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Articles and Statements

Perspectives from Algeria and the United States:
Media and News Literacy Perceptions and Practices of Pre-service Teachers

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Abstract

Part of being a 21st century citizen is experiencing the polarization and the divisiveness of the world, especially across digital social spaces. We live in a new media environment that is personalized for everyone. Additionally, today's media life is characterized by the speed of information production, consumption, as well as and often absence of trustful information sources. Information is available in unprecedented amounts at the touch of a fingertip and finds us through an armada of digital services. Hence, the purpose of this research is to explore the perceptions and practices of 268 pre-service teachers from Algeria and the USA. Responses to four open-ended questions, which were part of a mixed methods survey, were analyzed for this study. These questions were posed to investigate pre-service teachers' views of today's news, its sources, and how they proceed into verifying and sharing information. The findings revealed that students indicate they verify information but did not share how they verify sources other than frequent use of Google search engine. Moreover, friends, family members, and Facebook comments were found to potentially sway the pre-teachers' opinions or even sometimes determine their news believability.

Keywords: social media, pre-service teachers, news literacy, practices, perceptions, news verifiability.

1. Introduction

Part of being a 21st century citizen is experiencing the polarization and digital divisiveness manifested in our world. Today, more than ever before, we live in a fluid media age that is characterized by the speed of information production and share (Lankshear, Knobel, 2004), and the lack of information verifiability (Hobbs, 2006; Silverblatt, 2008). Information is available in unprecedented amounts and at the touch of a fingertip. Most of today's information, especially news, finds us through an armada of digital services. The problem is twofold: a burst of information production and a vast spread of means of consumption. For instance, and not long ago, news organizations worked hard to gatekeep the news and investigate the facts. Today, news does not lack; it is everywhere, and the individual is the journalist and the news gatekeeper. Additionally, information overload and the multitude of sources have made it a tedious task to make an informed citizen that can decipher media works (Potter, 2005). Being media literate is therefore the responsibility of every individual.

Media and news literacy is a field of media studies that is growing with the overgrowth of technology and means of media production. From a research standpoint, researchers from

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different fields of humanities, health, and social sciences are more and more interested in what people do with information and how they compose their messages (Hobbs, 2006). Studying how people interact with information could be approached from many disciplines. In this article, we will present our findings on how college students, mainly pre-service teachers, interact with news across social media from a sociocultural aspect using Social Impact Theory (Latané, 1981). Additionally, we will sustain the theoretical explanation with software studies, mainly cultural software (Manovich, 2013). As technology and humans interrelate, we are interested not only in examining the impact of media on individuals, but more in how humans interact with technology. How they socialize with software; how they access, seek, and verify information are some of the key points we seek to elaborate. Therefore, our purpose in this study was to examine potential influences in how pre-service teachers from Algeria and the United States access and interpret news across informal media. In addition, we also explored their perceptions on how news is shared through various social media. We will sustain our findings with some participants' quotes from the qualitative survey.

2. Materials and methods

The purposes of this qualitative study were to survey pre-service teachers' use of media to access news and information in Algeria and the United States. We explored perceptions and practices as to how information is accessed and shared across informal/social media according to pre-service teachers from both countries. In addition, we explored how pre-service teachers verify the content they browse using their digital devices. A final goal in our study was to determine if the perceptions and practices of future teachers support the need for implementing news media literacy in educational curriculums.

We used convenience sampling scheme for this study. The participants in this study were pre-service teachers attending a university in southeast Texas, and pre-service teachers attending a university in the north of Algeria. Both populations were enrolled in preparatory courses for teaching in public schools upon graduation. The participation was voluntary and the professors in charge of the courses administered the survey face to face. The U.S population ($N = 124$) had a mixture of White ($n = 75$), Hispanic ($n = 21$), Black African American ($n = 13$), Asian ($n = 9$), and Biracial ($n = 6$). The Algerian population ($N = 144$) was homogeneous and classified as Mediterranean. The majority of participants in this study were females, but gender was not a focal variable in our analysis.

