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Critical Analysis of Critical Thinking

Abstract

This study provides an analysis of how the term “critical thinking” has been defined by authors of articles published in the *Journal of Media Literacy Education*. It provides answers to three questions: (1) How frequently is the term “critical thinking” mentioned by scholars who write about media literacy?, (2) In what ways do scholars convey the meaning of the term?, and (3) To what extent is the term presented with a consistent meaning? While the term “critical thinking” appeared in more than half of the articles examined, there was a great variety in the way authors presented their meanings for this term as well as a great variety in those meanings themselves. The results of this analysis raise concerns about the way the term has been employed and how helpful its use has been to different kinds of scholars.

Keywords: critical thinking, conceptualizations, defining key terms, sharing meaning

Critical Analysis of Critical Thinking

Articles in scholarly journals frequently use the term “critical thinking” to describe the essence of what media literacy should be. For example, several scholars have observed that most media education frameworks focus on the enhancement of critical thinking skills regardless of their methodological or theoretical perspective (Bergstrom, Flynn, & Craig, 2018; Scharrer, 2007). Also, Hobbs (2010) has argued that within the growing body of media literacy scholarship, critical thinking is the most frequently mentioned skill. These claims are essentially arguments that critical thinking is a very useful idea within the field of media literacy.

Other scholars, however, have observed that because the term is so widely used, it has been treated more as a quick fix to a huge variety of media literacy problems rather than as a fully developed concept with a commonly accepted meaning (Ashley, Lyden, & Fasbinder, 2012; Buckingham 1998; Madison, 2019; Ruminski & Hanks 1995; Wright 2002). For example, Madison (2019) asserts, “critical thinking is often touted as a pedagogical ideal. Yet the term is so overused, it arguably has been rendered meaningless” (p. 57). Also, Ashley, Lyden, and Fasbinder (2012) claim “there is no clear consensus on how to teach or assess critical thinking” (p. 230).

It is the purpose of this study to test these claims by providing answers to three questions. First, how frequently is the term “critical thinking” used by scholars who write about media literacy? Second, in what ways do authors convey the meaning of the term to their readers? And third, to what extent is the term used with a consistent meaning? Generating an answer to the first of these questions is relatively simple because texts can be searched electronically to determine how often a term appears. While the task of generating useful answers to the

remaining two questions is much more challenging, those answers can tell us much more about the way scholars conceptualize critical thinking and how widespread those meanings are shared.

Generating an answer to the second question requires a meaning analysis, or what Chaffee (1991) has referred to as explication. A meaning analysis begins with a determination about how scholars go about conveying the meaning of their terms. One form of treating the meaning of key terms by authors of scholarly articles is to assume that all readers share the same meaning, and this assumption relieves authors of having to define the term. This is known as treating the term as being primitive (Hempel, 1952). If authors could not safely assume a widely shared meaning for terms, they would have to define *every* term in their manuscripts. But this is a task that is impossible to begin; in order to define any term, authors would have to first define all the terms they planned to use in that definition, and this would require an infinite regress. Therefore, authors must treat most terms in their writings as primitive. A significant challenge for all authors to know when to treat a term as primitive and when it is essential to provide a definition (Reynolds (1971). This is one reason why paradigms are so important to scholarly fields, because paradigms are composed of conventions that indicate which meanings are commonly accepted. Chaffee (1991) argues that scholars need to know the system of thinking that structures their fields so they can make good decisions about which terms share a common meaning. “The existence and acceptability of these concepts [primitive] is assumed, which means they are not questioned within the framework of research built upon them” (p. 7).

When scholars do provide definitions for key terms in their writings, Chaffee (1991) says they do so in basically two ways – either by presenting a distillation of the term’s essence or by listing key characteristics of the term. Let’s examine these two methods of definition in some detail.

Distillation. This form of definition is the most formal and most involved. It requires the scholar to capture the essence or “boiling the idea down to its essential elements” and to provide classification rules so readers can understand the boundaries of the meaning being conveyed (Chaffee, 1991, p. 26). This type of definition is the most precise, because it requires considerable meticulousness not only to capture the essence of the concept but also to provide a complete set of classification rules so that readers can apply those rules to any potential example of the concept and be guided to a confident decision about whether a potential example under consideration falls within the parameters of the conceptualization or not. This feature makes definitions by distillation most useful to scholars who want to use the concept as a foundation for designing a study. That is, the more complete the set of classification rules are, the more they will guide designers of research studies in operationalizing the concept into a set of measures that demonstrates acceptable validity.

Listing. This type of definition consists of a list of examples. Chaffee (1991) says, “Definition by list consists of identifying all the lower-order concepts that constitute your higher-order concept” (p. 27). One example of this type of definition is the Linnaean classification system that groups all living things in an organization ranging from kingdoms to species. Another – but less grand -- example is mass media which is usually defined by listing the examples of print (newspapers, books, magazines), film, broadcast (radio, TV), and cable. Chaffee continues “the concept of mass media is usually defined by list rather than by distillation of its core meaning” which leaves some ambiguity as to its full meaning, because it leaves open questions about how to classify other things not on the list. For example, with the mass media, a definition by listing tells scholars nothing about whether other things (blogs, electronic games, computer manufacturers) should also be included in a list of mass media. Such a definition

leaves readers wondering what the author means by “media” and by “mass.” “Does mass refer to mass production, or to a conception of the audience as mass, or to both?” (Chaffee, 1991, p. 27).

Chaffee argues that “Definition by list alone, even if it is a very thoughtful and defensible list, is isolated between two important limitations. Behind it lies the problem of explaining what rules have been followed in building the list. In effect, to make a list we must have some implicit attribute(s), which is to say a theoretical analysis. Thus a list that is built after an explication is much more useful than a list that is simply cooked up for the immediate occasion of providing examples or grouping them” (p. 28). A second limitation of defining a concept by listing elements is that it is time-bound. That is, the list reflects a set of characteristics that might represent the concept well at one point in time, but if the concept is dynamic and changes over time, that definitional list goes out of date quickly because it fails to capture the dynamic nature of the concept it attempts to define.

