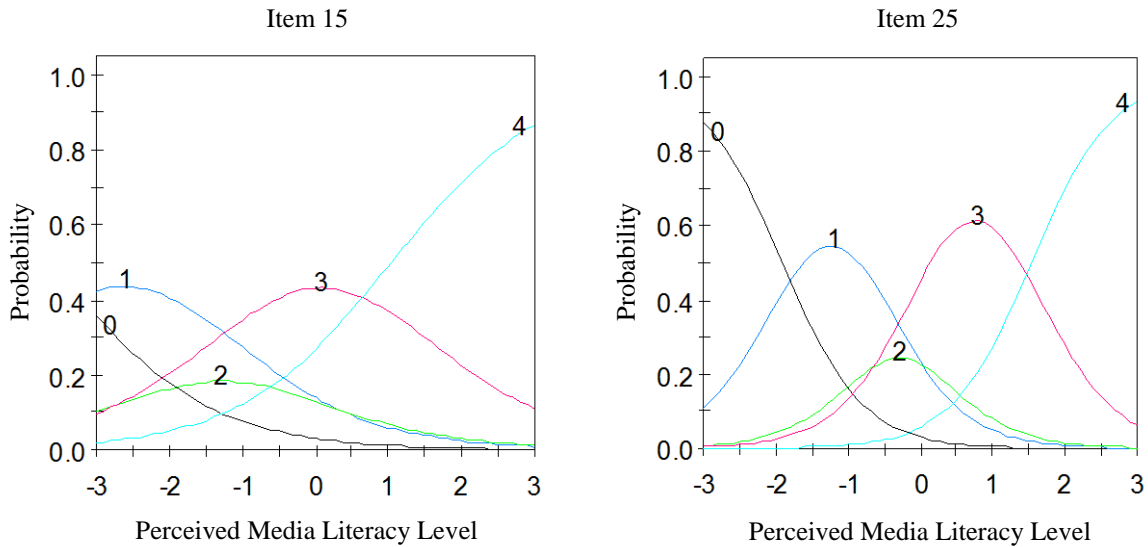


*Figure 3.2. Item information function for Item 24 and Item 8. This figure illustrates the capacity of items about advertisement and news to differentiate between students with different perceived media literacy levels.*

In the first IIF graph in Figure 3.2, the IIF line is more peaked, meaning that Item 24 does differentiate well between students with different perceived media literacy levels, especially for students with a low perceived media literacy level (around the -2.5 mark), a moderately low perceived media literacy level (around the -0.5 mark), and a good perceived media literacy level (around the 1.5 mark). On the other hand, in the second IIF graph in Figure 3.2, the IIF line is flatter, meaning Item 8 does not differentiate as well between respondents who have lower and higher perceived levels of media literacy.

Examination of ICCs also support the finding that items about advertising tend to have the highest capacity for differentiating between students of different perceived media literacy levels, while items about credibility in new stories tend toward only moderately differentiating between students of different perceived media literacy levels. ICCs illustrate the probability that a student with a lower or higher perceived level of

media literacy will choose one of five responses on the item, each represented by a different colored and numbered line. See Figure 3.3.



*Figure 3.3. Item characteristic curves for Item 15 and Item 25. This figure illustrates probability of students with different perceived media literacy levels to respond in a particular way to items about news and advertisement.*

In Figure 3.3 for Item 15—“I recognize that the political affiliations of news providers may influence how news stories are reported”—a student with a very low perceived level of media literacy (at the -3 point) is about 40% likely to choose the “disagree” response (trace line 1). This student is actually more likely to choose the “disagree” response (trace line 1) than the “strongly disagree” response (trace line 0), suggesting at least some efficacy. There is also about a 10% chance that a student with a very low perceived level of media literacy will choose the “undecided” response (trace line 2), and a 10% chance that the same student will choose the “agree” response (trace line 3). It is important to note here that there isn’t a strong likelihood that students with lower perceived levels of media literacy will choose the “strongly disagree” response for this item. By contrast, in Figure 3.3 for Item 25—“I think about the strategies advertisers



use to promote their products”—there is about a 90% chance that a student with a very low perceived level of media literacy will choose the “strongly disagree” response (trace line 0), while there is also about a 90% chance that a student with a very high perceived level of media literacy will choose the “strongly agree” response (trace line 4). Again, this supports the earlier results that items about advertising tend to yield more information than items about news with regard to how students with different perceived levels of media literacy might respond.

Additionally, examination of ICCs support the second trend that items that consider why media messages appeal to different audiences tend to have a high capacity for differentiating between students of higher and lower perceived media literacy levels. Each item in Figure 3.4 deals with audience, and, in all cases, there is about an 80% chance that students with very low perceived media literacy levels are likely to answer “strongly disagree.” In other words, for items about audience, students with very low perceived media literacy levels do not believe they think about who the audience is or why the media message appeals to that audience. On the other hand, for these items students with very high perceived media literacy levels are 60%-90% likely to answer “strongly agree.” In all, examination of the ICCs in Figure 3.4 would suggest that students with lower perceived media literacy levels are not likely to respond that they think about how media messages reach different audiences, while students with higher perceived media literacy levels are likely to respond that they think about how media messages reach different audiences. See Figure 3.4 below.

