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Reviewing Media Literacy Intervention Studies for Validity

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Abstract

This study is an examination of validity in published articles that have provided tests of the effectiveness of media literacy interventions. We identified 88 published tests of media literacy interventions then analyzed their content using five coding variables that indicated the degree to which authors of those studies established basic validity. We first conducted a meaning analysis to identify the definitions that authors of those studies presented for media literacy. Then we used those definitions to determine the extent to which those authors provided a complete (content validity) and accurate (face validity) operationalization in the design of their measures.

Highlights

- The designs of published studies claiming to test media literacy interventions were analyzed to determine how the conceptual foundation was constructed in each study and whether the study was designed based on those conceptual foundations to determine content and face validity.
- A total of 88 studies were selected after a series of electronic searches of studies that used the term "media literacy intervention" in their keyword lists, titles, and abstracts.
- A meaning analysis found that 22 studies (25.0%) provided no conceptual foundation for media literacy, and 21 (23.9%) used an existing definition of media literacy. Despite there being hundreds of definitions for media literacy in the literature, the authors of the remaining 45 studies (51.1%) presented their own definition for media literacy.
- The assessment of validity found that none of the studies presented a test of media literacy that completely captured the elements in their definitions of media literacy, so the content validity of this literature was judged as poor.
- The evaluation of face validity uncovered many problems in a lack of correspondence between what authors intended to measure and what they actually measured. The most prevalent discrepancy was with measures of skills where authors frequently measured beliefs about study participants' levels of skills rather than taking measures of actual performance.
- We pose a series of three questions that illuminate the current nature of the media literacy intervention literature as well as serve to guide future designers of such studies.

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Content

When scholarly fields are brand new, researchers must make many assumptions about the nature of the phenomenon they are studying as well as the methods that might be useful in generating knowledge about that phenomenon. Then as a field's research literature grows, scholars benefit from a larger base of knowledge, which allows them to use definitions of their key concepts that are more clear, complete, and insightful. And the literature provides more guidance about which research design elements (measures, treatments, samples, procedures, and analyses) are faulty and which are more useful. Therefore, a key indicator of the value of growth in a scholarly field is validity because validity reflects the degree to which scholars provide clear definitions of a field's key concepts as well as the degree to which scholars use those definitions to guide the design of their studies and the construction of their measures.

In this study, we conduct a content analysis of published studies of media literacy interventions in order to generate

answers to two questions. First, when authors claim that their study provides a test of the effectiveness of a media literacy intervention, what do they mean by "media literacy?" We conducted a meaning analysis to generate an answer to this first question, then used the results of this meaning analysis to answer the second question: How well do designers of intervention studies use their conceptualizations of media literacy to construct their measures?

I. The Criterion of Validity in Social Science Research

Validity is an essential concern for determining the quality of any social science research project (Brinberg & McGrath, 1985; Chaffee, 1991; Guilford, 1954; Nunnally, 1967). Validity refers to the correspondence between what scholars say they are measuring and what they actually measure (Rust & Golombok, 1989; Vogt, 2005). Williams (1986) explains, "The question of validity is a question of 'goodness of fit' between what the researcher has defined as a characteristic of a phenomenon and what he or she is reporting in the language of measurement" (p. 21). More concretely, validity is concerned with the match between the meaning of a concept and how it is operationalized in a research study (Chaffee, 1991).

The task of assessing validity begins with a meaning analysis to determine how the authors of a study have defined their key concepts (Chaffee, 1991). This task proceeds by using authors' meaning as the standard for judging validity. As Chaffee writes, "Validity should not be equated with 'truth.' Disappointing as this might sound, the philosophical concept of truth is not a usable criterion" (p. 11). Instead, the criterion for judging validity within a research study is the meaning expressed by the authors of that study. This point is especially important in media literacy research where there are so many different conceptualizations of what it is. See Table 1 for a sampling of definitions in the literature, and notice that each definition has a different configuration of components (e.g., skills, knowledge, beliefs). While there is considerable overlap among those components across definitions, each of those definitions is unique in terms of the configuration of those components.

There are two general kinds of validity -- the empirical type and the logical/conceptual type. The empirical type of validity relies on collecting data to show support for expectations about what a particular concept should (predictive and concurrent) and should not (discriminant) be related to, while the logical/conceptual type of validity is established through argumentation and expert judgments. In our content analysis, we focus attention on what are arguably the most fundamental logical/conceptual types of validity -- content validity and face validity. These types are fundamental because if these types cannot be established first, the testing for other types of validity has little meaning.

A. Content Validity

Content validity focuses attention on the structure of the meaning of concepts that is revealed when scholars provide definitions of those concepts. The assessment of content validity then entails the comparison of elements in that defined structure with the set of items that researchers use to measure that concept. Content validity is a judgment about the degree to which the set of measures used in a research study reflect all the elements laid out in the definition of a concept. Bausell (1986) illustrates the essence of content validity with the question, "Do the different components of the measurement procedure (which are usually items) match the different constituents of the attribute being measured?" (p. 156). Those items need to be representative of the entire concept (Vogt, 2005). Thus, content validity is stronger when designers of studies have used measures to assess all the ideas presented in their conceptualization.

Across the many different definitions of media literacy in the literature, the two most prevalent definitional components appear to be skills and knowledge (see Table 2). However, there are also frequent mentions of other components such as behaviors, affects, and beliefs. Notice that there is a considerable variety of ideas within each of these components. We use the term "domains" to refer to the different ideas within a component. For example, within the component of skills, some definitions call for the development of general skills, while other definitions focus on particular skills needed to access media messages, to interpret the meaning in those messages, and to produce messages – we consider these to be different "domains" of skills. Notice how the definitions presented in Table 2 display a variety both with components and with domains. Some scholars (e.g., Bachmair & Bazalgette, 2007; Hobbs, 1998) have claimed there has been a convergence towards a consensus definition where media literacy is defined as "the ability to access,

analyze, evaluate and communicate messages in a variety of forms" (Aufderheide, 1997, p. 79). This definition arose out of discussions of a group of scholars who convened the "National Leadership Conference on Media Literacy" in the mid-1990s. Such a definition is valuable because it provides designers of media literacy interventions with a widely shared conceptual foundation for their studies. However, other scholars are skeptical of this claim of a consensus definition for media literacy and point out that the field is characterized much more by its variety of definitions than its convergence to a consensus (Potter, 2010; Silverblatt, Ferry, Finan, 2015; Tyner, 2009).

Our concern with validity in this study is much less on debating whether there is a consensus definition or not and much more on assessing how well designers of media literacy intervention studies operationalize their chosen definitions into measures. Thus, we begin our content analysis of published intervention studies with a meaning analysis to identify authors' meanings they present for media literacy. We do not make judgments about the definitions themselves; instead, we focus attention on how well the authors use their selected definitions in the design of their studies. Therefore, the meaning analysis part of our content analysis is concerned with recording all the *components and domains* of the definitions for media literacy that authors present as the conceptual foundation of their empirical studies.

Making a judgment of content validity involves comparing a study's set of measures of media literacy against a criterion. In designing our content analysis study, we did not select one definition of media literacy as the criterion, because there is no commonly accepted definition that could be used as a standard. Instead, we recorded what the authors of each study presented as their definition of media literacy and used the authors' definitions as the standard to evaluate the degree of validity demonstrated in the construction of measures for that study. Thus for each study we examined, we conducted a meaning analysis to identify the components and domains expressed by the authors' conceptualization of media literacy. We then compared this configuration of components and domains to the authors' presented set of measures. The degree of content validity is indicated by the proportion of matches of the components and domains in authors' conceptualizations of media literacy with the components and domains in their set of reported measures.