This study’s third question requires the examination of the content of those definitions. If there are particular elements that appear consistently across all definitions, then this will be evidence of a widespread sharing of certain meanings. A high degree of sharing a particular meaning for key terms in a field is an indicator of the maturity of the field. Kuhn (1970) argued that mature scholarly fields are characterized by a paradigm that is a set of beliefs that members of that field accept. These beliefs include assumptions about the nature of the focal phenomenon that scholars in the field study, agreement about which concepts are the most important, and a shared meaning for those concepts. Kuhn further argued that a field can become stagnant when a paradigm dominates the thinking within a field and thereby stifles creativity. When this occurs, a scholar (or small group of scholars) can break away from the paradigm by making significant changes to assumptions, concepts, or definitions of existing concepts. This change creates a new

paradigm, which forces scholars to either maintain their old set of beliefs or to accept a new way of thinking about their focal phenomenon as well as ways of examining it. If this study finds two different patterns of defining critical thinking, then this will be evidence of the field going through a revolution where there are two competing paradigms. And if this study finds a wide variety of definitions, then this will be evidence for how dynamic the field is with many different definitions for the term being exhibited in the literature.

Method

Data Base

The data base for this study is the set of all articles published in the *Journal of Media Literacy Education* since its beginning in 2009. Scholarly articles about media literacy have been found in almost all communication journals as well as journals across the social sciences and even in professional areas, such as the health sciences, education, policy, and law. Because the *Journal of Media Literacy Education* is a visible forum for scholarship about media literacy, the articles in this journal provided the data base for this study.

From its initial issue in 2009, the *Journal of Media Literacy Education* has published a total of 259 manuscripts, which includes 213 scholarly articles with the other 46 being reviews of books, websites, apps, and films. This study focused on analyzing the 213 scholarly articles by downloading a pdf file for each and conducting an electronic search of each of those pdfs by using the search phrase of “critical thinking.” This procedure generated a count for mentions per article. Also, each time that the term “critical thinking” was found in the text of the article, the author copied the sentences in which the term appeared in order to determine (a) whether the authors attempted to define that term, and if so, (b) what the authors presented as a definition.

Mentions of the term in the title, keyword list, tables, graphs, or reference lists were not recorded or analyzed.

Procedure

The analysis progressed in three steps. In the first step, each definition in the JMLE articles was recorded along with the citations for that definition provided by the JMLE authors. This definition-citation unit is called an entry. Some of those citations displayed multiple sources. For example, an author might say something like “critical thinking is a skill of analyzing media messages in depth (Smith, 2000; Jones, 2010).” This entry shows that an author provided a definition of critical thinking that came from two publications, but even though two publications were cited, the author was presenting only one definition, so this was considered as one entry in the analysis. Thus, the number of definitions in the analysis is not equal to the number of sources cited. Also, the authors of two different articles may present the same definition for critical thinking along with the same citations of sources. In this case, one entry was recorded, and it was noted that the particular entry appeared twice – in two different articles. Thus, the number of entries is not equal to the number of times definitions were reported, because some definitions appeared in more than one article. Also, some authors presented more than one definition for critical thinking; in this case, each of the multiple definitions was considered a separate entry. Thus, the number of entries in the analysis is not equal to the number of articles that provided a definition. Therefore, the number of entries represents the number of definitions found in the content analysis, not the number of citations nor the number of articles providing definitions. The key feature reflected by entries is the definition, that is, the number of entries reported in this analysis is the number of unique definitions for critical thinking that were found across all articles examined.

In the second stage, each entry was analyzed to identify its component elements. Each element was a different idea that the author used to define critical thinking. Some entries were composed of only one idea (e.g., critical thinking is analysis) while other entries were composed of multiple ideas. For example, an author who wrote something like “critical analysis is the awareness that media messages may be misleading so it is necessary for people to dig into messages to be able to find the misleading elements and create alternative meanings for themselves.” This entry presents three different ideas that the author claims is the meaning of critical thinking (awareness, the skill of digging into media messages in order to identify misleading elements, and the skill to create alternative meanings).

In the third stage, the many different elements found in the entries were organized into groups by using an inductive process of iterations. Initially, elements that shared an obvious characteristic were grouped together, then the groupings were examined to assess (1) the degree to which all the elements in a group shared the same characteristics, (2) the degree to which the groupings were distinct from one another, and (3) the degree to which all the elements could be put into one -- and only one -- group. This was an iterative process of trial and error that served to refine the classification rules until a parsimonious set of categories was developed that could be used to place all elements into a meaningful group.

Indicators of Variation

This analysis used four categorical variables as tools to look for evidence of the extent to which authors of different articles were exhibiting a consistent meaning for critical thinking. These four categorical variables were method of defining, level of concept, type of element, and citation counts.

Method of defining. This variable was built on Chaffee's three-part scheme (distillation, listing, and primitive) for how scholars define concepts. During the coding, it was found that the listing form of defining displayed two distinct types. Some authors provided lists of components and others provided lists of outcomes. Therefore, the variable of method of defining was expanded to include four values: distillation, listing components, listing outcomes, and primitive.

An article was placed into the primitive category when its authors provided no definition for the term, thus demonstrating an assumption that all readers shared their meaning for the term. When authors provided a detailed definition of the essence of the concept along with some sense of classification rules, the article was placed into the distillation category. And when the term was defined by a listing of characteristics, it was placed in either the component or outcome category, depending on whether the items in the list were presented as characteristics that authors claimed made up the concept (components) or whether the items in the list were presented as characteristics that authors claimed were consequences of using critical thinking (outcomes).

Level of concept. There are places in the literature where "critical thinking" was presented as a higher order concept and other times when it was used as a lower order concept in a list to define some higher order concept. For example, authors treated critical thinking as a higher order concept when they listed its components (e.g., ability to analyze messages, ability to evaluate the credibility of messages, and the like) as a way of defining it. Other authors treated critical thinking as a lower order concept in a list of characteristics to define a higher order concept (e.g., media literacy, digital literacy).