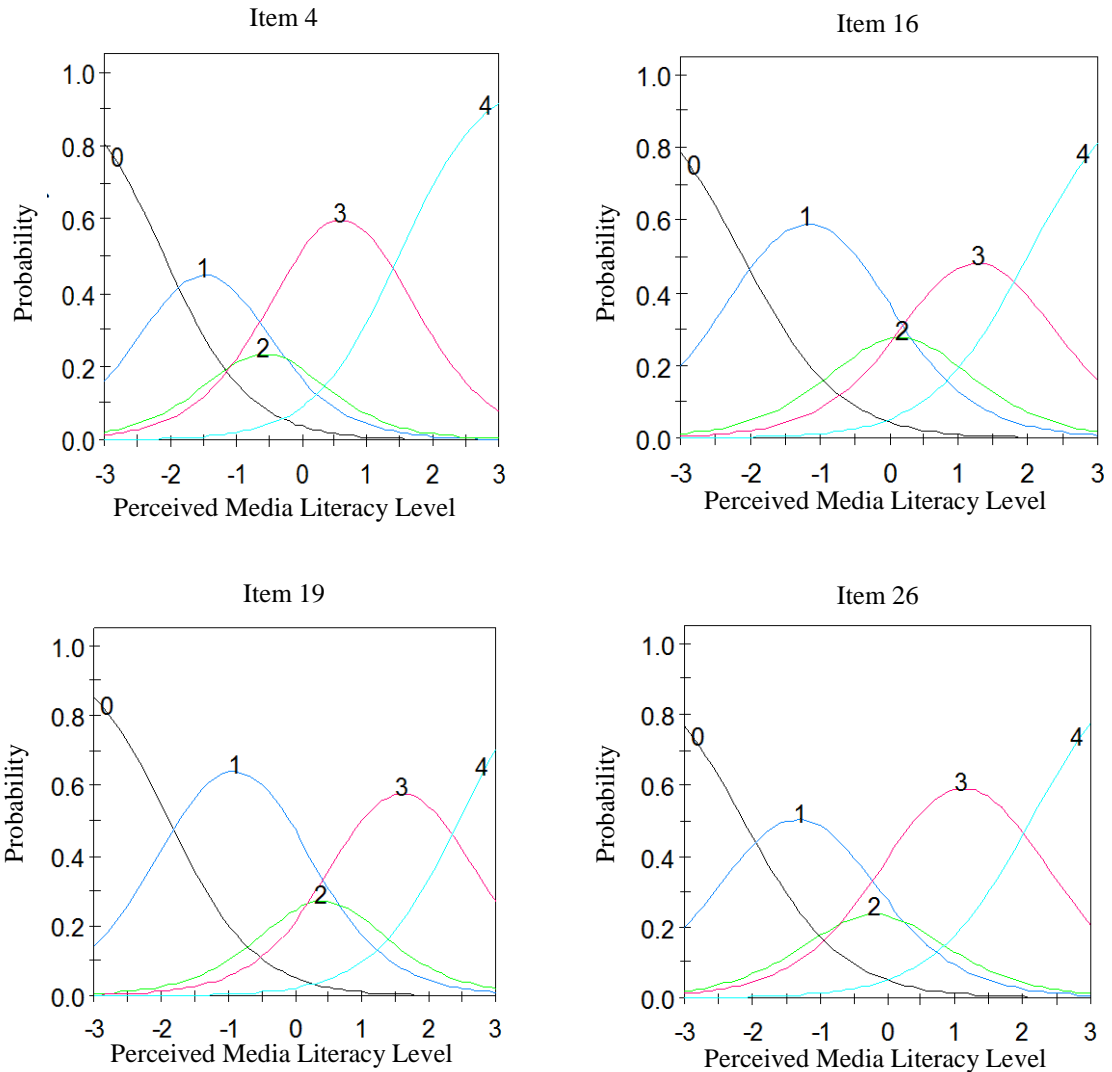


Figure 3.4. Item characteristic curves for Item 4, Item 16, Item 19, and Item 26. This figure illustrates probability of students with different perceived media literacy levels to respond in a particular way to items about audience.

These data support the idea that being able to recognize that media messages are targeted to different audiences is a competency that can help to differentiate media literacy levels.

### Limitations of the Study

One assumption of IRT is the assumption of unidimensionality (Brown, 2006), so for scales with multiple factors, researchers must make the decision of whether to run IRT analysis on the scale as a whole or for each subscale. In order to verify unidimensionality—that the subscales or factors are all measuring one construct or

dimension—the model was first tested using a second-order confirmatory factor analysis. This yielded an adequate model-data fit, but not a great model-data fit. However, a qualitative analysis of the construct also supported the unidimensionality of the scale.

Additionally, while efforts were made to alleviate social desirability and acquiescence by asking the instructor to leave the room during the administration of the scale, social desirability and acquiescence among the respondents was still a likely cause of the skewness in the data. This is especially true among a generation of students that have been told they have a high aptitude for engaging with media on the internet, a generation of students who have been (however falsely) labeled “digital natives” (Prensky, 2001).