B. Face Validity

While content validity focuses attention on a concern about whether designers of media literacy studies have included measures for all the components and domains in their conceptualization of media literacy, face validity focuses attention on a concern about whether the measures used are acceptable operationalizations of the components and domains they purport to assess. If authors claim that a particular measure is an assessment of component X but the measure is instead an assessment of component Y, then this non-match signals a barrier to establishing face validity. For example, let's say that authors of an intervention study define media literacy as requiring the skill of critical thinking. In the methods section the authors say their measure of critical thinking consists of one item (*I am confident about my ability to think critically about media messages*) and a five-point Likert type set of responses (1 = Strongly Agree, 2 = Agree, 3 = Neither Agree nor Disagree, 4 = Disagree, 5 = Strongly Disagree). When we compare this conceptualization to the measure, we can see a lack of correspondence, because the measure makes an assessment of respondents' *beliefs about the level* of their skills rather than an assessment of their *actual levels*. Instead, if the designers of the study defined media literacy as a condition where people have a high degree of confidence in their level of skill on critical thinking (regardless of their actual level of skill), then this measure would correspond to the conceptualization and therefore qualify as exhibiting adequate face validity.

II. Meaning Analysis of Media Literacy

An analysis of authors' meaning of their key concepts is essential as a first step in making judgments about content and face validity. Once authors' meanings are found in their writings, those meanings become the standard for judging validity of measures as being complete (content validity) and accurate (face validity).

There are a variety of ways that authors can convey their meaning for key concepts in their writing about empirical studies. One common way is for authors to assume that all readers share the same meaning for a term, so the authors treat it as a primitive concept and present no definition for the term in their writings. Chaffee (1991) explains that primitive terms are those where all people share the same meaning

so that it "would be foolish to expend a lot of effort on its definition" (p. 8). The most obvious primitive terms are articles (e.g., the, an) and prepositions (e.g., of, by, with) but they can also be nouns (e.g., person, chair, tree). In contrast to primitive terms are derived terms where authors recognize that there is not a common meaning, so authors need to present a definition to clarify for readers the meaning those authors are using in their study. This is especially important with hypothetical constructs (e.g., intelligence, attitude, anxiety) that might appear to be primitive terms but are actually technical terms that often vary in meaning across scholars. When these terms are used in scholarly forums, there is an obligation for authors to specify the definition they are using so readers can be clear about how they are being used. In his classic book *Explication*, Chaffee (1991) argues that scholars need to be more careful about avoiding assumptions that terms are primitive and instead carefully lay out the meaning for their readers. To guide this task, Chaffee (1991) presented a multi-step process he called explication where scholars analyze literatures, make evaluations of the meanings that occur there, and move on to synthesize their own meanings that clarify trends in the literature and thereby articulate a clear foundation for their own studies. Chaffee's multi-step process of explication suggests that there is a hierarchy of quality in the way authors of empirical studies can derive and present the meaning they are using for their focal concepts. We translate Chaffee's procedure of explication into a six-level hierarchy that can be used to track the progress of a field's progress towards precision over time (see Table 3). When a scholarly field is new, researchers can find little guidance in their literature for constructing a conceptual foundation for their studies and selecting measures with the highest degree of demonstrated validity, so their research designs make their contributions at the lower levels on this hierarchy. However, as the literature grows, research designers are provided with an increasing amount of guidance, so that they can base their design decisions less on untested assumptions and more on trusted patterns of empirical findings. Thus, movement upwards on this hierarchy requires researchers to add more value as scholars by finding useful patterns in the literature then using those patterns to create conceptual foundations for their studies that are clearer and more precise.

Level 1 on this hierarchy represents those studies where authors treat their focal concept - in this case, media literacy - as a primitive term. This option is regarded as exhibiting the lowest quality because it is based on the assumption that all scholars share the same meaning for a term. Given that the literature has grown large enough to exhibit many definitions of "media literacy," research study designers are provided with a great deal of guidance; thus, studies that operate at this level are regarded as faulty.

Researchers who move their work upwards from Level 1 recognize that they need to avoid the assumption that all readers share the same definition for media literacy, so they provide a definition they are using as the foundation for their study. If they simply present a definition, but they do not provide a source for the definition in the form of a citation in their review of the literature, then their work is limited to Level 2. Although their study demonstrates a higher level of precision compared to Level 1 by clearly communicating their definition to readers, they provide no scholarly foundation for that definition, so the presented definition appears arbitrary and is untethered to any previously published scholarship on media literacy. Studies at this level leave the reader wondering if the presented definition is in fact from the existing literature or whether the authors have constructed their own definition. If the latter, readers question why the authors created a new definition when so many already exist.

Researchers who move their work upwards from Level 2 present a definition of media literacy and cite a source for it from the literature. Level 3 research has the advantage of providing readers with a clear articulation of the authors' meaning and ties that meaning to a history of thinking through the citation. However, this option leaves readers wondering whether there were also other definitions considered, and if so, why those other meanings were rejected.

Researchers who move their work upwards from Level 3 demonstrate an awareness that there are multiple meanings for media literacy in the scholarly literature. Level 4 research studies present a review of the literature that describes more than one definition of media literacy that concludes with the authors selecting one of those definitions as the foundation for their study.

Researchers who move their work upwards from Level 4 go beyond demonstrating an awareness of multiple definitions for media literacy and present their own constructed definition for media literacy. Level 5 research is superior to the other four lower level studies because it presents readers with a definition that appears to be synthesized through a critical evaluation of existing definitions. This synthesis

Table 3. Hierarchy of Quality in Conceptual Foundation. (back to pg. 5; forward to pg. 8)

Level		
1	**No Definition**	22 studies (25.0%)
	Authors provide no definition of media literacy; media literacy is assumed to be a primitive term where all readers share the same meaning.	
2	**Foundationless Definition**	11 studies (12.5%)
	Authors present their study's definition of media literacy with no foundation (i.e., there are no meanings for media literacy presented in their review of the literature).	
3	**Selection from Single Definition**	14 studies (15.9%)
	Authors present their study's definition of media literacy with a foundation of citing a single meaning for media literacy in their review of literature; there is no acknowledgment that there are other meanings for media literacy.	
4	**Selection from Multiple Definitions**	7 studies (8.0%)
	Authors present their study's definition of media literacy with a foundation that cites multiple meanings for media literacy in their review of literature; they select one of those meanings but do not explain why they selected that particular meaning for their study.	
5	**Construction with No Explanation**	26 studies (29.5%)
	Authors present their study's definition of media literacy; although they cite multiple meanings for media literacy in their review of literature, they do not explain how they critically evaluated those multiple definitions in the construction of their study's definition.	
6	**Construction with Explanation**	8 studies (9.1%)
	Authors present their study's definition of media literacy with a foundation that cites multiple meanings for media literacy in their review of literature; they show how they critically analyze those definitions and construct their own definition from the results of their critical analysis.	

identifies the most useful elements in those definitions then assembles those definitional elements into a coherent definition that is somehow superior to any of the existing options. However, the authors have not shown this *process* of critical evaluation and synthesis to readers.

At the pinnacle of this hierarchy is Level 6, which demonstrates the full degree of explication suggested by Chaffee. Authors who publish Level 6 studies move beyond simply describing the multiple meanings in the scholarly literature and take the readers through the step-by-step process they used in critically analyzing the range of meanings in the literature and how those meanings were synthesized into a coherent set. Authors operating at Level 6 demonstrate considerable scholarly skill of synthesis in order to analyze meanings of a focal concept for their component elements, systematically make judgments about the value of all the elements in those definitions, then sort through the value of those elements so that the weakest are rejected, and the strongest are then assembled into a new configuration of meaning. While it might appear at first like the generation of another meaning would add to the definitional clutter, this is not the case. A good synthesized definition does not simply add another meaning; instead, it serves to replace much of the fuzzy definitional work with a definition that is not only more clear and useful but also builds from the strengths in the literature (Chaffee, 1991).