This variable had two values (higher order and lower order). When authors provided a list that represented their set of components within critical thinking, then critical thinking was

identified as being treated as a higher order concept, and the items in the list were the lower order concepts. However, when authors attempted to define something else (such as media literacy or media education) by listing critical thinking as a definition of that higher order concept, then critical thinking was regarded as a lower order concept because it was being presented as a component (among other components) of that higher order concept.

Type of element. When authors listed what they regarded as components of critical thinking, they typically specified things like particular skills (such as analysis, evaluation, production, etc.), but authors also listed other kinds of components that could be characterized as a particular kind of knowledge, a belief, an affect, or a behavior. Likewise, the listing by outcomes method of defining critical thinking was characterized by authors claiming that the use of critical thinking would result in particular positive consequences such as improving a skill, increasing knowledge, altering a belief, triggering a positive emotion, or a shaping a behavior. All entries were then tagged as referring to one or more of these six categories: skill, knowledge, belief, affect, behavior, or other.

Citation counts. Counting the number of citations for an entry produces an indicator of how widespread the idea in the entry is shared as a definitional element of critical thinking. If this analysis results in a pattern where a particular definition has a high number of citations, this pattern will indicate a high degree of sharing of meaning. In contrast, if this analysis finds that a large proportion of the entries each had one citation and each of those citations attributed a different source, then this pattern would suggest a low level of sharing.

Results

The results of this analysis are reported in a sequence of the three questions that structure this study. First, how often is the term “critical thinking” used by scholars who write about media

literacy? Second, in what ways do scholars convey the meaning of the term? And third, to what extent is the term presented with a common meaning across authors? Thus, the findings in this Results section are organized by frequency, conveyance of meaning, and sharing of meaning.

Frequency

Of the 213 published articles in the *Journal of Media Literacy Education* since its beginning, 115 (54.0%) of those articles presented at least one mention of critical thinking. In total, the term was mentioned 317 times which averages to about 2.8 times per article across the 115 articles in which it was mentioned.

Conveyance of Meaning

There appears to be considerable variation across authors in the way they conveyed their meanings for critical thinking. These differences show up both in the method of definition used and the level at which authors treated the concept.

Method of definition. Of the 115 articles that mentioned critical thinking, 37 (32.2%) provided no definition, treating it like it was a primitive term. Among the 78 articles that provided a definition for the term, 37% presented a listing by components, 29% presented a listing by outcomes, 6% presented a distillation type definition, and the remaining 28% presented a combination of types of definitions. This pattern displays a good deal of variety in method of defining.

Level of concept. In Table 1, the pattern of defining critical thinking by listing components is organized to display whether authors treated it as a higher order or lower order concept. The first part of Table 1, which displays the use of critical thinking as a higher order concept, shows nine entries that were found to be the various ways authors listed components as a way of defining critical thinking. The remaining sections in Table 1 display all the ways that

critical thinking was treated as a lower order concept in defining higher order concepts of media literacy, media literacy education, new media literacy, media and information literacy, digital literacy, news literacy, critical media health literacy, basic literacy, 21st century skills, and inquiry- based learning. The higher order concepts were presented individually to show that the way authors listed components differed across those higher order concepts.

Sharing of Meaning

Like with the diverse patterns of conveyance of meaning presented above, there were also diverse patterns in the composition of elements that authors used to present their meanings for the term. These differences show up both as variations in type of elements in the entries as well as in citation counts.

Type of elements in entries. The pattern of defining critical thinking by listing components is dominated by skills type elements. Of the 42 entries displayed in Table 1, 36 (85.7%) included at least one skill element, and 16 of those 36 entries were composed of skills exclusively. Authors who treated critical thinking as a higher order concept listed only skills as the components in their definitions, while authors who treated critical thinking as a lower order concept were more likely to include other types of elements in their definitional lists of components.

The pattern of defining critical thinking by listing outcomes (see Table 2) is organized to show the types of elements authors claim can (or will) appear as a consequence of people using critical thinking. This table displays six categories that include the acquisition (or improvement) of various skills, an increase in knowledge, a change in belief, a triggering of an affect, the activation of a behavior, or something else. While skill type elements are prevalent in these outcome listings (25 of 66 entries), they were not as dominant with outcomes as they were with

components. Interestingly, the number of behavioral entries (20) was almost as prevalent as the number of skills entries, which indicates that authors who define critical thinking as an outcome are almost as concerned about it being a tool to change behaviors as it is regarded as a tool to improve skills.

Citation redundancy. Each section of Tables 1 and 2 presents a list of entries taken directly from the definitions presented by authors. Some of those entries are followed by a single citation, which means that the particular configuration of elements in the entry appears in only one of the analyzed articles. There were also instances where authors of different articles presented the same list of components; in these cases, the list of components is followed by more than one citation, where the number of citations listed indicates the number of articles where the configuration in the entry was found.

Of the 109 entries across the two tables, 73 entries display one citation; 21 entries display two citations, 7 present three citations; and the remaining 8 present 4 or more citations. Thus, two thirds of all the entries were found in only one article. In contrast, there were some configuration of definitional elements that appeared exactly the same in four or more of the 115 articles analyzed, but these multiple citations (four or more) accounted for less than 7% of all the entries. This pattern clearly shows that two out of three authors who provided definitions of critical thinking preferred to present a unique meaning for the term rather than use the same meaning appearing in another article.