### **Implications**

Of particular interest among the findings is the trend that items about advertising tend to have the highest capacity for differentiating between students of higher and lower perceived media literacy levels. This finding supports findings from a survey conducted by Schmidt (2013) that instructors at all levels (kindergarten through college) reported teaching less about advertisements and entertainment media (especially television and music). In addition, this trend that items about advertising are more able to differentiate between students of different perceived media literacy levels than those about news makes sense after a review of the curriculum standards in K-12. Students are educated from an early age to be more conscious about the credibility of source information. The Common Core standards for history even include specific standards on distinguishing between fact and opinion, evaluating evidence, comparing points of view, and challenging claims in primary sources, secondary sources, and beyond (CCSS, 2016).

Similarly, by the time students are juniors and seniors in high school, they should be able to write research papers in which they “gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively” and “assess the strengths and limitations of each source in terms of the specific task, purpose, and audience” (CCSS, 2016).

This same kind of care is not stressed in K-12 or college education for advertisements which is unfortunate during a time when the Pew Research Internet Project (2014) has found the media young people are exposed to on a daily basis are more pervasive and persistent than ever before. Advertisements are now embedded in every form of media ranging from videos to social media to games. For this reason, it would be beneficial to further research media literacy of advertisements.

The second trend—that items that consider why media messages appeal to different audiences tend to have a high capacity for differentiating between students of higher and lower perceived media literacy levels—can also be traced back to theory. Rhetoricians and compositionists have been aware of the importance of audience since at least the point at which Aristotle theorized about different modes of appeal to reach audiences. As such, audience has been included in English classrooms in K-12 through college for as long as anyone can remember. However, it is important to note that though students should come to college with this skill, items about targeted audience can still serve to identify students with lower perceived media literacy levels. This would suggest that there is room, yet, for more research and education at the college level regarding audience.

Finally, the findings of this study do support the use of this instrument as a generalizable, sample-free instrument. This means that the instrument can be used with consistency for any similar sample of college students. It is the hope of this researcher that this instrument will be utilized by other researchers to further develop an understanding of the needs of college students for media literacy education.

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#### **IV. ASSESSING MEDIA LITERACY AMONG STUDENTS ENROLLED IN BASIC WRITING AND FIRST-YEAR COMPOSITION**

Systematic media literacy education at the college level is nonexistent in the U.S. (Christ, 2004; Martens, 2010; Schmidt, 2013; Schwarz, 2014). Reasons for this include limited research on media literacy education in college (Livingstone & Wang, 2014), lack of consensus regarding where media literacy education fits in college curriculum (Jolls & Walkosz, 2015; Livingstone & Wang, 2014; Schwarz, 2014), little consensus among researchers or instructors about what competencies to include in curriculum or how to measure them (Christ, 2014; Livingstone & Wang, 2014; Schmidt, 2013), and a stagnant core curriculum that answers to narrowly-focused standardized tests (Silverblatt, 2014). However, while inclusion of media literacy education has not been systematic, it is also not new to many disciplines in the humanities and social sciences, especially communication, education, and English (Baker, 2014; Bordac, 2009; Schwarz, 2014; Silverblatt, 2014; Silverblatt, Baker, Tyner, & Stuhlman, 2002). English is of special interest as a home for media literacy education, because the field of English—especially at the organization level—has been one of the most dominant forces in the U.S. in creating initiatives to include media literacy education in college.

As early as the 1950s, the National Council of Teachers of English (NCTE) had a role in promoting media literacy education; in 1954, the NCTE established the Committee for the Study of Television, Radio and Film and distributed a handbook nationwide to aid in the instruction of television, radio, and film (Baker, 2014; Silverblatt, 2014). Throughout the next decade and a half, the NCTE had its hand in additional initiatives to improve instruction on film and television in the English

classroom; then, in 1970, the NCTE passed a resolution specifically on the topic of media literacy (Baker, 2014; Silverblatt, 2014). The resolution on media literacy appears to have been revised or added to over the next few years with changes in 1973 and 1975 (Baker, 2014; Silverblatt, 2014). In the 1990s, language shifted to include visual literacy, and the NCTE and International Reading Association jointly penned standards for visual literacy; in 1996, the NCTE passed a resolution arguing that viewing and visually representing ideas are forms of literacy (Baker, 2014; NCTE, 1996; Silverblatt, 2014). Support for media and visual literacy has continued into the modern era with position statements on multimodal literacies (NCTE, 2005) and a statement on 21<sup>st</sup> century literacies (NCTE, 2013). Similarly, in 2004, the Conference on College Composition and Communication (CCCC) adopted a position statement on teaching, learning, and assessing writing in digital environments. Then in 2007, CCCC put out a position statement on multiple uses of writing, including visual and internet-based discourses that serve as cross-cultural discourses. In 2015, CCCC revised a position statement on electronic portfolios for writing.

However, despite this long history of support by the discipline's organizations for media literacy education in college English, limited research is available on the inclusion of media literacy in the college English curriculum. We do know from survey data that faculty members in English, as well as communication and education, see the value of media literacy education, but they may not see themselves actively engaged in its instruction (Schmidt, 2012; Schmidt, 2013). Additionally, both college writing faculty (Schmidt, 2013) and college writing students (Brumberger, 2011) believe that students' media literacy skills are limited. In fact, college writing students admit that while they

may suspect that images they see on the internet have been altered, they do not consistently critically question these images (Brumberger, 2011).