When scholars conduct reviews of the literature, their task is made easier to the extent that the authors of the individual studies in that literature have operated at higher levels on this meaning explication hierarchy. Reviewers of the literature then can be more confident that they are identifying the actual meanings of those various authors have used in their studies rather than having to infer those meanings. Reviewers can then group those studies according to their

different meanings rather than treating all studies in a single group and thereby assuming that the authors across all those studies shared the same meaning.

Grouping studies by meaning is also important when conducting a meta-analysis, which is a "review that uses a specific statistical technique for synthesizing the results of several studies into a single quantitative estimate (i.e., a summary effect size)" (Petticrew & Roberts, 2006, p. 19). Thus, when authors plan to conduct a meta-analytical review, a meaning analysis is a crucial first step in order to ensure that the studies selected for the sample all share the same meaning for their key concepts. One of the strongest criticisms of meta-analysis is that it "too often seeks to combine dissimilar studies -- sometimes called the 'apples and oranges' problem" (Petticrew & Roberts, 2006, p. 203). It appears that Jeong, Cho, and Hwang (2012) were aware of the use of many synonyms for media literacy when they selected studies for their meta-analysis of the media literacy intervention literature. They said they started with four key-word phrases (media literacy, media literacy intervention, media literacy curriculum, and media literacy program) to select studies for their meta-analysis, then broadened their search criteria. "To include the studies that did not use the term 'media literacy,' we used search terms (e.g., 'intervention,' 'advertising,' 'skepticism')" (p. 466). This procedure indicates that Jeong and colleagues believed that these seven terms shared the same meaning and furthermore that the authors of the 51 studies they selected for their meta-analysis all shared this meaning.

We believe this body of literature can benefit from a meaning analysis, and we present one in this manuscript. We use Chaffee's (1991) hierarchy to structure our meaning analysis. Each article in the media literacy intervention literature is analyzed to determine how authors have presented their meaning for media literacy. We do not expect all empirical tests of media literacy to share the same meaning, nor do we expect all studies to be coded at the same option on the six-level meaning hierarchy. The distribution of studies across these six options will indicate the degree of precision authors of these studies exhibit in deriving meaning and presenting it to their readers.

In summary, our content analysis of the empirical media literacy intervention literature is designed to document the meanings authors present for "media literacy" then to analyze the measures those authors have used to operationalize their conceptualized meanings into measures. In our content analysis, we record the presence of key characteristics of conceptualizations authors present for media literacy in those published studies to provide the foundation we use to make judgments about content validity and face validity. Specifically, we record the components and domains authors present in their definitions of media literacy that serve as the foundation for their studies. In assessing content validity, we compare the configuration of components and domains in the conceptual foundations with the set of measures presented in each study. In assessing face validity, we make judgments about how well the measures the researchers use are adequate measures of the components and domains they say they are measuring.

Method

A. Selecting Media Literacy Intervention Studies

Like Jeong, Cho, and Hwang (2012) did in their meta-analysis of media literacy intervention studies, we began with an electronic search of several communication literature data bases (Communication Abstracts, Psyclit, and ERIC). But unlike Jeong and colleagues who used many keyword phrases (media literacy, media literacy intervention, media literacy curriculum, media literacy program, intervention, advertising, and skepticism), we used the single term "media literacy & intervention." Readers may object to our not using additional search terms that they regard as synonyms for media literacy. However, we could not be sure which terms are synonyms in widespread use and which are believed to be synonyms by only a few scholars, so we decided to be conservative for the sake of precision. Admittedly, this resulted in a smaller set of studies than we would have generated by using more key-word terms, however, by using one key search term we attempted to avoid an "apples and oranges" non-equivalency. We argue that the fairest selection criterion was to rely on authors telling us whether or not their study was a test of a media literacy intervention by selecting their study only if they provided the key-word terms of both "media literacy" and "intervention."

When we identified a potential study, we searched through its reference list to identify additional studies that might have provided tests of media literacy interventions. We then screened out studies that were not published,

because published studies have gone through a scholarly review process and therefore have an expectation of higher quality than studies that have not. However, we screened out studies that did not provide a test of the effectiveness of interventions, because we wanted to see authors report their measures of media literacy so we could compare the measures to their meaning in determining content and face validity.

Our resulting sample was 88 published articles that claimed to test the effectiveness of a media literacy intervention. All of these studies feature the terms "media literacy" and "intervention" prominently -- either in title, keyword list, or abstract. Many of these studies featured these terms prominently in each of those places as well as many times in text.

B. Coding Variables

The development of the list of variables, their definitions, and their codes was a process involving many pilot tests over several years. When it was finished, the coding itself progressed smoothly mainly because almost all of the coding variables were manifest, rather than latent, variables (Holsti, 1969; Krippendorff, 2012). That is, we minimized the need for coders to make their own inferences of authors' meaning about media literacy by recording only those meanings expressed by the authors.

The meaning analysis first involved the coding of three variables: Number of media literacy definitions cited, the authors' focal definition of media literacy, and the components and domains in those focal definitions. When authors presented only one definition of media literacy, we used that meaning as an expression of their conceptual foundation. When authors presented more than one meaning for media literacy in their review of the literature, we looked for an expression by the authors indicating which of those definitions they were using as the conceptual foundation of their study. This procedure generated data on five variables that we describe below in more detail.

Media literacy definitions cited.

Coders counted the number of different definitions of media literacy that authors cited in their introduction, review of literature, and rationale sections. If a particular definition was presented more than once, it was counted only once. Also, if a particular definition was credited to more than one source, it was counted only once.

Focal definition of media literacy.

If authors cited only one definition in their review of the literature, coders regarded this one definition to be the authors' conceptualization of media literacy. If the authors presented more than one definition of media literacy in their review of the literature, coders then looked for what the authors claimed to be using as the conceptual foundation for their study as well as an articulation of their reasoning process for their selection and rejections. Coders then categorized this conceptualization on one of the six levels of the meaning presentation hierarchy developed from Chaffee's (1991) criteria (see Table 3).

Definitional elements.

Coders recorded the elements in the definitions used by authors as their conceptual foundation for media literacy. These elements took the form of components and domains. The definitional components were skills, knowledge, behaviors, beliefs, attitudes, affects, and other. The domains were the more specific types of elements within each component. For example, in the skills component, domains were individual skills such as analysis, critical thinking, synthesis, etc. We did not begin with a list of all possible domains; instead we recorded what authors regarded as domains.

We defined knowledge as acquired factual information. Factual information has truth value so that one can assess whether a fact is accurate or not. In contrast to factual information is social information which is important but does not have a factual basis, so this type of information was coded either as a belief, an attitude, or an affect.

Beliefs have been defined as cognitions about the probability that an object or event is associated with a given attribute (Fishbein & Ajzen, 1975). Simply stated, a belief is faith that something is real or is true.

Attitudes were defined as judgments about something. These evaluative judgments have valence and intensity (Fabrigar, MacDonald, & Wegener, 2005). Valance refers to whether the object of the attitude meets (satisfactory), exceeds (positive), or falls short of the standard (negative). Intensity refers to how far from the standard the object is perceived to be.

Affect refers to the feelings that people experience. Affect includes emotions and moods. Behaviors are typically defined as the overt actions of an individual (Albarracin,

Zanna, Johnson, & Kumkale, 2005).

Skills were defined as cognitive abilities that can be developed through training and practice. Wiley (1991) writes that skills "are abilities to perform tasks. Most such abilities are acquired, i.e., learned" (p. 78). He says that the valid measurement of skills requires observation of how people perform on a task, which is "a goal-oriented activity of determinable duration on which performance can be evaluated" (p. 105). While the measurement of skills requires the observation of performance, oftentimes researchers will measure something (like a belief or attitude) and argue that this measure is a valid outcome of the application of a skill. Such a procedure is a shortcut that requires a strong argument to convince readers that such an outcome could only have occurred by the use of the skill in question. This is an especially important argument to make convincingly in media literacy intervention studies because the purpose of the intervention is typically to increase the level of a particular skill or set of skills that the authors regard as the media literacy part of the intervention. In some studies, the skill was the outcome variable, that is, the participants who experienced the media literacy intervention were expected to exhibit higher scores on the skill measure compared to participants who did not experience the media literacy intervention. In other studies, the authors exhibited more interest in another outcome variable, such as an attitude or belief about some risky behavior; these studies had a two-step structure where the media literacy intervention was expected to increase skill levels and those elevated skill levels were expected to explain changes on the outcome variable.