Discussion

The analyses provided in this study have generated two clear findings. First, “critical thinking” is a term that is indeed popular in articles about media literacy, at least among those articles published in the *Journal of Media Literacy Education*. The term appears multiple times

in over half of all the articles published in this journal since its beginning. Second, when we look across all the definitions that authors provide for critical thinking, we see a wide variety of ideas. Some of those definitions treat critical thinking as a higher order concept composed of lower order ideas, while other definitions treat critical thinking as a lower order concept that is part of something of a higher order such as media literacy or many other alternative higher order concepts. Some authors define critical thinking as being composed exclusively of component skills, while others regard it as being composed of a combination of skills, knowledge, beliefs, and affects. Others define it by listing its outcomes as the improvement of various kinds of skills, increases in different sets of knowledge, changes in various assortments of beliefs, and a triggering of many different kinds of behaviors. While most authors provide a fairly short list of components and/or outcomes (typically one to three elements in an entry), other authors provide longer lists (up to nine elements in an entry).

This second finding leaves us with a serious question: Should this demonstration of a wide variety of ideas across definitions be interpreted as evidence that there is little sharing of meaning for the term across authors who write about media literacy? At first glance, these findings appear to present strong evidence that there is very little sharing of meaning for the term. Two thirds of the definitional elements appeared in only one article, while fewer than one in seven of the entries appeared in more than two articles.

Perhaps a common definition does exist. If so, then it would have to be a complex that includes all the ideas found in this analysis. When a concept has accumulated many ideas, scholars cannot convey the full meaning of the complete definition without providing many pages of description, which authors are prevented from doing in scholarly articles that have space limitations. Authors of journal articles are forced into providing only partial definitions,

because there simply is not enough room in a manuscript word count to acknowledge all those ideas. These partial definitions serve less as complete explanations and more as a stimulus for readers to consider the full, complex conceptualization. Thus, authors are tempted to take shortcuts by presenting only partial definitions rather than having to present the full complexity of meaning for a concept; authors assume that their partial definitions are enough to stimulate readers to recall the full definition. For example, in this study, perhaps the authors who did provide definitions of critical thinking felt they needed only mention a few elements in order to trigger the recall of that full meaning that readers already had learned. That is, perhaps authors who provided definitions felt they needed only present a short sampling from among the great accumulation of definitional elements rather than present that full structure of detail to readers, because they were simply trying to trigger a recall rather than laboriously tell readers what they assumed that their readers already knew. In short, their definitions needed only to be only suggestive rather than complete. This would explain why each definition was so partial and why there was so much variety across those definitional suggestions. But if this were the case, then we must ask: Where is that complete definition recorded that contains all the many characteristics that the concept has attracted? If such a documentation does exist, then why don't scholars simply reference the source of that documentation and save themselves the trouble of attempting to list components or outcomes?

Realizing a Common Meaning

Perhaps the meaning of critical thinking exists as a cultural archetype, where scholars who use the term all share a common meaning that is so complex, deep, and timeless that it has defied attempts to define it. If this is the case, then it is important for scholars to try to realize that meaning by looking for patterns across all the ways scholars treat the term. There is,

however, another way to look at all this variety and conclude that there may be some sharing of meaning. One way to do this would be to articulate the possible commonalities in addition to the differences. While the analyses in this study have generated a lot of detail about differences in the way scholars treat the idea of critical thinking in publications, there are also more subtle commonalities that can be teased out of these findings. When we look at the pattern of findings, we can see that all the individual definitions conform to a general belief that critical thinking is a kind of tool that can be used by people to bring about some kind of improvement in their interactions with media messages. The individual definitions provide detail about what that tool is, how it can (or should) be used, and what “improvement” means. Because these details all fit under the same general belief and because the details vary in terms of their level of specificity, it is useful to think of them as being organized in a kind of pyramidal structure. At the top of the pyramid, there are a few very general ideas that seem to be commonly shared. The base displays the greatest variety because it focuses on details (about specific skills, beliefs, knowledge areas, etc.) rather than general abstract ideas.

The analysis provided in this study has generated a potential first step toward developing a fully realized pyramidal structure that displays all the ideas scholars attach to the term “critical thinking.” Tables 1 and 2 show how we can begin to organize all this detail. More needs to be done to capture the full complexity of meaning in use. The next steps in meeting this challenge would seem to be the consideration of the dynamics among all the definitional ideas as well as the implications of using such a pyramidal structure.

Dynamics. Each definitional element does not exist in isolation; instead, they interact with one another in ways that are essential to understand if we are to organize them. Three such

dynamics are level of abstraction, influence of perspectives across scholars, and the nature of complementary interplay among the elements.

The first of these dynamics is the interplay between general, abstract statements as definitions and specific, detailed statements as definitions. As we move layer by layer down from the abstractions at the top toward the details arrayed at the bottom, differences across definitions become more pronounced. These differences across layers are attributable to the level of abstraction of the definitional elements. It is important to show that the elements at lower levels have meanings that are nested within elements at higher levels of abstraction.

A second dynamic is the perspective of scholars. Scholarly fields that welcome scholars from different areas of training are likely to generate debates on particular issues due to the differences in those scholars' worldviews, methodological interests/abilities, and personalities. Such issues can divide scholars into different camps as determined by the way they react to these issues. For example, one issue is whether critical thinking should be regarded from a psychological or sociological perspective (Freire, 2010; Funk, Kellner, & Share, 2019; Luke & Freebody, 1997; Masterman, 1985). Scholars favoring the psychological perspective regard critical thinking as a trait or a skill that varies across individuals; they are most interested in determining why certain people are better at critical thinking and how its use can explain various outcomes, mainly from experiments. In contrast, scholars favoring the sociological perspective are more concerned about how people's social status and experiences have conditioned them over time to default to certain kinds of meanings when encountering media messages and how they can use critical thinking to break from the defaults and construct their own alternative meanings. For example, bell hooks (2010) explains that from a sociological perspective, critical thinking is about having the language and frames of reference to examine one's life in-depth, as

well as the world around us, so we can ask questions about the things we take for granted (hooks, 2010).