While limited research as described above is available concerning media literacy and college writing in general, no research is available specifically about the critical viewing practices of students in basic writing, those students who are traditionally on the margin and who may have had less access to or rich engagement with media in previous contexts. Gee (2015) explains that “gaps of all sorts—literacy, learning, skills, and knowledge gaps—get bigger and bigger over time, even if at the start they were small and potentially manageable” (p. 106). Based on the theory that these gaps continue to grow larger over time, it is crucial, then, that students in both first-year composition and basic writing be included in this and other related studies, to further explore the possibility of a media literacy gap between students who are underprepared (those students who traditionally enroll in basic writing) and students who are college-ready (those students who traditionally enroll in first-year composition). To first ascertain if such a gap exists, the purpose of this study is to get a baseline for the self-reported critical viewing practices of students enrolled in both basic writing and first-year composition.

### **Methods**

This quantitative study uses a descriptive research design to answer the following research question: is there a difference between the self-reported critical viewing practices of students who are in their first semester and are enrolled in basic writing and students who are in their first semester and are enrolled in first-year composition?

To answer this research question, the study uses a framework steeped in the idea that literacy is embedded in culture, as is culture embedded in literacy. As Freire (1987)

famously writes, “Reading the world always precedes reading the word, and reading the word implies continually reading the world” (p. 35). In particular, Freire (1987) writes about the potential of literacy to lift up or oppress student populations. Gee (2015) modernizes Freire’s (1987) conversation to include digital and media literacy. Toward that aim, Gee (2015) adapts the concept of the Matthew Cycle. Gee (2015) explains that “gaps of all sorts—literacy, learning, skills, and knowledge gaps—get bigger and bigger over time, even if at the start they were small and potentially manageable” (p. 106). As Gee (2015) explains, this ever-growing divide occurs for digital literacy and media literacy as well as traditional literacy.

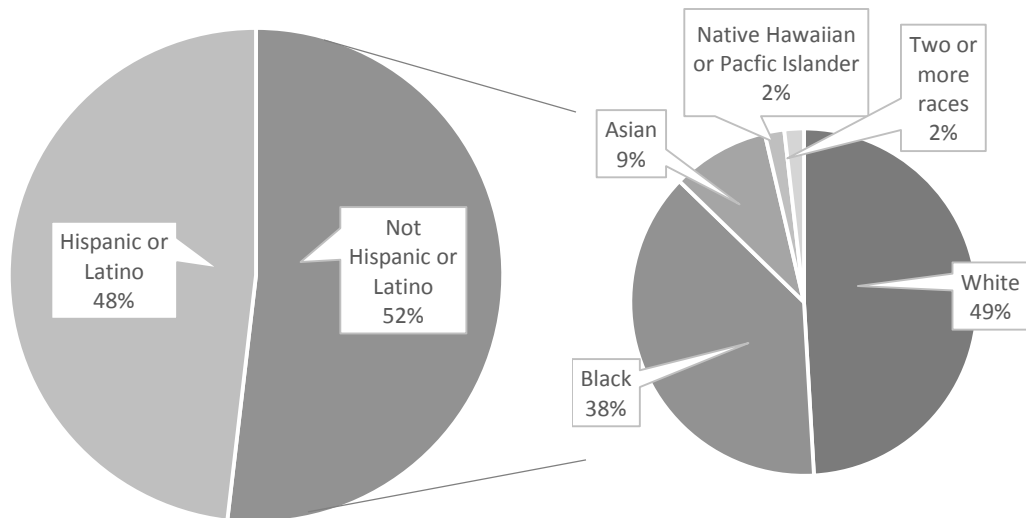
The power of literacy to lift up underserved populations of students and the power of media literacy education to close the digital, or in this case, media divide is the reason I chose to learn about the self-reported critical viewing practices of students enrolled in basic writing, students who are not college-ready or who are, as Bartholomae (2005) would say, “writing on the margins.”

### **Participants**

In Fall 2015, a purposive sample was taken from students enrolled in basic writing and first-year composition at a large public institution in central Texas that is designated as an Hispanic-Serving Institution. A total of 393 students completed the scale. Of the total 393 that completed the scale, 71 completed responses were excluded because respondents were not in their first semester of college study. Only students in their first semester of college study were of interest because the purpose of this study is to gather baseline data about first-year college students’ critical viewing practices of online