When authors specified a component, coders also recorded whether authors specified domains within that component. For example, if authors defined media literacy in terms of skills, then coders looked for whether authors articulated particular skills (such as analysis, evaluation, reading, message production, etc.). If authors defined media literacy in terms of knowledge, then coders looked for whether the authors specified types of knowledge (such as how the industry works, content formulas, etc.).

Content validity.

Coders did not make a global judgment about content validity but instead used a system of counting components and domains. First, coders examined authors' conceptualization of media literacy and recorded the components and domains in those definitions. For example, let's say that the authors of a media literacy intervention study defined media literacy as knowledge about the motives of media companies, the skills of analysis and evaluation, and attitudes about the media. In this case, coders would record three components (knowledge, skills, attitudes) and four domains (one domain in the knowledge component, two in the skills component, and one in the attitude component).

Second, coders counted the number of components for which the authors provided measures. Returning to the example, if the authors listed measures that tested their participants' knowledge of the motives of media companies, their skill of analysis, their skill of evaluation, and their attitudes about the media, then coders would list four component/domains measured. This would be a match of 100% and indicate perfect content validity. However, if authors presented measures for only three of these component/domains, then coders would record those three which would indicate 75% on content validity.

In a few studies, the authors presented a conceptualization of media literacy that had many components and domains but then argued that it was too much for one study to test all of these components and domains. If those authors articulated that only a sub-set would be tested in their study, then we used the sub-set as the criteria for judging content validity and face validity.

Face validity.

Coders made a judgment about whether or not each measure of media literacy matched the component-domain unit that the authors claimed. Thus we did not try to make judgments about how good the measures were on a continuum; instead, we limited ourselves to counting the number of matches. For example, if authors expressed a component of knowledge and a domain of knowledge about media industries, then we looked for measures testing recall of facts about the media industry that were taught in the intervention; we did not make a judgment about how complete those measures were as tests of all aspects of media industries, nor did we make a judgment about whether those facts were core or peripheral, nor did we make a judgment about how clearly worded those measures were – all of which would have required a considerable degree of judgment from coders. We focused only on fit, that is, did the measure fit the component and domain that the authors claimed? Therefore, if authors claimed that a measure such as "How many hours during an average week do you read business publications about the

media industries?" was a measure of knowledge, we made a judgment that this measure did not fit their conceptualization because it was a measure of exposure to information, not a measure of how much knowledge the participants acquired and retained.

C. Reliability

The two authors served as coders on the project. Both coders coded 55 articles thus creating an overlap of 22 articles that was used to test for inter-coder reliability. The percentages of agreement were corrected by Scott's pi are as follows: definitions cited, .94; position on meaning hierarchy, .89; definitional elements, .84; measures of media literacy, .82; and face validity, .79.

Results

Presentation of Meaning

Across these 88 studies, there was a considerable variety in the way authors presented their meaning of media literacy (see Table 3). Authors of 22 studies (25%) provided no definition for media literacy, which indicates that they were treating it like a primitive concept with the assumption that all their readers would share the same meaning.

The 66 (75.0%) articles that did present definitions of media literacy in their review of the literature exhibited a wide variation. The authors of 11 studies (12.5%) presented a definition without a citation as to the source of that definition and no review of the media literacy definitions literature. Thus, there were 55 studies that presented one or more definitions of media literacy with citations that indicated the source of those definitions. Within these 55 studies, the range was 1 to 7 definitions cited with a median of 2 definitions. It is interesting to note that across these 55 studies, the most prevalent definition, which was the NAMLE definition, was mentioned only 7 times (12.7%), which shows that there is no consensus definition for media literacy, at least among designers of published media literacy intervention studies.

Authors of 14 studies (15.9%) presented only one definition of media literacy in their review of the literature and used that definition as a foundation for their study, while authors of 7 studies (8.0%) presented multiple definitions of media literacy in their reviews and selected one of these definitions as their foundation.

While the authors of the remaining 34 studies presented a review of the literature showing multiple meanings of media literacy and rejected all the definitions preferring to construct their own definition, the minority of these (8 studies) displayed a scholarly treatment of that constructed definition as suggested by Chaffee. That is, in 8 studies the authors displayed multiple definitions and furthermore critically analyzed those meanings to show readers how they constructed their own definitions; in the other 26 studies, the authors simply described the multiple meanings then presumably rejected them all by presenting another definition of their own.

The most popular component to be mentioned in the conceptual foundations was some sort skill; 59 of the 66 studies mentioned the component of skills in their definition of media literacy. The next most prevalent component mentioned was some knowledge, then there is a drop off in counts to behaviors, beliefs, and attitudes (see Table 4).

In summary, our meaning analysis revealed a wide distribution across all six levels of the meaning presentation hierarchy. Over half the studies were categorized at level 3 or lower.

Validity

In making our judgments about validity, we considered only the 66 articles that presented a definition for media literacy; the other 22 articles were ignored because there was no basis for making a judgment about validity. Also, if the authors of a particular study presented a definition with multiple components/domains but then said they were limiting their study to test only a sub-set of these, we used only the specified sub-set as the standard for validity. But if authors did not say they were limiting their test to a sub-set, we used the full set of components/domains as a standard for validity.

The results of our validity analyses are displayed in Table 4. Studies that presented a definition of media literacy that included a skill component are presented on the first line of the table. If the authors defined media literacy in terms of a knowledge component, it appears as a count on the second line. If a study's conceptual foundation called for more than one component, it was counted more than once

and therefore shows up more than once in Table 4.

When we look at the general pattern exhibited in Table 4, we can see that there are considerable discrepancies between the components authors specified in their definitions of media literacy compared to the measures they reported. Some of these discrepancies show up as drop-offs, that is, authors define media literacy with more components than they measure. For example, with the component of skill, 59 studies included this component in their definition but only 22 of those studies presented a measure for any type of skill. This pattern of a drop-off is also seen with the component of affect.

On other components, the discrepancy is not a drop-off but an increase, that is, there are higher counts in the measured column compared to the counts in the conceptual foundation column. For example, in 11 articles the authors argued that beliefs were an important component in their definition of media literacy and yet 24 measured beliefs as part of media literacy. At first, this might seem like a pattern of over-measurement where authors establish no basis for beliefs in their definition but then develop a measure for it. However, this is not the explanation for the pattern. Instead, this pattern is explained by authors attempting to measure one type of component but then designing items that measure another type of component. With the component of beliefs, the reason the number in the Measured column is much larger than the number in the Definition column is because many researchers who were attempting to measure a skill developed items to measure a belief instead. For example, several researchers defined media literacy as the ability to analyze media messages but then, rather than design a measure to assess their participants' ability to analyze, they instead asked their participants to respond to a statement (e.g., I am confident in my ability to analyze media messages) by choosing a number from a five-point Likert type scale (e.g., strongly agree, agree, neutral, disagree, strongly disagree). By doing so, they end up measuring participants' *beliefs about their skills* rather than measuring participants' level of performance on their skills. Another disconnect with measuring skill occurred when researchers asked their participants to respond to a statement (e.g., How often do you analyze characters when you watch television shows?) by choosing a number from a five-point Likert type scale (e.g., always, almost always, often, rarely, never). Here, they were measuring participants' self-reported behaviors rather than the level of performance on the skill.