A second issue that can explain some of the differences in meanings for critical thinking is the scholar's perspective on outcomes. Some scholars are most concerned about negative outcomes from media exposures while other scholars are most concerned with positive outcomes. When the focus is on negative outcomes, scholars look for ways of using critical thinking as an effective way to react to negative effects. When these scholars look at how much time people spend with the media and consider all the ways their habits of exposure have mislead them into constructing faulty beliefs and risky behavioral patterns, they are motivated to find ways to help people undo these negative effects. In contrast, when scholars focus more on positive outcomes, they look for ways to use critical thinking as a proactive tool that can be used to educate people about how they can invest now in the development of this tool so that they can reap all kinds of rewards throughout their lives.

A third issue that divides media literacy meanings is whether critical thinking should be used to protect people or empower them. Some scholars regard the media as continually exerting pressures on people from which they need immediate protection from a large number of specific harms, such accepting faulty beliefs (about political candidates, risks of being victimized by violence, etc.) and conditioning toward unhealthy behavioral patterns (e.g., overeating, unsafe sexual practices, etc.). These scholars criticize the media for operating in their own best interests rather than being institutions concerned with improving society. In contrast, other scholars are more concerned about helping people reach their full potential, so educating them to be critical thinkers will increase their power to use the media to achieve their own goals in life. As we move down the pyramid from more general levels to more specific levels, these issues arise and

stimulate scholars to provide more detail to articulate their positions on those – as well as other -- issues. This serves to expand the amount of detail and hence require a greater width to the pyramid.

A third dynamic is the interplay in the relationships among ideas, that is, whether ideas are complementary or competitive. When ideas are complementary, they build off one another and thus serve to expand the scope of ideas. In contrast, when ideas are competitive, they set up and maintain differences that are exclusive, that is, they divide scholars into factions where each faction holds beliefs that are incompatible with the beliefs held by scholars in other factions. For example, with the concept of biological evolution, scholars either believe in a natural selection perspective (with all its constituent elements) or a creationist perspective (with all its constituent elements). The definitional elements under one perspective compete with the definitional elements under the other perspective in a way that makes it impossible for a scholar to hold both sets of beliefs at the same time.

With the concept of critical thinking, the expressed differences in meaning appear to be more complementary than competitive, that is, the differences reflect more a preference of focus rather than a dichotomy of belief. We could take any two definitions and fit them together so that their elements build on each other rather than cancel each other out. There does not appear to be any possible pairing of those elements that would be categorically incompatible, like there are with some concepts.

There are, of course, writings in the literature where authors claim there are debates, but those debates are more about what should be emphasized rather than what should be excluded. For example, there are scholars who argue that critical thinking contributes to media literacy as a tool of empowerment (c.f., Buckingham, 1998; Bergsma, 2004; Hobbs & Jensen, 2013), but

when we examine their arguments, we can see that they are not saying that critical thinking has no value in a protectionist perspective or that using critical thinking to protect people from potentially harmful media effects has no place within media literacy; instead their arguments emphasize support for empowerment without invalidating protectionism. Therefore, the challenge of dealing with all this variety does not involve the resolving of conflicts; instead, the challenge lies in thinking about the value of all this variety.

Implications of the structure. Scholarly fields need to create a sense of community among its scholars in order to give them a feeling that they are interacting with others who share their same beliefs as they engage in a common purpose. However, scholarly fields that focus their attention on understanding complex phenomena, such as the media, must also produce an increasing amount of detail as they construct more complete descriptions of their phenomenon. Increasing the amount of detail is especially important in more applied fields where scholars attempt to use the knowledge about their phenomenon to engineer devices that can help them interact with the phenomenon in better ways. In the field of media literacy, scholars need a great deal of detail in order to construct successful instructional materials, ranging from simple lessons, to large scale curricula. Increasing the amount of detail is also necessary to provide designers of educational experiences the guidance they need to create realistic expectations as well as to know more about which instructional elements work well and which combinations of elements work best. The generation of more detail is necessary to provide designers of research studies with guidance about which methods to use, which samples should be measured, which measures are the most valid, which forms of analysis are the most useful, and which research projects are at the cutting edge of knowledge.

However, as a field generates more detail, it increases the challenge of educating students, new scholars, and the general public about the field's purpose and what it has accomplished. This is why the pyramidal structure can be helpful as a way of organizing all the detail; it can display those most general ideas that people new to the field can easily grasp while at the same time display the full depth of detail that is essential for the more engineering tasks.

While the pyramid metaphor allows for the display of the full range of thinking about a concept, this does not mean that the structure itself is sufficient. The content of the ideas organized in the pyramid are also essential to its utility. General statements need to be broad so as to serve as umbrellas for all the ideas at lower levels. But those general statements also need to avoid being so general that they fail to convey any special meaning that would distinguish the concept represented by one pyramid from other concepts. For example, saying that critical thinking is a tool that is useful to media literacy may be accurate and may be a commonly held belief, but it lacks utility in giving readers a sense of what the term means. Such a general definitional statement fails to distinguish it from hundreds of other concepts that also can be regarded as useful to media literacy. Therefore, general statements need to not just be broad enough to reflect what all scholars in a field share; general statements must also indicate how the term distinguishes itself from other concepts.

Another characteristic that increases the value of a pyramidal structure is the development of recognizable neighborhoods of ideas. This makes addressability possible. A way to help solve this problem would be to increase the addressability of the knowledge. If we can organize the ideas in a pyramidal structure that has recognizable neighborhoods, then authors can be both parsimonious in their descriptions while being more accurate in triggering recall of the full meaning of a concept when they can orient readers to particular neighborhoods.

Addressability gives authors an efficient way to tell readers how they position their meanings within all the detail available in the complete definition. If they do not provide an address within the map of thinking about the term, readers are left with the impression that either (a) the authors believe they are providing a full, complete definition for the term, or (b) the authors are unaware of the complexity of ideas that form a context for understanding their partial definition.