3. Discussion

Understanding Information and Media Literacy

An informative society can be measured by how fast a piece of information could travel. However, with information traveling fast come problems of trust and believability. Comparing news spread in the past with today's shows how fast news travels. For instance, while news of U.S., president, Abraham Lincoln, assassination in 1865 needed twelve complete days to reach Europe (Rantanen, 2009), the 2011 Arab revolutions news came in live through major media companies and social networks (Couldry, 2012). As to news self-curation, people usually prefer online news over TV as it is instant and easily accessible. For instance, ABC world news executive John Banner considered their TV audience as slender compared with their online customers (Lotz, 2009).

Fast news is partially fueled by the technological excitement that people tend to thirst for trying new apps and the sharing of information (picture, video, text) with least to no critical thinking. Critical thinking should be applied not only to the information source, content, and format, but also to the medium itself. As Stoddard posited that accessing information requires one to know about "the expertise or viewpoints of people contributing to the information [we] are accessing . . . the design of applications, databases, search algorithms, and web pages" (Stoddard, 2014: 1-2). What we experience today in terms of media manifestation and individual's interaction with media technologies is the focus of media literacy. Before we dive into dissecting the concept of media literacy, we will first try to define information, as it is the center of today's world initiatives, leading businesses, and new startups.

Early world industrial inventions and the industrial revolution have created a need for information management and control. In other words, it created a need for governments to restore their control power over politics and economy, including media economy. Facebook, Google, and

Amazon, the top giant companies in the world are mainly information control companies. This information monopoly, according to James Beninger (1986), as he wrote in his masterpiece, *The Control Revolution: The Technological and Economic Origins of the Information Society,* is important to the 21st century the same way the industrial revolution was to the previous ones. Beninger conceptualized the world as a one gigantic programmable device; hence, its information requires structure and control. He classified governments or companies of information processing as agents exercising a "purposive influence toward a predetermined goal" (Beninger, 1986: 7). In other words, it is an attempt to program life through the programming of information. As it relates to our topic of news dissemination and interpretation, *The Control Revolution* provided many details about information bureaucracy as a form of control and suggested the dichotomy of information processing and preprocessing.

According to Beninger (Beninger, 1986), information could be processed (as in processing) by ameliorating the production/ dissemination machines (such as smartphones); or else it could be cut/ignored to absorb the chore of processing it (as in preprocessing). Both ways eventually lead to information control. Before Beninger, communication scholar Claud Shannon suggested the mathematical model of communication, in which he disregarded meaning and reduced the act of communication to signs and measurable bits to efficiently process and define it. In 1943, Shannon had already thought of designing a machine that can think for itself, before the electronic computer was even created (Gleick, 2011). His machine was meant to reduce any act of communication into meaningless measurable bits so it can automatically process information. He thought of machine learning to increase information control and speed its processing.

In this paper, we adapt the same concepts to the current news ecology, its production and consumption. We consider news cut or overload as a way of information preprocessing. We consider the underlying algorithms as ways of information processing. Whenever one sees the red band of breaking news on TV, a trending topic on Facebook, or else, the question to ask is, what else is there that is not being told, covered, or declared? An example of information preprocessing could be seen in the Vietnam and Gulf War. Public opinion in the U.S. denied the military intervention in Vietnam as a result of branded media companies projecting war scenes and anti-war protests across the country. In 1991, the Gulf War was not extensively covered, and the government restricted media exposure to their war meetings (Ryan, Wentworth, 1999). The information preprocessing and obscurity also characterizes the current U.S., and North Korea; U.S., and Iran nuclear negotiations; or the killing of the Saudi Journalist in Turkey, Jamal Khashoggi. The ban of information access to Facebook during the Arab Spring or the closing of Al Jazeera office in Algeria are also a form of information preprocessing (for more examples, see Facebook transparency report at https://transparency.facebook.com/content-restrictions). Additionally, it is remarkable how some media companies have turned to use social media to spread their news and increase their audience, as those platforms operate on carefully crafted algorithms. For example, Al Jazeera Plus or AJ+ has found of social media a neat way to reach its public months after its office closure in the U.S. Today's confusion and overwhelm of information, also known as information saturation or fatigue, is one of the signs of information control. In summary, information preprocessing/processing, i.e., information control, lies in the secret sauce of algorithm. It is math control which transcends to computer control, and therefore, free access to information may be a myth. So what is information? What is algorithmic information control? And how does that relate to social media news and information consumption?