When we shift attention from components to domains, we dig deeper into this pattern of disconnects between conceptualizations and operationalizations. Table 5 shows that the skills component was not only the most prevalent in the conceptual foundations, but this component displayed the most domains with 29 studies specifying one particular skill,

Table 4. Analysis by Components for Media Literacy by Studies. (back to pg. 10)

Component	In Definition	Measured	Matches
Skills	59	22	12
Knowledge	25	26	9
Behaviors	12	16	3
Beliefs	11	24	7
Attitudes	9	22	7
Affects	5	1	0
Other	6	7	2

n = 66 studies. Numbers in the cells represent studies.
The numbers in the columns do not sum to 66 because almost all studies referred to more than one component.

13 studies specifying two particular skills, 5 studies specifying three skills, and 9 studies specifying four or more skills. When we compare the number of mentions of skill domains in the conceptual foundations with which skills domains that were measured in those studies, we can see a big drop-off. This drop-off is also exhibited in the other five component areas, but it is not as pronounced as with the drop-off in the measurement of skills.

When we look for matches within each study, we can see that the drop-offs are even more pronounced. Table 6 presents a comparison between how many domains are specified in the conceptual foundations and how many of those domains were measured. Within the skills component, 30 studies specified one skill domain in the conceptual foundation, but only 5 of those studies provided a measure for that particular domain, and 13 studies specified two skill domains but only 3 of those studies provided measures for each of those two.

V. Discussion

We begin this discussion by acknowledging that all research studies have flaws; there are no perfect studies. By pointing out the flaws in the media literacy intervention literature, we are not advocating perfection as a standard; instead, we are arguing for a standard that we believe is not only reasonable but one that is also essential if this literature is to grow in value. In this Discussion section, we will first present that standard and show why it is reasonable and essential. Then we will raise some important questions about the design of media literacy intervention studies – questions that we will examine in the second half of this Discussion section.

A. Reasonable Standard

When authors present their study as a test of a media literacy intervention, we recommend they create a conceptual foundation that clearly communicates to the reader what their meaning is for media literacy, then use this meaning to guide their selection and/or construction of measures of media literacy. Thus we argue that in order for a study to be considered a test of a media literacy intervention it must meet two minimum criteria. First, authors must present an articulation of what they mean by media literacy as a conceptual foundation for their study. Second, authors need to present measures of media literacy that conform to their

Table 5. Analysis by Domains for Media Literacy by Studies. (back to pg. 11)

# of Mentions in Definition	Skills	Know	Beh	Belief	Att	Affect	
One	29	23	9	12	7	8	
Two	13	5	5	1	1	0	
Three	5	3	1	1	1	0	
Four or More	9	6	0	0	0	0	
Totals	56	37	15	14	9	8	139

# of Mentions in Definition	Skills	Know	Beh	Belief	Att	Affect	
One	12	13	9	10	11	0	
Two	6	3	2	3	3	1	
Three	1	2	0	3	2	0	
Four or More		1	4	1	3	0	0
Totals	20	22	12	19	16	1	105

n = 66 studies. Numbers in the cells represent studies

Note: Know = Knowledge; Beh = Behavior; Att = Attitudes

conceptual foundation.

We argue that this is a reasonable standard because scholars who search for studies about media literacy interventions expect to learn something about how media literacy can be taught to others and how that teaching can be most effective. Therefore if authors label their work as a media literacy intervention study by using the term in the title, abstract, keyword list, and throughout their article, then they mislead readers when they do not tell them their meaning for media literacy.

Conceptual foundation.

This recommendation might seem so obvious that there would be no need to state it. However, our findings revealed that 25% of the studies in our sample provided no foundation for media literacy, which is shocking because this is an easy criterion to meet.

In making this recommendation that authors of media literacy intervention studies tell readers what their meaning of the term is, we are not arguing for the use of any particular meaning. We believe that the many definitions of media literacy already displayed in the literature is a strength because it offers many different choices of meanings for scholars at this stage in the development of the field. However, given this rich resource of alternative meanings, authors cannot assume that all their readers will share the same meaning for the term as their authors do, so we argue that it is imperative for authors to communicate their preferred meaning. When authors ignore this task, they fail to provide a conceptual foundation that would increase the contribution their study can make to knowledge about media literacy.

Authors can easily meet this standard by simply writing a sentence in their manuscripts where they provide their definition of media literacy. Of course, it would be better if authors also presented a review of the media literacy literature to demonstrate an awareness of different definitions to give their work a more scholarly grounding. Moreover, it would be better still if authors presented a critical analysis of that literature that would show readers either why they selected one of those definitions over others or why they constructed their own definition by synthesizing the best definitional elements in that literature so that their conceptual foundation would have maximum value as a scholarly foundation for their particular study.

This recommendation that authors clearly articulate their meaning for media literacy is also essential because without

Table 6. Analysis of Domains of Skills and Knowledge. (back to pg. 12)

Skills	Number of Domains Measured							
Domains in CF	Zero	1	2	3	4	5	6	Percent
1	25	5						16.7%
2	7	3	3					18.8
3	1	4	0	0				0
4	2	0	2	1	0			0
5	2	0	1	0	0	1		25.0
Knowledge								
Domains in CF	Zero	1	2	3	4	5	6	Percent
1	5	5						50.0%
2	2	2	1					20.0
3	1	0	1	1				33.3
4	0	2	0	0	0			0
5	0	0	0	0	0	1		100.0
6	1	0	1	0	0	0	1	100.0

Note: CF = Conceptual Foundation

this, there is no basis for readers to judge the validity of measures.

Using valid measures is an essential requirement of all social science empirical research (Croucher & Cronn-Mills, 2015; Merrigan & Huston, 2008).

Measures.

The measures of media literacy included in a study can be used in a variety of ways, such as an outcome variable, an intervening variable, or an antecedent variable. As an outcome variable, media literacy measures can be designed as a post-test administered after an intervention. The expectation then is that this measure would be an assessment of whether the intervention had an immediate influence on participants' levels of media literacy. However, in order to test this expectation, designers also need to use the measure in a pre-test. Unless they administer the measure of media literacy both before and after the intervention, researchers have no way of telling if the intervention changed participants' levels of media literacy. As an intervening variable, measures of media literacy can be gathered after an intervention then used to predict some outcome variable like the counter-reading of media messages that advocate risk behaviors, such as smoking, illegal drug consumption, or unprotected sex. As an antecedent variable, measures of media literacy can be administered before a treatment then used as a predictor of the success of the intervention. Whatever their position in a research design, media literacy measures are essential when researchers position their study as a media literacy intervention study.

In our sample, we found 21 studies (23.9%) that presented no measures of media literacy. Of these 21 studies, 18 also provided no definition of media literacy while the other three studies did provide a definition but did not measure media literacy. Although 66 studies presented measures of media literacy, most of these studies failed to craft measures that measured the components/domains they explicitly cited in their definitions. For example, 59 studies defined media literacy at least in part through skills but only 22 (37.3%) of these studies claimed to provide a measure of that skill in their Methods section, and only 12 of those 22 studies provided a measure of skill rather than a measure of a belief about skills. If we look down the "Matches" column in Table 4, we can see that there were 40 measures that had face validity, that is, where authors presented a conceptual foundation for media literacy, constructed a measure to assess a domain in that definition, and actually measured that domain. If these 40 valid measures were spread out over 40 different studies, this would indicate that 24 studies (66 – 40) that provided a conceptual definition of media literacy but did not measure any of the domains in their definition.

When we add these 24 studies that do not meet the second of our criteria to the 22 studies that do not meet the first criterion, we can see that half the studies in our sample do not meet both criteria and should therefore not be considered as part of the media literacy intervention literature despite the authors of those studies labeling them as such. We are not arguing that these studies fail to contribute something valuable to the larger media effects literature. Instead, our argument is that authors mislead readers and searches of the literature when they label their studies as tests of media literacy interventions but then fail to present what they mean by media literacy and/or fail to present any measures of media literacy. This is a serious flaw in the media literacy intervention literature that can be corrected relatively easily in the future.