Conclusion

The most challenging question posed in this study is: Is there a common meaning for critical thinking that is commonly shared across scholars? This question is deceptive in its apparent simplicity. The term “critical thinking” has accumulated a great many definitional elements that suggest that it has a deeply rich and complex meaning. But at the same time, most scholars seem to assume that all readers of the media literature share a common meaning for the term by the way they treat it as a primitive term – either by neglecting to provide any definition or by providing suggestive definitions in place of rigorous, complete definitions. This makes it seem that the term is regarded as having magical powers – as if it is a cultural archetype that is commonly understood by all people even though it is so complex, deep, and timeless that it defies attempts to define it.

This magical nature of the term is also reflected in the wide variety of ambitious claims scholars make for it. As this study has found, critical thinking is regarded as being a conglomeration of a great many skills including the ability to read, evaluate, analyze, imagine possibilities, deconstruct messages, recognize patterns, challenge meanings, judge credibility, decipher sender intent, counter-argue, dig for truth, avoid influence, and produce messages, to name but a few. In addition to all that, it is often characterized as being composed of many other factors beyond skills. Authors suggest critical thinking is also composed of elements of

knowledge, behaviors, and affects. Furthermore, scholars claim that critical thinking has the power to help us improve a wide range of other skills and abilities beyond media literacy; it can also protect us from false messages in the media, create positive habits from scratch, and transform risky behaviors into positive actions; it can alter faulty beliefs (about self, identity, health, community, religion, and media bias) while protecting our existing beliefs that are not faulty in some way; and it can increase our degree of engagement with the media, other people, institutions, and society at large.

One way to address the challenge of documenting the complexity of meaning for “critical thinking” is to consider a pyramidal structure that would provide a way to incorporate all the definitions in use from the most general to the most specific. As more and more scholars are attracted to the term, it is likely that it will accumulate even more ideas. This will make efforts to organize all these ideas even more important. Without such efforts, the proliferation of ideas around the term will simply add to the accumulation of clutter and this will serve to obscure meanings rather than clarify them. It will become increasingly difficult for scholars to understand what each other is talking about. Communication of meaning will become much more of a challenge for authors and readers, for instructors and students, and for study designers and reviewers. When we cannot read the work of colleagues with adequate comprehension, we are less likely to value their ideas and cite them. Instead, we become more isolated as our connections to the contributions of others evaporates, and the field’s sense of community erodes away.

When scholars think more carefully about the meanings they hold for critical thinking -- as well as other key concepts -- and present their meanings with more clarity and precision, then communication becomes more effective. Once it becomes a more common practice among

scholars to share their meanings more explicitly, then we should expect to see more detailed acknowledgement of the work of other scholars through stronger patterns of source citations.

This would help readers not only recognize meanings but develop an appreciation for seeing how meanings are shared and shaped over time. This will place more focus on gradually improving the usefulness of our conceptualizations in terms of helping scholars understand the phenomenon better and helping designers of research studies to create more valid operationalizations of those concepts.

ACCEPTED MANUSCRIPT

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Table 1
Defining Critical Thinking by Listing Components

Critical Thinking as a Higher Order Concept

Critical thinking is composed of:

- S: sub-skills that include, among others, an ability to inquire, to learn to ask questions and interpret answers contextually, to read between the lines, and to express yourself in socially appropriate ways (Naiditch, 2013)
- S: intellectual curiosity, flexibility, ability to think and operate in a systematic way, the ability to analyze, the value-based approach to knowledge, self-esteem and also, the ability to trust in other people (Parola & Ranieri, 2011)
- S: ability to analyze material; interpret messages (direct and hidden); note details; understand sequencing; integrate aural and visual elements; identify fact and opinion; identify emotional appeals, reactions and motives; draw inferences, predictions and conclusions; foster the mechanics of writing; and the ability to read with emphasis on comprehension and interpretation (Cherow-O'Leary, 2014)
- S: ability to deconstruct messages and substantiate conclusions with evidence from the media message (Scull & Kupersmidt, 2010)
- S: ability to discuss points of view, challenge gender issues, reconsider creative choices, and in general reflect more deeply (Begoray, et al, 2015)
- S: ability to breakdown information presented in media messages (Siegal, 2017).
- S: ability to visualize data, comprehend statistics, manage personal data, and make ethical judgments (Fontichiaro & Johnston, 2020)
- S: ability to read contexts, design products to better fit individual needs and desires, and adapt quickly to new meaning-making situations (Sewell, 2010)
- S: argumentation (Stanley & Lawson, 2020)

Critical Thinking as a Lower Order Concept

Critical thinking is a component within media literacy:

- S: along with ability to sort through, analyze, and assess information (Naiditch, 2013)
- S: along with ability to consider the social context and ethical implications of media production (Scharrer 2005, 2006; Sekarasih, Walsh, & Scharrer, 2015)
- S: along with ability to interrogate the ideological content of media (Woo, 2010, p. 132)
- S: along with ability to inquire actively about the messages people receive and create (Golden, 2010; Kersch & Lesley, 2019; Mason, Krutka, & Stoddard, 2018; McWilliams, et al, 2010)
- S: along with analysis, evaluation, and conscious processing of mediated messages (Maksl, Ashley, & Craft, 2015)
- S: along with critical autonomy (independent critical thinking) (Ruminski & Hanks 1995; Wright 2002)
- S: along with analysis and communication skills (Scheibe, 2009)
- S: along with creativity, collaboration, and communication skills (Crandall, 2016)

- S: along with analyzing, evaluating, and creating (Blanton, Cheek, & Bellows, 2019; Domine, 2011)
- S: along with problem solving, creative thinking, and decision making (Lewis & Smith, 1993; Schilder & Redmond, 2019)
- S: along with active inquiry (Kanthan, Graham, & Azarchi, 2016)
- S: along with media production (Buckingham, 2003; Goodman, 2003; Hobbs, 2010; Kanthan, Graham, & Azarchi, 2016; Naiditch, 2013; Scheibe & Rogow, 2011; Turin & Friesem, 2020)
- S, K: along with creation of media messages, being able to handle all existing media, being able to actively use media, critically engaging with media, creatively using media in terms of producing/making media 'user-generated content', understanding the economics of the media, being aware of the authors and copy right issues related to digital media in our society (Ingrid Lieten, 2009; Van Audenhove, 2018)
- S, K: along with recognizing the importance of multimodal and multimedia texts as well as a focus on the importance of active inquiry about the messages that audiences receive and create (Jocius, 2013; National Association for Media Literacy Education 2007)
- K: along with knowledge about the effects of the media, how media works, and how media can affect people (Valtonen, et al, 2019)
- K: along with comprehension, knowledge of media structures, and knowledge of production (Arke & Primack, 2009; Duran et al., 2008; Hobbs & Frost, 2003; McWhorter, 2020)