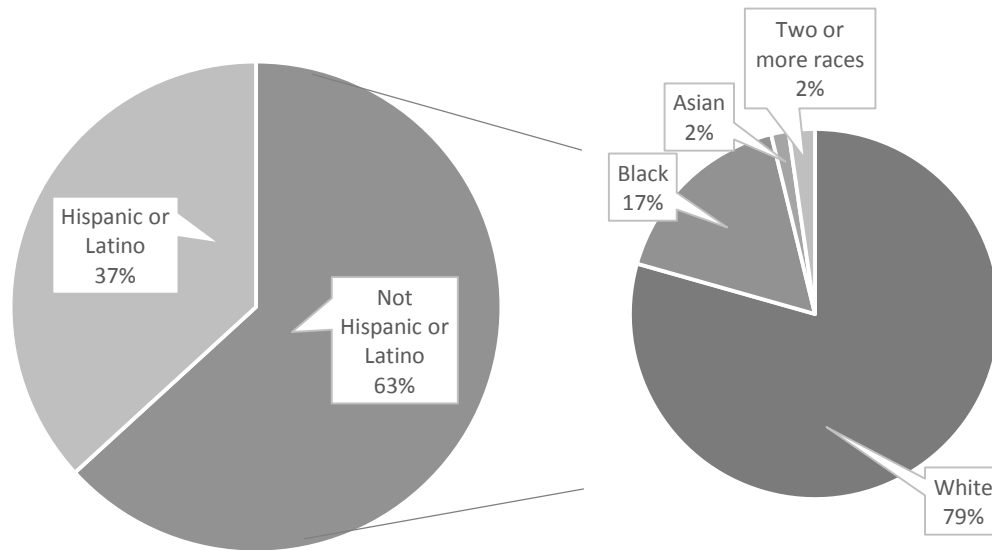
media before any possible exposure to media literacy education in college. This left a total of 322 completed responses.

Participants were either enrolled in first-year composition or basic writing—a prerequisite for first-year composition for students who don't reach the cut-off on the SAT, ACT, or college placement exam. Specifically, 110 students were enrolled in basic writing, and 212 students were enrolled in first-year composition. For students enrolled in basic writing with complete demographic information available, 65% were female and 35% were male. For students enrolled in first-year composition with complete demographic information available, 56% were female and 43% were male. Respondents enrolled in basic writing exhibited a great deal of diversity in terms of ethnicity and race. Such diversity is common in basic writing courses. See Figure 4.1 and Figure 4.2 for the difference in ethnicity/race breakdowns of each group.



*Figure 4.1. Ethnicity/race for students enrolled in basic writing. This figure illustrates the complex race/ethnicity category for students within the sample who are enrolled in basic writing.*





*Figure 4.2. Ethnicity/race for students enrolled in first-year composition. This figure illustrates the complex race/ethnicity category for students within the sample who are enrolled in first-year composition.*

### **Data Collection**

Instructors of basic writing and first-year composition were contacted via e-mail about the study. The scale was administered in a total of 26 sections of writing courses, eight sections of basic writing and 18 sections of first-year composition. It should be noted that in order to have the best possible numbers, the scale was administered in every section of basic writing being taught at the institution. Additionally, it is also important to note that the scale was administered within the first three weeks of the semester so as to ensure the responses were not a result of instruction in media literacy. The researcher or one other doctoral researcher—who is certified in the Collaborative Institutional Training Initiative (CITI) Program and who was trained in how to administer the scale—visited each classroom and used a script to administer the scale. In all instances, to limit the possible effects of social desirability and acquiescence, the instructor of the class left

after the instructions were given and remained outside the room until all scales were turned in (completed or blank).

### **Instrumentation**

The purpose of the Critical Evaluation and Analysis of Media (CEAM) scale is to measure the self-reported practice of critically evaluating and analyzing visual media messages online for credibility, audience, and technical design elements. The CEAM scale is a 27-item, 5-point Likert-type scale that asks students to consider their engagement with visual media commonly available on the internet (including watching or reading the news, viewing entertainment media, and viewing advertisements). On the scale, the responses range from “strongly disagree” to “strongly agree.” This response scale is consistent with the intent (Gable & Wolf, 1993) to measure students’ perceptions of how they engage with media most of the time. Additionally, five gradations allow for balanced optimization of the instrument’s reliability with careful, non-aggravated consideration from the respondents (Gable & Wolf, 1993).

The scale’s framework is derived from the core elements of media literacy identified by the National Association of Media Literacy Education (NAMLE): (a) access media, (b) analyze media, (c) evaluate media, and (d) communicate about and through media. These core elements are commonly accepted in the research (Ashley, Lyden, & Fasbinder, 2012; Duran, Yousman, Walsh, & Longshore, 2008; Mihailidis, 2011; Schmidt, 2012). And, many media literacy instruments (e.g. Arke & Primack, 2009; Ashley, Lyden, & Fasbinder, 2012; Primack et al., 2006) include frameworks that cite this definition of media literacy adapted by NAMLE. However, because critical consumption of media rather than creation of media is of primary interest to the

researcher, the CEAM scale only focuses on evaluation and analysis. The CEAM scale has a valid three-factor structure with a high overall reliability ( $\alpha = .91$ ), and good reliability among each of the subscales: (a) Questioning Credibility ( $\alpha = .8$ ), (b) Recognizing Audience ( $\alpha = .78$ ), and (c) Recognizing Design ( $\alpha = .81$ ). To be as comprehensive as possible, items within each of these subscales address news, advertisement, and entertainment media available online.

## Results

Before analysis, data screening was conducted. There were no missing values. Normality was also examined, with particular attention to skewness and kurtosis because of predicted issues with social desirability and acquiescence. While data was slightly skewed in an eyeball test, Tabachnick and Fidell (2013) argue that skewness and kurtosis may not make a substantive difference in analyses with samples larger than 200. For this reason, and because t-tests are fairly robust against non-normality, an independent samples t-test was deemed an appropriate analysis technique for this data.