B. Important Questions

Our analysis of the current literature on media literacy interventions raises many questions about why those published authors have made the design decisions the way they did. We conclude this Discussion section with the posing of three of these questions, which form a sequence of issues that researchers must deal with when they design any test of a media literacy intervention. We will show that if authors confront the issues posed by this sequence of questions rather than ignore them, they will put themselves in a position to design tests with stronger validity and hence their findings will contribute more value to the media literacy intervention literature.

Basic research or evaluation study?

Are researchers more interested in (a) determining the overall performance of the intervention or (b) isolating one factor (or a small number of factors) in the intervention to determine whether it (they) influences the outcome variable? At first glance, this might seem to be a subtle difference, but as we will show in this section, the difference presents a fork in the road for a series of design decisions that would result in very different types of studies being conducted, and therefore very different sets of results being generated (Coffman,

2003; Chen, 2013; Penfield, Baker, Scoble & Wykes, 2014; Reinking & Alvermann, 2005; Stufflebeam, 2007). The decision of which path to take can be guided by a consideration of seven characteristics: (a) who designs the intervention, (b) complexity of the intervention, (c) nature of targets of the intervention, (d) nature of the agents who will deliver the intervention, (e) standard for judging success of the intervention, (f) pilot testing, and (g) ultimate goal for testing the intervention.

Evaluation study. Designing an evaluation study is more useful than designing a basic research study when scholars are presented with seven characteristics. First, the intervention is designed by a sponsoring agency or people hired or funded by the sponsoring agency (such as a public school system, a health agency, a consumer activist group, or a philanthropic institution). Second, the intervention is typically a combination of many presentation elements (such as lectures, print materials, videos, and websites) that involve targets in many activities (e.g., watching, reading, critiquing, discussing, and producing). Evaluation researchers assume that all of these elements work together in a system as the intervention is delivered in a series of lessons spread out over time. Third, the intervention is administered to intact groups in the field (e.g., such as elementary school classrooms) where random assignment of targets to conditions is impossible and where random assignment of intact groups to conditions is typically limited. Fourth, the people who deliver the intervention are typically part of the naturalistic environment (e.g., elementary school teachers, parents) who are given some training to administer the intervention but who are not expected to be perfectly matched on all instructional criteria, which introduces unavoidable differences in the way the intervention is administered. Fifth, the agency has created standards for success of the intervention before its administration. Sixth, there are typically several rounds of pilot testing to help improve the success of the intervention where improvements focus on increasing clarity of materials. And seventh, the ultimate goal of this process is to develop an instructional package that can be disseminated to other groups in the hope of overcoming some widespread problem or trying to make society better in some way.

Basic research study. In contrast, designing a basic research study is more appropriate to the extent to which the media literacy intervention meets the following seven characteristics. First, the intervention is designed by the scholars -- not a sponsoring agency -- who also design and execute the test. Second, researchers focus on only one element in the intervention in an effort to isolate its singular influence on the outcome variable. In order to do this, researchers try to control all the factors in the intervention and vary only one element across different treatments. Third, the intervention is administered as an experimental treatment to volunteers who typically come to a laboratory setting where their experience with the intervention can be highly controlled to ensure that all participants in a treatment group are given the same experience. Fourth, the intervention is administered by the researchers or their confederates in a controlled situation so that uniformity is maintained across all participants and treatment conditions with the exception that one of the factors of influence is carefully varied across each treatment condition. Fifth, there are no *a priori* standards of success but instead, researchers compare outcome variable means across the different treatment groups. Sixth, pilot testing is used to improve the *distinctiveness* of the factors of influence that are varied across treatments rather than trying to increase the value of the treatment to all participants. And seventh, the ultimate goal of this process is to make claims about the relative strength of different factors of influence.

Within the published literature of media literacy intervention studies, it appears that all of the studies in our sample exhibited a basic research design although 37 of those studies reported a situation that had more matches (on these 7 characteristics) with the evaluation option compared to the basic research design option. However, none of the 37 were a complete match on all 7 evaluation elements with none of the 37 reporting that there was an *a priori* established standard for effectiveness. One of the key characteristics of evaluation studies is the use of benchmarks that are determined by the agency before the design of the study (McKenzie & Smeltzer, 1997). These benchmarks are then used to determine whether the intervention was successful or not. These benchmarks are laid out a priori by the funding agency or by the goals of the curriculum within which the intervention is being tried. An example of such a benchmark is: After experiencing the intervention lesson that teaches about media industries, 70% of all children will provide correct answers on at least 8 items on the 10-item post-test of knowledge about media industries.

None of the studies in the analysis presented any benchmarks to be used as criteria for effectiveness. Instead, all 37 studies defaulted to looking for statistical differences across treatment and control groups. Because none of these

evaluation studies compared performance to a standard, none were able to make meaningful claims about the effectiveness of their tested interventions; instead, they were limited to making statements about whether there was a statistical difference in means between the group of participants who experienced the intervention compared to the participants who did not (the control group). By largely following many but not all of the conventions of evaluation studies, these studies were hybrids.

We are not arguing that hybrid designs are always weaker than "pure" designs; to the contrary, hybrid studies can be stronger than traditional designs if scholars synthesize the strongest elements of each option into a single design that amplifies strengths and minimizes weaknesses. However, if the hybrid design arises from designers taking shortcuts (e.g., it is easier to test for group means than to develop adequate performance criteria), then the hybrid fails to take advantage of inherent strengths of a particular method. Such hybrid designs can still make a contribution to literature, but the value of that contribution is limited (or enhanced) by the degree to which researchers reduce the design weaknesses by increasing strengths. The pattern of design decisions with evaluation studies that we found indicates that designers have been eliminating a strength (use of standards for success) and replacing it with a weakness (comparison of means).

We recommend that designers of media literacy intervention studies carefully consider the strengths and weaknesses of both basic research and evaluation studies. Designers can begin this task by thinking about the extent to which their envisioned study meets the 7 characteristics described above. For example, if their planned study meets more characteristics of an evaluation study than a basic research study, designers should consider whether they can change the remaining characteristics in their situation to meet the needs of an evaluation study more completely. One way to do this would be to create performance criteria as a benchmark of success. The analysis, then, could avoid comparing group means and instead compare the performance of individuals to the standard and report how many participants met the standard after experiencing each of the tested interventions.

Media literacy as persuasion or empowerment? Do authors regard the purpose of the intervention as persuading people to change their beliefs (or behaviors) from something the authors regard as faulty to something else the authors regard as desirable? Or instead, do authors regard the purpose of the intervention to empower people to make better decisions on their own? This distinction reveals a key element in many conceptualizations of media literacy, which is empowering individuals to think for themselves and not automatically accept the meanings presented in many media messages. The choice here makes a big difference in how the interventions are designed and what is regarded as a standard to use in judging the success of the intervention.

Researchers who take the persuasion path of thinking, design the intervention to convince people to reject one belief (or behavior) and replace it with another one. In order to achieve this goal, researchers design an intervention that contrasts the faulty nature of a belief that participants are assumed to hold with an alternative belief that the researchers regard as better in some way. Success is then measured by examining how many participants exhibited the researcher-sanctioned belief following the intervention. Thus, data analysts look for convergence as evidence of effectiveness, that is, the extent to which all participants accepted the alternative belief after experiencing the intervention. The more participants who converge to accepted this belief, the more effective the intervention is judged to be.

Researchers who take the empowerment path, in contrast, design an intervention to help participants learn how to analyze media messages so they can determine for themselves which meanings are faulty or not useful for their own purposes. Such interventions are designed to show participants the risks of automatically processing media messages and show them alternatives to this automatic processing so that those participants learn to do something that can be applied in their everyday lives in a way to make them more in control of how they process meaning and thus to develop beliefs and behaviors that serve their own needs better. Therefore, the effectiveness of interventions that are designed to achieve empowerment look for evidence of individuals thinking for themselves, which suggests divergence much more than convergence. Thus, a media literacy intervention is successful with a range of opinions exhibited across participants as long as participants have developed a higher awareness of the process of developing their opinions and are able to support those opinions with evidence arranged in logical arguments. This distinction can be succinctly stated as the persuasion perspective focuses on giving people what researchers regard as a better fish, while the empowerment perspective focuses on teaching people how to fish better.