Critical thinking is a component within media literacy education:

- S: along with analytical skills (Melki, 2015)
- S: along with active inquiry about the messages audiences receive and create (Ashley, Lyden, & Fasbinder, 2012; Bergsma et al., 2007; Davis, et al, 2010; Farmer, 2019; Gretter, Yadav, & Gleason, 2017; Ramsay, 2017; Rogow, 2009; Seelow, 2010; Thein, Oldakowski, & Sloan, 2010; Valtonen, et al, 2019)
- S, K: along with production skills and the understanding that media both are produced by and contribute to larger social, cultural, economic and political relations (Thevenin & Mihailidis, 2012)
- S, A: along with the skill of analysis (utilizing multiple means of representation, action and expression), developing arguments, and the capacity to order thoughts logically, to self-regulate their ability to concentrate and persist in their endeavors (Leach, 2017)
- S, B: along with media deconstruction skills, the development of media skepticism, and motivation to engage in metacognitions (thinking about thinking) (Burke, Williams, & Skinner 2007; Fisher 2007; Scull & Kupersmidt, 2010)
- K: along with understanding of the issues of civility and social justice; the understanding that people construct their own meanings of media messages using their individual skills beliefs, and experiences; the recognition that media is an agent of socialization; and the call for active inquiry regarding media messages (Ramsay, 2017)
- B: along with collaboration and experimentation (Rosales, 2013)

Critical thinking is a component within new media literacy:

- S, B: along with problem-solving, and collective efficacy within a participatory culture (Felt, et al, 2012)

Critical thinking is a component within **media and information literacy**:

S: along with ability to search and analyze information, understanding the way others communicate through different media, detecting biases and authorial agendas, and being able to find additional resources to support one's opinion on particular topics were important for students to acquire (Gretter & Yadav, 2018)

Critical thinking is a component within **digital literacy**:

S, K: along with an understanding of cultural, social, and historical contexts of technology use; reflective practice and facility with the functional skills and tools of digital technology production (Kersch & Lesley, 2019; Watulak & Kinzer, 2013)

Critical thinking is a component within **news literacy**:

S: along with traditional information literacy skills: evaluating sources, including determining accuracy, reliability, authorship, and bias; identifying reliable sources such as databases; and distinguishing between fact and opinion (Farmer, 2019)

K: along with understanding the news media's role in democracy (Mihailidis, 2009; Murrock, et al, 2018)

Critical thinking is a component within **critical media health literacy** (Begoray & Brown, 2012)

S, B: along with problem solving, accessing, and analyzing information, collaboration, curiosity, imagination and initiative (Wharf Higgins & Begoray, 2012)

Critical Thinking is a component within **basic literacy**:

S, K: along with problem solving and decision making; creativity and innovation; communication and collaboration; research and information fluency; digital citizenship; and technology operations and concepts (Rogow, 2011)

Critical thinking is a component within **21st century skills**:

S, B: along with collaboration, communication, ICT skills, information/media literacy, social and/or cultural competencies, creativity, and problem solving (Mishra & Kereluik, 2011; Valtonen, et al, 2019; Voogt & Roblin, 2012)

S, B: along with foundational literacies (e.g., literacy and numeracy, scientific literacy, information and communication technologies (ICT) literacy, financial literacy and cultural and civic literacy); (2) competencies of creativity, communication and collaboration; and character qualities (e.g., persistence, adaptability, curiosity and initiative, leadership, and social and cultural awareness) (Kersch & Lesley, 2019)

Critical thinking is a component within **inquiry based learning** (Thevenin, 2020)

The letters in the left margin of each entry indicate the types of elements in that entry: S = Skills; K = Knowledge; A = Affect; B = Behavior

Table 2
Defining Critical Thinking by Listing Outcomes

Critical thinking increases the following **skills type** outcomes:

- students' competencies (Friesem, 2017; Hobbs & Frost, 2003; Pinkleton, Austin, Chen, & Cohen, 2012)
- comprehension of media messages by improving skills of analyzing message quality, veracity, credibility, and point of view (Dalton, 2017; Hobbs, 2010)
- active filtering of media images and messages (Scull & Kupersmidt, 2010)
- ability to recognize embedded values and points of view in media messages (NAMLE, 2007; Poweers & Haller, 2017)
- ability to read, write, and research (Hobbs, 2007; Madison, 2012, 2015, 2019; Morrell, 2004)
- ability to identify markers of manipulation and disinformation in the news media (Murrock, et al, 2018)
- ability to evaluate partisan content (Bulger & Davison, 1018)
- ability to discern between credible and unreliable sites (Spangler, 2010)
- ability to figure out whether something is fair, accurate, or reliable" (Scharrer, 2009).
- ability to analyze propaganda (Hobbs, Seyferth-Zapf, Grafe, & Silke, 2018)
- ability to imagine different possibilities arising out of a slight change in circumstances and imagine alternate histories." (Seelow, 2010)
- ability to deconstruct racial images and examine their own biases (Seelow, 2010)
- ability to recognize and be able to demonstrate learning in a variety of different ways (Dalton, 2017)
- ability for "inquiry-based learning" (Thevenin, 2020)
- ability to evaluate media content and make judgments based on a more complete understanding of how the news is produced (Ashley, Poepsel, & Willis, 2010)
- ability to decipher the intent behind targeted advertising on MySpace, for instance, or the quality of information produced by an online blogger (Davis, et al, 2010)
- ability to process news and discern what not to consume (Murrock, et al, 2018)
- ability to counter the ubiquitous ads and other social cues that influence youth norms and perceptions of reality (Levitt & Denniston, 2014)
- improve decision-making skills in response to advertisements featuring alcohol and tobacco, (Cherner & Curry, 2019)
- ability to analyze the degree of social responsibility demonstrated by the way television presents violence in its messages (Mihailidis, 2009)
- ability to find the truth of claims made on the internet (Arth, Griffin, & Earnest, 2019)
- ability to avoid susceptibility to the influence of media messages (Bergan, 2018; Gainer, 2010; Scull & Kupersmidt, 2010)
- ability to circumvent unwanted media effects (e.g., persuasive messages for alcohol, tobacco or food (Austin & Johnson, 1997; Austin et al., 2018; Bickham & Slaby, 2012; Nelson, et al, 2020; Pinkleton et al., 2007; Powell & Gross, 2018)
- ability to stimulate greater cooperation/cross-talk between the two networks of the brain, starting early (Bergsma)