An independent samples t-test was run in SPSS (IBM Statistics 23) to compare the responses on the CEAM scale for students enrolled in both basic writing and first-year composition. There was not a statistically significant difference in the scores for students enrolled in basic writing ( $M = 3.12$ ,  $SD = 0.68$ ) and students enrolled in first-year composition ( $M = 3.37$ ,  $SD = 0.62$ ) for the total average on the scale;  $t(320) = -1.998$ ,  $p = .047$ . Based on Cohen's (1988) work, the effect size for this analysis was small to moderate ( $d = .38$ ). Additionally, there was not a statistically significant difference in the scores for students enrolled in basic writing ( $M = 3.05$ ,  $SD = 0.79$ ) and students enrolled in first-year composition ( $M = 3.13$ ,  $SD = 0.78$ ) for Factor 2 (Recognizing Audience);

$t(320) = -.86, p = .388$ . Based on Cohen's (1988) work, the effect size for this analysis was very small ( $d = .1$ ).

However, there was a statistically significant difference in the scores for students enrolled in basic writing ( $M = 3.18, SD = 0.76$ ) and students enrolled in first-year composition ( $M = 3.35, SD = 0.71$ ) for Factor 1 (Questioning Credibility);  $t(320) = -2.03, p = .044$ . Based on Cohen's (1988) work, the effect size for this analysis was small ( $d = .23$ ). There was also a statistically significant difference in the scores for students enrolled in basic writing ( $M = 3.04, SD = 0.72$ ) and students enrolled in first-year composition ( $M = 3.21, SD = 0.71$ ) for Factor 3 (Recognizing Design);  $t(320) = -2.04, p = .042$ . Based on Cohen's (1988) work, the effect size for this analysis was small ( $d = .24$ ).

## **Discussion**

Overall, the results suggest that students enrolled in the composition sequence—in both basic writing and first-year composition—have some room for growth in critically viewing media online. This supports the findings of other research that college faculty and writing students both recognize that students do not always critically question images online (Brumberger, 2011; Schmidt, 2012; Schmidt, 2013). Regarding a comparison of the two groups, the results from the independent samples t-test suggest that there is not a difference overall in the self-reported practice of analyzing and evaluating media messages between students enrolled in basic writing and students enrolled in first-year composition. And, students enrolled in basic writing and students enrolled in first-year composition appear to have equal footing when it comes to recognizing that media messages are targeted toward different and diverse audiences. However, students enrolled

in basic writing do self-report questioning credibility and recognizing the design of media messages less than their peers enrolled in first-year composition.

However, while these results are statistically significant, the difference in the self-reported practice of questioning credibility and recognizing design had small effect sizes. A small effect size does not mean there is nothing to learn from the difference. As Kirk (1996) explains, “A small effect of .2 is noticeably smaller than medium but not so small as to be trivial” (p.750). But, these results should not be used to support systematic changes in curriculum or policy before additional research is conducted.

### **Limitations of the Study**

The primary limitation to the study is that data were collected at a single institution, limiting the number of participants enrolled in basic writing and making the findings of the study less generalizable. Additionally, as is common in many basic writing courses, the population of students enrolled in basic writing in the sample were significantly more diverse than those enrolled in first-year composition. Additional analyses would need to be conducted to be sure that the statistically significant differences noted between the two groups are related to media literacy levels rather than issues of item discrimination due to ethnicity and race. Finally, while efforts were made to alleviate social desirability and acquiescence by asking the instructor to leave the room during the administration of the scale, social desirability and acquiescence among the respondents was still a likely cause of the skewness in the data. This is especially true among a generation of students that have been told they have a high aptitude for engaging with media on the internet, a generation of students who have been (however falsely) labeled “digital natives” (Prensky, 2001).

## Implications

The difference—however small—in self-reported critical viewing practices between students enrolled in basic writing and first-year composition does have implications for future research. In particular, it would be useful to further examine disparities between media literacy levels of students enrolled in basic writing and first-year composition as a way to close the digital and media divides and to alleviate social inequalities that exist because of differing literacy levels. As Gee (2015) argues, students who are in sociocultural settings in which they have fewer opportunities to engage with traditional, digital, and media literacies will continue to fall further behind. And, students who are enrolled in basic writing are often traditionally underprepared or on the margin. However, we should remember that, as Bartholomae (2005), Gee (2015), and others argue, these students, like all students, simply face a mismatch between the ways of engaging in literacy practices that they have been exposed to and the ways of engaging in literacy practices that are valued in the university. Media literacy education can provide students with ways of critically engaging with media that will help students to become more successful in academic realms and beyond. In fact, Pernisco (2014) argues that helping students to analyze and evaluate media messages in context may be one way to solve social inequalities in a broader sense.

Additionally, it is easy to see that first-year composition students in general can benefit from media literacy education. In making a case for media literacy education in the composition classroom, Crank (2005) argues,

Students need to begin to change the way they think as they start college, to learn to ask larger questions about ideology and values, and, more

importantly, to begin to feel comfortable dealing with cognitive dissonance, understanding that they will and should be challenged by their educations. Moving them into a more critical analysis of cultural critique and its value is difficult, but that's what I seek: ... discussion of why we should analyze and critique all the cultural productions that surround us. (para. 21)

The opposition might argue that in adding media literacy in the composition classroom, some other important skill will need to be taken out of the composition classroom. However, Anderson et al. (2006) found through survey data that 76% of respondents believed that when teachers engaged in digital activities in the classroom nothing was displaced.