In our analysis, we frequently found a disconnect between conceptual foundations and design decisions on this point. That is, frequently authors articulated media literacy by using empowerment-type language, such as attempting to get participants to think more critically. These researchers claimed that their media literacy interventions were designed to teach targets to make counter-readings of messages, resist the persuasive appeals of messages, and apply their own standards in formulating their own attitudes rather than accepting the attitudes and beliefs of product spokespersons, newscasters, and characters in fictional narratives. However, then these same authors exhibited design decisions that formulated a traditional persuasion study where they used the intervention to persuade participants to change their beliefs or behaviors.

We are not arguing that empowerment type studies are inherently superior to persuasion type studies. Instead, we argue that designers of media literacy intervention studies need to be clear about which perspective they favor then design an appropriate study to achieve their intention. There is room under the broad media literacy umbrella for both types of studies. However, when researchers argue that their belief is empowerment, but then design a persuasion study, they create a hybrid that serves neither purpose well.

Skills as performance or belief? Almost every conceptualization of media literacy suggests a skills component. Also, a high percentage of empirical tests of media literacy claim to deal with at least one skill. Recall that in our study, we found that among the 66 published studies that provided a media literacy conceptual foundation, 59 defined media literacy at least in part as requiring the development of skills. When designers of media literacy intervention studies confront the issue of skills, they must ask themselves whether they regard skills as performances or as people's beliefs about abilities? The way researchers answer this question indicates how much of a challenge they are willing to undertake when designing their interventions and measures of media literacy skills. If researchers regard skills as beliefs about abilities, the challenge is relatively easy to meet. However, if researchers regard skills as performances that involve the application of thinking processes to complete tasks, then the challenge is considerably higher. This increase in design complexity and cost is a likely reason why so few studies in our sample, treated skills as performances.

We argue that there is value in measuring participants' beliefs about their skills. The large research literature stimulated by social cognitive theory (Bandura, 2009) clearly shows that when people have strong efficacy beliefs, they are able to learn more and to use that learning. However, we also argue that there is a difference between people's beliefs about their skills and their actual level of performance on those skills. Our reading of this media literacy intervention literature has led us to infer that most authors who talk about the importance of skills to media literacy are referring to people's abilities (a) to construct counter-readings of the surface meanings presented in messages, (b) to analyze those messages in various contexts, (c) to infer motives of senders, and even (d) to construct their own messages. The above listed skills require assessments of individual's performances in order to be able to plot those individuals on a range of abilities to perform those tasks. Moreover, skills require performance both in the intervention as well as in the measurement of them. In the athletic realm, basketball coaches do not ask prospective players: How well do you shoot free throws? (very good, good, average, below average). Instead, they observe their performance. Of course, beliefs are also important in the sense that if people believe they have good basketball skills, they are likely to continue playing the game and work to improve their skills compared to people who do not hold such positive beliefs. However, it is a person's actual performance level more so than their beliefs that reflect how well the game is played.

While determining the level of basketball players' free throw skill through performance is relatively easy, determining the level of media literacy skills is much more challenging. Research designers can begin working on this challenge by using a three-step procedure. First, they need to clarify as much as possible what the skill is that they want to teach or improve. Second, they need to think about what the various levels of performance are on the skill are, then determine what observables would indicate performance at each level. And third, they need to think about the skill as requiring a sequence of sub-tasks, then design measures to track participants through the process of applying that skill in the completion of each step in the process.

In summary, scholars who present definitions of media literacy that include a skills component need to think through the concerns presented in this section. They need to provide more detail in the form of specifying domains of skills and be more clear about defining what those skills are. They also need to articulate their vision about whether they are dealing with skills or competencies and if skills, then are

those skills broad or specialized to media literacy. Scholars who clearly lay out their positions on these issues will be providing a great deal more guidance to designers of measures. Then the designers of those measures need to be more complete and accurate in their operationalizations in order to achieve validity.

VI. Conclusion

This study has presented an examination of the validity of 88 published studies of media literacy interventions. While this literature has been generated by sincere scholars who have invested a great deal of effort designing interventions trying to help people improve their media literacy, this analysis revealed that the media literacy intervention literature generally exhibits a low level of scholarly quality in the presentation of meaning as well as incomplete and inaccurate follow through on the design of measures. Thus, most of the studies in this literature have failed to establish a minimum level of validity.

Our analysis also illuminated some important issues for designers of media literacy intervention studies to consider in their designs, including the basic criterion of presenting a definition for media literacy, whether the study being conducted is truly an evaluation of an intervention or a basic research study, the purpose of media literacy interventions, and how skills should be treated. If we wish to increase the validity of our media literacy intervention studies, we must clearly articulate what we mean by media literacy and use those meanings to guide our research design decisions in a much more systematic manner.

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Table 1. Sampling of Definitions of Media Literacy. (back to pg. 3)

From Scholars

Adams & Hamm (2001): "the ability to create personal meaning from the visual and verbal symbols we take in every day from television, advertising, film, and digital media. It is more than inviting students to simply decode information. They must be critical thinkers who can understand and produce in the media culture swirling around them" (p. 33).

Anderson (1981): the "skillful collection, interpretation, testing and application of information regardless of medium or presentation for some purposeful action (p. 22).

Naiditch (2013): "the ability to develop and use critical thinking skills (such as sorting through, analyzing, and assessing information) to interpret media messages and to create meanings out of those messages…by becoming media literate, people learn to use critical lenses both as consumers of media messages and as producers of their own messages"(p. 339)

Scharrer & Raring (2012): "an inquiry-based process of consideration of multiple layers of a topic in the formation of one's own evaluation" (p. 352).

Sholle & Denski (1995): "it must be conceived as a political, social and cultural practice" (p. 17).

Silverblatt & Eliceiri (1997): "a critical-thinking skill that enables audiences to decipher the information that they receive through the channels of mass communications and empowers them to develop independent judgments about media content" (p. 48).

From Professional Associations

National Communication Association: A media literate person understands how words, images, and sounds influence the way meanings are created and shared in contemporary society in ways that are both subtle and profound. A media literate person is equipped to assign value, worth and meaning to media use and media messages. (http://www.natcom.org/uploadedFiles/About_NCA/Leadership_and_Governance/Public_Policy_Platform/K-12Standards.pdf)

National Council for the Social Studies: The multimedia age requires new skills for accessing, analyzing, evaluating, creating, and distributing messages within a digital, global, and democratic society. The acquisition and application of critical analysis and media production skills are part of what constitutes media literacy. (http://www.socialstudies.org/positions/medialiteracy)

National Leadership Conference on Media: The ability to access, analyze, evaluate, and communicate messages in a wide variety of forms literacy. (Aufderheide, 1997).