ability to avoid influence from media messages that promote risky, unhealthy behaviors including substance use (Scull & Kupersmidt, 2010)

Critical thinking increases the following **knowledge type** outcomes:

awareness of messaging, bias, representation (Webb & Martin, 2012)

understanding about news and media (Bergan, 2018; Vraga, Tully, Akin, & Rojas, 2012)

understanding about the way social and political structures cause physical and emotional accessibility barriers (Cucinelli, 2017)

understanding of algorithms, analysis methods, and the resulting statistics and visualizations (Fontichiaro & Johnston, 2020)

awareness of Wikipedia's strengths *and* weaknesses regarding content accuracy (Eckert, Metzger-Riftkin, & Nurmis, 2018)

Critical thinking increases the following **affective type** outcomes:

feeling of empowerment (Crandall, 2016; Naiditch, 2013)

feeling of skepticism that motivates a desire to think carefully and critically about media messages (Alvermann, Moon & Hagood, 2009; Hobbs & Jensen 2009; Redmond, 2012; Thoman & Jolls 2004)

feeling of skepticism about the unrealistic nature of media messages (Scull, Malik, & Keefe, 2020)

confidence as a consumer (Nowell, 2019)

appreciation of quality journalism that truly adheres to the norms to which it aspires (Ashley, Poepsel, & Willis, 2010).

enjoyment of media that could then enhance life-long habits of civic engagement (Redmond, 2012)

Critical thinking leads to the following **behavior type** outcomes:

changes behaviors (Bulger & Davison, 2018; Jeong, Cho, & Hwang, 2012)

alters responses to the barrage of information and entertainment available (Hobbs & McGee, 2014)

helps youth navigate a complex and fast-changing information environment in order to prepare them for a future in the 21st century workplace and community (Scull & Kupersmidt, 2010)

helps religious people to avoid programs that are contrary to the faith and seek out those that are consistent (Iaquinto & Keeler, 2012).

helps students do better on the tests, participate more in class, and be actively engaged in their own learning." (Scheibe, 2009)

develops the habits of inquiry and skills of expression that people need to be effective communicators and active citizens in today's world (Cherner & Curry, 2019)

triggers critiquing of media aesthetics (Crandall, 2016)

simulates active engagement with media content (Bergstrom, Flynn, & Craig, 2018; Hobbes 201; Scharrer 2007)

fosters the enfranchisement of people in a world where media citizenship and participation is essentially a prerequisite for being a citizen of the world (Kanthan, Graham, & Azarchi, 2016).

helps people make the most of new technologies and media (Ostenson, 2012)

monitoring and regulating youth media use and engaging youth in reform (RobbGrieco, 2014)
helps youth perform pro-social behavior (Evans, 2019)
reduce and curb behaviors that lead to false beliefs and the sharing of erroneous communications with others (Arth, Griffin, & Earnest, 2019)
ask the “right” questions about why violence is shown on the television (Mihailidis, 2009)
reduce violent behaviors (Bulger & Davison, 2018; Krahe & Busching, 2015; Webb & Martin, 2012)
stimulate non-violent resolutions to conflicts (Scharrer, 2009, p. 16)
prevent or delay the onset of underage alcohol and tobacco use by enhancing students’ ability to deconstruct media messages, particularly those related to alcohol and tobacco products” (Levitt & Denniston, 2014)
change adolescents’ use of alcohol and tobacco (Scull et al., 2010; Scull & Kupersmidt, 2010, 2010)
generate a positive impact on family’s healthy dietary behaviors in the long-run (Austin et al., 2015; Chen et al, 2020)
lead to behavioral intentions to eat more healthily (Nelson, et al, 2020; Powell & Gross, 2018)

Critical thinking leads to the following **belief type** outcomes:

alters attitudes about media bias (Bergan, 2018; Scharrer, 2006; Vraga et al., 2009)
alters attitudes regarding how television should show violence and about how the media should be regulated (Mihailidis, 2009)
helps middle school students change their attitudes of women scientists (Martens, 2010)
helps people accept the higher human ideals of deep understanding, fulfilment, justice, equality and/or democracy (Fry, 2015)
triggers values clarification that can lead to distinguishing family and community values from the rampant commercialism and exploitation in mass media (RobbGrieco, 2014)
alters attitudes about identity formation among youth (Evans, 2019)

Critical thinking leads to **other types** of outcomes:

increases an openness to complexity (Rogow, 2011)
improves parents’ levels of media literacy which in turn fosters their value to children and increases those children’s attitudes about parental mediation (Pearce & Baran, 2018)
develops informed, reflective, and engaged participants that use their skills, beliefs, and experiences to construct their own meanings when reading and creating texts with multiple forms of media (Jocius, 2013; National Association for Media Literacy Education 2007)
produce informed, reflective and engaged participants essential for a democratic society (Middaugh, 2018)