Access to Information

Before we attempt to define information, we want to clarify the importance of media literacy regarding information access, including news. There are multiple positions and arguments as to why media literacy is key to development, but the following definition of UNESCO subsumes the main idea:

The ultimate goal of media and information literacy (MIL) is to empower people to exercise their universal rights and fundamental freedoms, such as freedom of opinion and expression, as well as to seek, impart and receive information, taking advantage of emerging opportunities in the most effective, inclusive, ethical and efficient manner for the benefit of all individuals (UNESCO, 2013: 31).

Information could be defined in a multitude of ways and has been the center of focus of research as we live in a constantly changing environment. We have selected the one advanced by

Claude Shannon, as mentioned in Gleik, that "information is uncertainty, surprise, difficulty, and entropy . . . if only one message is possible, there is no uncertainty and thus no information (Gleik, 2011: 219)." Of note, the two dimensions of this definition are important to understand the news media ecology in which we live today. First, information itself needs to be more than one message for it to be considered informative. Second, the message composition and reality representation are diverse. Therefore, there are layers of meaning within simple acts of information communication. In addition, the medium plays a key role in communication (for details, see McLuhan, 1967).

Today's media are controlled and managed with carefully designed machines that think for and adapt to the user—quite similar to McLuhan's (1964) media as an extension of ourselves. In the 21st century terms, machine learning devices extend our senses and thoughts. Media literacy as related to information brings about skillful citizens in dissecting information across the three layers of information. It is a tedious endeavor to sift the billions of bites that travel in and out of one's mobile device(s) daily. This, as mentioned earlier, could be a form of governmental and/or corporate control of the masses. Information itself is uncertainty, let alone abundant information coming to us from a sheer number of sources. Apart from information flow, algorithm governability is another dimension of information control that has yielded many problems such as fake news and disinformation.

Socialization and Social Impact Theory in Light of Software Studies

We will attempt to establish a connection among the three areas of media and social studies, social impact theory, the process of cultural socialization, and software studies. This brief description is intended to help us understand the informal media ecologies and explain popular attitudes towards fast news. This is by no means a thorough review of the social theories or software theory. Humans are not born in a vacuum. Humans are born into a set of cultural transmissions via implicit and explicit exposure. As we live, communicate, and interact we produce and use signs. Signs enforcement is known as the socialization process and the enforcers of the cultural signs (such as parents or peers) are the socialization agents (Ryan, Wentworth, 1999).

The Social Impact Theory (Latané, 1981) provides a conceptualization of the socialization agents. The main idea of the social impact theory is that individuals are likely to respond to social influence, i.e., interact or make an act of socialization, under any of these three conditions: strength, immediacy, and number (Latané, 1981). Latané sees *strength* in the importance of the influencing group, which could be a family, a group of friends, a community, etc. *Immediacy* measures the closeness there is between the group and the individual at the time of influence (space and time), and *number* refers to the size of the influencing group. Therefore, every individual has his/her source of influence or socialization. As this theory was incepted when there was no social media, we saw the necessity of merging it with software studies to better understand the media fabric of the 21st century. We theorize that humans do not only socialize with humans, but also with machines/ software. Studies pertaining into the work of algorithms, click behavior, individual's fluid movement across social media help to explain the relationship between humans and software. It is a two-way relationship. Humans socialize with software and software extends human thoughts and senses, as mentioned earlier.

Deeply rooted in software socialization is the notion of self-objects, which happens when we mediate ourselves through customized and personalized digital devices. We are self-objects when we objectify our true selves in sociable technology machines like robots and mobile phones. Human-machine relationality is similar to self-objects in the sense that machines could become extensions of ourselves or become just us, eventually. In *Life After New Media*, Kember and Zylinska stated that "With ambient computing, the (now touchy feely) machine is not just a human friend—it is also our double" (Kember, Zylinska, 2015: 112). They further claimed that technology socialization can prototype us, by positing that "self-reinforcement via technology whereby objects and technological artifacts are being designed to reinforce a sense of self-identity by projecting one's memories, achievements, and so on into the domestic environment" (Kember, Zylinska, 2015: 113). Regarding news and the use of social media to share news, the authors claimed that individuals need a sense of "self-reinforcement in which the human self is regarded as paranoid and insecure, as in which reinforcement answers a supposedly basic human need for security, integrity, and autonomy" (Kember, Zylinska, 2015: 110).