From Citizen Action Groups

Action Coalition for Media Education: Encourage critical thinking and free expression, examine the corporate media system, and inspire active participation in society. (http://www.acmecoalition.org/)

Center for Media Literacy: "A framework for accessing, analyzing, evaluating and creating media. The development of critical thinking and production skills needed to live fully in the 21st century media culture. Also defined as a "new vision of literacy for the 21st century: the ability to communicate competently in all media forms, print and electronic, as well as to access, understand, and analyze and evaluate the powerful images, words and sounds that make up our contemporary mass media culture." Also, "Through a four-step 'inquiry' process of awareness. . .Analysis. . .Reflection. . .Action, media literacy helps young people acquire an empowering set of 'navigational' skills" which include the ability to access, analyze, evaluate, and create media.
(http://www.medialit.org/about-cml)

Citizens for Media Literacy: How to think critically about TV and advertising. Special emphasis is placed on the benefits of telling one's own stories rather than being pre-occupied with manufactured stories designed to promote the purchase of products. (http://www.main.nc.us/cml/)

Coalition for Quality Children's Media (KIDS FIRST!): Teaching kids to become more critical media users and to reduce the impact of and exposure to violent and biased media. We teach them to recognize programs that are intellectually and

creatively stimulating; that break down racial, gender, handicapped and cultural boundaries; and that are produced with high technical and artistic standards. (http://www.kidsfirst.org/kidsfirst/html/whatcq.htm)

Common Sense Media: The ability to identify, find, evaluate, and use information effectively. From effective search strategies to evaluation techniques, students learn how to evaluate the quality, credibility, and validity of websites, and give proper credit.
(https://www.commonsensemedia.org/educators/digital-citizenship/information-literacy)

Media Watch: challenge abusive stereotypes and other biased images commonly found in the media. (http://www.mediawatch.com/?page_id=32)

National Association for Media Literacy Education: The purpose of media literacy education is to help individuals of all ages develop the habits of inquiry and skills of expression that they need to be critical thinkers, effective communicators and active citizens in today's world. (https://namle.net/publications/core-principles/)

Governmental Groups

Eunice Kennedy Shriver National Institute of Child Health and Human Development (through the Media Smart Program): having awareness of and critical thinking skills about the media's role in influencing choices related to nutrition and physical activity. Young people should learn to question the *who*, *what*, *why*, and *how* behind words and images in the media. As a result, they develop critical thinking skills that help them form their own opinions and make their own choices about the messages they see and hear. (https://www.nichd.nih.gov/msy/Pages/index.aspx)

New Mexico Media Literacy Project (now known as the Media Literacy Project): the ability to critically consume and create media. Media literate individuals are better able to decipher the complex messages they receive from television, radio, newspapers, magazines, books, billboards and signs, packaging and marketing materials, video games, and the Internet. Media literacy skills can help one understand not only the surface content of media messages but the deeper and often more important meaning beneath the surface. (https://medialiteracyproject.org/learn/media-literacy/)

Office of National Drug Control Policy: "To a) recognize how media messages influence us (e.g. develop a vocabulary to recognize manipulative techniques, develop skills to protect oneself against messages about drugs or negative lifestyle choice that are embedded in the media), to b) develop critical thinking (e.g. know that messages are constructed by people with points of view and commercial interests, uncover value messages inherent in media, evaluate information for accuracy and reliability), to foster self-esteem (e.g., creatively produce satisfying and constructive messages)". (Levitt & Denniston, 2014; https://www.ncjrs.gov/ondcppubs/pdf/strat_pt1.pdf)

Table 2. Definitions for Media Literacy: Components and Domains. (back to pg. 3)

Skills Focused Components

Generic Skills

Skill building (Alliance for a Media Literate America)

Skills necessary for competent participation in communication across various types of electronic audio and visual media" (Speech Communication Association, 1996, Standard 23)

Skills of Accessing

Ability to access media messages (Media Literacy Project, n.d.)

Ability to access meaning from media messages (Adams & Hamm, 2001; Anderson, 1981; Silverblatt & Eliceiri, 1997)

Skills of Interpretation

Ability to make one's own interpretations from media messages (Anderson, 1981; Adams & Hamm, 2001; Silverblatt & Eliceiri, 1997)

Ability to use aesthetic building blocks to create and shape cognitive and affective mental maps (Zettl, 1998)

Ability to analyze media messages (Anderson, 1981; Adams & Hamm, 2001; Brown, 1998)

* Particularly ideological analysis, autobiographical analysis, nonverbal communication analysis, mythic analysis, and analysis of production techniques (Silverblatt, Ferry, & Finan, 2015)
* Critical thinking about media messages (Adams & Hamm, 2001)
* "a critical-thinking skill that enables audiences to decipher the information that they receive through the channels of mass communications and empowers them to develop independent judgments about media content" (Silverblatt & Eliceiri, 1997, p. 48).

Skills of Message Production

Ability to communicate effectively by writing well (Brown, 1998)

Ability to produce media messages (Adams & Hamm, 2001; Auferheide, 1997 Hobbs, 1998

Ability to create counter-representations of media messages (Sholle & Denski, 1995)

Knowledge Components

Knowledge of Media Industry

"knowledge about how the mass media function in society. . . Ideally, this knowledge should encompass all aspects of the workings of the media: their economic foundations, organizational structures, psychological effects, social consequences, and, above all, their 'language,' that is the representational conventions and rhetorical strategies of ads, TV programs, movies, and other forms of mass media content" (p. 70); "an understanding of the representational conventions through which the users of media create and share meanings" especially visual representations. (Messaris, 1998, p. 70)

Understanding the process, context, structure, and production values of the media (Silverblatt, 1995)

Knowledge of Media Content

Understanding of media content (understanding of the conduits that hold and send messages), of media grammar (understanding of the language or aesthetics of each medium), and of the medium (understanding of the type of setting or environment) (Meyrowitz, 1998)

Knowledge of Media Effects

Understand the effects of the various types of electronic audio and visual media, including television, radio, the telephone, the Internet, computers, electronic conferencing, and film, on media consumers." (Speech Communication Association,

1996, Standard 22)

Understanding of how the media distort aspects of reality as they manufacture their messages and how symbol systems mediate our knowledge of the world (Masterman, 1985)

Learning about "text processing within the broad and complex context of a social, cultural, educational, and commercial textual ecosphere" (Mackey, 2002, p. 8)

Understanding how media messages shape people's construction of knowledge of the world and the various social, economic, and political position they occupy within it" (Alvermann, Moon, & Hagood, 1999, pp. 1 - 2)

Knowledge about One's Self

Understanding of one's place in the world (Blanchard & Christ, 1993; Sholle & Denski, 1995)

Behavioral Components

Generic

"a political, social and cultural practice" (Sholle & Denski, 1995, p. 17)

Empowerment

Becoming empowered citizens and consumers (Blanchard & Christ, 1993; McLaren, Hammer, Sholle, & Reilly, 1995; Sholle & Denski, 1994)

Moving people from dependency to self direction by being more reflective (Grow, 1990)

"Policing one's own viewing behaviour – if not by reducing the amount of television they watch, then at least by watching it in ways which are assumed to minimize its influence" (Buckingham, 1993, p. 21)

Becoming sophisticated citizens rather than sophisticated consumers (Lewis & Jhally, 1998)

Empowering and liberating people to prepare them for democratic citizenship and political awareness" (Masterman, 1985, p. 15, writing about the Council of Europe Resolution on Education in Media and New Technologies which was adopted by European Ministers of Education).

Activism

Becoming stimulated by social issues that are influenced by the media; these issues are things like violence, materialism, nutrition, body image, distortion in news reporting, and stereotyping by race, class, gender, and sexual orientation (Anderson, 1983)

Becoming "active, free participants in the process rather than static, passive, and subservient to the images and values communicated in a one-way flow from media sources" (Brown, 1998, p. 47)

Challenging abusive stereotypes and other biased images commonly found in the media (Media Watch)

Social Networking

Creating communities of people who interact in complex social and cultural contexts and use this awareness to decide what textual positions to accept (Buckingham, 1998)

"primarily something people do; it is an activity, located in the space between thought and text. Literacy does not just reside in people's heads as a set of skills to be learned, and it does not just reside on paper, captured as texts to be analysed. Like all human activity, literacy is essentially social, and it is located in the interaction between people" (Barton & Hamilton, 1998, p. 3; cited in Margaret Mackey, 2002, p. 5-6)

Affective Components

Pay more attention to one's own affective investment as one consumes the media (Sholle & Denski, 1995)

Ability to appreciate media messages (Adams & Hamm, 2001) especially respected works of literature (Brown, 1998)

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