Actually, composition instructors already teach many of the skills students use in analyzing and evaluating media messages. One noted entry point for media literacy education in composition classes is through instruction in rhetorical strategies (Anderson, 2008; Anderson et al., 2006; Schwarz, 2014). Schwarz (2014) argues that "Media literacy education can be described as rhetoric for the twenty-first century" (p. 213). Anderson (2008) and Schwarz (2014) both argue that rhetorical strategies like appeals and other methods of targeting audiences transcend different types of literacies and work well with media literacy. And, in a survey, 100% of respondents reported that they use or would use rhetorical situation (purpose, audience, and context) as a way to assess digital and media assignments in the composition classroom (Anderson et al., 2006). Because rhetorical strategies already provide a natural segue for media literacy education in the

composition classroom, it might be useful to design interventions for future research around rhetorical strategies.

In all, as Schwarz (2014) argues, media literacy provides a “means for preparing students to be better writers, thinkers, and communicators; engaging subject matter that allows students to consider the ‘big’ questions of purpose, ethics, and identity; critical thinking with the use of technologies; learning for engaged democratic living” (p. 217-218). And as a means for preparing student writers to question what they see and read and to be better citizens of their world, media literacy has a place in our composition classrooms however we choose to integrate it.



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## V. CONCLUSION

The purpose of this dissertation was to begin working on the problem that there is no systematic media literacy curriculum in college (Christ, 2004; Martens, 2010; Schmidt, 2013; Schwarz, 2014). A review of literature shows that there are several places we can begin in order to rectify this problem; there are experts and theorists in the field with ideas about how we can revise media literacy curriculum in college. For example, many in the field are re-envisioning media literacy as disciplinary-specific rather than as a stand-alone subject (Anderson, 2008; Jolls and Walkosz, 2015; Schmidt, 2013; Schwarz, 2014; Silverblatt, 2014). But, to revise any curriculum or to develop standards for curriculum, it is necessary to impact change at the policy level (Arke & Primack, 2009; Livingstone & Wang, 2014). Assessments are necessary to do so, making development of the Critical Evaluation and Analysis of Media (CEAM) Scale crucial.

To address this gap, Research Question 1 asked if the CEAM scale has an effective structure for measuring self-reported practices of evaluating and analyzing visual media messages. The finding was that the scale does have an effective structure that makes sense in the broader research. More specifically, the data from the factor analysis suggests three specific competencies: (a) questioning credibility, (b) recognizing targeted audiences, and (c) recognizing technical design elements.

This structure is comparable to the structures found in other similar analyses (e.g. Arke & Primack, 2009; Vraga, 2016). The closest fit is Arke and Primack's (2009) five-factor instrument which includes the factors of recall, purpose, viewpoint, technique, and evaluation. Of those five factors, Arke and Primack (2009) categorized the first two—recall and purpose—as being elements of access, one aspect of NAMLE's definition that

was not included in this study. Arke and Primack (2009) categorized the other three factors as analysis and evaluation skills and aligned each with a key overarching subskill: (a) viewpoint with considering authorship, (b) technique with recognizing what techniques are used and toward what purpose, and (c) evaluation with questioning credibility. See Table 5.1 for a comparison. There is actually a near-perfect match.

**Table 5.1** Side-By-Side Comparison of Analysis and Evaluation Factors

Arke & Primack (2009)	Threadgill (2016)
Viewpoint, Author/Audience	Recognizing Audience
Technique, Techniques	Recognizing Design
Evaluation, Credibility	Questioning Credibility

However, Arke and Primack (2009) point out that one major limitation is their instrument only measures old media (print, television, and radio) and doesn't address new media (media available through the internet), whereas CEAM does address new media. Seeing that these factors are applicable to all media is a first step toward solidifying competencies to guide future research and assessment, an area researchers agree needs work (Christ, 2014; Hobbs, 2004; Livingstone & Wang, 2014; Schmidt, 2013).

Research Question 2 asked if the CEAM scale is a generalizable instrument for measuring self-reported practices of evaluating and analyzing visual media messages. As expected, the scale does differentiate well between students who have lower perceived media literacy levels and higher perceived media literacy levels. And, as is discussed above, the structure of the scale does make sense in the context of the theory and existing research. However, this analysis also yielded information about trends in how students may engage with different types of media at different levels of confidence. Most interestingly, the data from the item response theory analysis suggests that while students bring to college adequate practices in questioning credibility in news media, they need



improvement in questioning credibility in advertisement media. This finding supports findings from a survey conducted by Schmidt (2013) that instructors at all levels (kindergarten through college) reported teaching less about advertisements and entertainment media (especially television and music). Because instructors self-report not focusing much on the analysis and evaluation of advertisements, it might be useful to introduce professional development in this area.

In fact, professional development in media literacy education is an area that researchers and theorists agree needs our attention (Schmidt, 2013; Schwarz, 2014). As De Abreu and Mihailidis (2014) aptly argue,

“Media literacy is the field that will help us learn how to be critical, savvy, expressive, participatory, and engaged with media to help build a more vibrant, inclusive, and tolerant digital media culture. While media literacy takes many different shapes and forms, it is up to parents, teachers, scholars, and leaders to implement this movement that can help shape the future of teaching and learning about media’s ever increasing role in the world” (p. xxviii).

While the task of providing media literacy education partly falls on the shoulders of teachers, professional development is needed to be sure teachers have the skills and knowledge to provide such education. This is especially true for new teachers. Schmidt (2013) found that more experienced teachers are more likely to include media literacy education than less experienced teachers, despite age or status as a “digital native” (Prensky, 2001) or “digital immigrant” (Prensky, 2001).

Actually, Nasah et al. (2010) found that digital propensity relies not just on age as the digital native myth would suggest, but on a combination of age, gender, and socioeconomic status; they suggest that educators and policymakers consider more closely demographic implications when making decisions about media literacy education. So, if issues like socioeconomic status are at play, then it is important to consider previous access to and engagement with media that students may have had. However, researchers (Gee, 2014; Livingstone & Wang, 2014; Pernisco, 2014) agree that by itself improving equal access to media will not close gaps between students with different levels of preparation and privilege. As Livingstone and Wang (2014) argue, “gaps in media use exacerbate gaps in knowledge and participation, as the socially-advantaged keep up better with the relentless pace of socio-technical change” (p. 178).

For this reason, it was crucial that this dissertation end by establishing baseline information about the self-reported critical viewing practices of students enrolled in basic writing. Specifically, Research Question 3 asked if there is a difference between the self-reported critical viewing practices of students who are in their first semester and are enrolled in basic writing and students who are in their first semester and are enrolled in first-year composition. The findings from the independent samples t-test analysis suggest that students enrolling in basic writing courses may come to college with fewer self-reported critical viewing practices with regard to questioning credibility and recognizing technical design elements. However, because of small effect sizes in this study, further research is needed in this area. This is especially important because as Gee (2015) argues, students who are in sociocultural settings in which they have fewer opportunities to engage with traditional, digital, and media literacies will continue to fall further behind.

Improved access combined with media literacy education for groups who are socially disadvantaged—such as those students who are traditionally underprepared for college—can allow for a great diversity of voices in media (Pernisco, 2014), which leads to more responsible participation in a democratic and tolerant society (De Abreu & Mihailidis, 2014; Schwarz, 2014). The social mission of writing instruction—inspiring multi-skilled, critical, and responsible citizens with a conscience—is the reason above all else that media literacy education—which addresses each of these traits—belongs in the composition sequence.

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## APPENDIX SECTION

### CRITICAL EVALUATION AND ANALYSIS OF MEDIA (CEAM) SCALE (REVISED)

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**Instructions:** Write and bubble in your student ID number on the scantron. As you read each statement, you may imagine you are using the technologies through which you most often access visual media (computer, tablet, phone, television, etc.). Additionally, you may imagine any topic, product, or story that interests you.

Please rate each statement on a scale of A to E with A being “strongly *disagree*” and E being “strongly *agree*.” Bubble in your answers for each statement on the provided scantron. Answer each based on what is true of you most of the time, and answer each as quickly as possible.

A	B	C	D	E
strongly disagree	disagree	undecided	agree	strongly agree

---

1. When I watch a commercial, I think about how the music makes me feel.
2. I think about how television shows, movies, or videos can be designed to elicit an emotional response.
3. I consider what viewpoints might be missing when I watch or read the news.
4. I think about why some television shows, movies, or videos may appeal to different audiences.
5. When watching television, movies, or videos, I think about the effect the editing techniques have on me.
6. When watching or reading a news story, I think about whether or not it would appeal to diverse populations.
7. I think about how news stories can be designed to sway me with facts and logic.
8. I distinguish between expert sources and non-expert sources in news stories.
9. If I see that a for-profit company is promoting a social cause in an advertisement, I recognize that the company is still advertising itself.
10. I think about how advertisements can be designed to sway me with facts and logic.
11. When watching or reading the news, I think about different purposes the story might have.

	A	B	C	D	E
	strongly disagree	disagree	undecided	agree	strongly agree
12.	I question a news story when credible sources for the ideas are not included.				
13.	When viewing an advertisement, I think about the effect the design has on me.				
14.	When watching television, movies, or videos, I think about the lifestyles that are being promoted.				
15.	I recognize that the political affiliations of news providers may influence how news stories are reported.				
16.	When watching a television show, movie, or video, I think about whether or not it would appeal to diverse populations.				
17.	I think about how the design of advertisements can draw my attention to specific images.				
18.	I think about how news stories can be designed to elicit an emotional response.				
19.	When viewing an advertisement, I think about whether or not it would appeal to diverse populations.				
20.	I think about the strategies news reporters use in news stories.				
21.	I think about how advertisements can be designed to elicit an emotional response.				
22.	When watching or reading the news, I think about whether or not any images that are included accurately illustrate the content of the story.				
23.	When watching or reading the news, I think about how images can be altered to fit the content of the news story.				
24.	When viewing an advertisement, I distinguish between facts and opinions about the product.				
25.	I think about the strategies advertisers use to promote their products.				
26.	I think about why some advertisements may appeal to different audiences.				
27.	I recognize that different news stories are written to appeal to people who have different values.				