The notion of self-objects can explain ambient technology such as Alexa with Amazon or Siri in iPhone. The naming of a portable device starts the process of self-objectification. In the case of

Alexa or any mobile phone, once it becomes a new member, it drops the identity of a machine and adopts that of a living individual as part one's home and family. Our phones have become part of us and we feel our phones in return as we communicate with them. How does it feel to see the phone battery drained? How does it feel when we update our status on social media and receive no likes for the day? Human-machine relationality, as mentioned above, can perfectly explain why many people are constantly touching their phones looking for something, which is a great example of how humans depend on machines as they enter the process of socialization, "I affect you and you affect me" (Kember, Zylinska, 2015: 113).

Manovich (Manovich, 2013) classified cultural software as programmed machines or services used to create and/ or share knowledge, and those used to communicate and create with people. We, hence, stand on the shoulders of Social Impact Theory, the concept of socialization, and Software Theory in order to help understand the spread of information, fast news, alternative facts, and how pre-service teachers feel about the news ecology across social media.

Algorithmic Information Control

As an example of social media algorithm, Facebook newsroom update reads, "The goal of News Feed is to show you the stories that matter most to you. To do this, we use ranking to order stories based on how interesting we believe they are to you" (Frantz, 2015). Facebook algorithms ensure that the users receive customized news—news that appeals to them and serves the best to their interests. The tools we use do not only provide us with information, but also shape the way we behave and perceive the world (Kember, Zylinska, 2015; Stoddard, 2014). To civically participate in a modern society requires the ability to independently select and assess the credibility of news we consume (Silverblatt, 2008). Like Beninger' (Beninger, 1986) information control notion, Alang (Alang, 2016) considers the algorithms to be the 21st century organizing mechanisms. He claims they are everywhere and secretly governing our lives, including every bit of information we consume. Algorithms are the secret sauce of information domination and that explains why they are the most expensive intellectual property of the tech giants such as Google, Facebook, and Amazon (Alang, 2016).

Like software, algorithms are composed, and therefore, they reflect a purpose and an ideology. They are not neutral and they have limitations and flaws. Because news and information rains from a multitude of sources, its verification depends on individuals and every individual has his/her way of approaching believability. In a pilot study we conducted at a university in Southwest Texas, quite a few students told us if a news is trending, it should be true and verified. This is quite accurate about Facebook trending news verification, but how? We used to think topics trend on Facebook because they are verified by algorithms or many users have interacted with them. This was the case until May 2016, after various media blew the whistle at Facebook's news policy, the company clarified its policy in a memo posted on Facebook newsroom. The memo explained the cycle of news curation and verification. The process starts with a careful algorithmic curation; then a team of editors is charged with refining the trending list, make sure the topics are reported by select major news organizations (CNN, Fox News, The New York Times, and others), write descriptions, and categorize the topics, among other tasks (Osofsky, 2016). The topics are then placed on an algorithmic train that will then reach individuals based on many factors such as their click behavior, location, etc.

The pervasiveness of trending news is nefarious as it is biased and determines what Facebook users — 167 million in the U.S alone — read at a particular time of the day (Nunez, 2016). Many think algorithms are rigorous and bias free, as they are mathematical formulas. They are not. Facebook claims itself as a platform of free speech and social connectivity, while secretly works as a controlling agency with carefully designed algorithms and a selective editorial team (Alang, 2016). Cathy O'Neil (O'Neil, 2016), in her book *Weapons of Math Destruction,* spoke about the math intervention and control revolution. She extensively wrote about mathematical models and how they govern teachers' performance, policing, job employment, university rankings, online marketing, justice system, and other life affairs. It is everywhere. She claimed that they are flawed and unequal. In her last chapter, *the targeted citizen,* she spoke about data management and control as exercised by big data companies and how that could influence not only the opinion of people together but also send individually targeted information select publics.

Media Ecology from the U.S. to North Africa Region

Walker (Walker, 2015) mentioned that the world produces 2.5 quintillion bytes of data per

day, and most of it spreads through the hands of people using social media. This bulk of information, as we mentioned before, is generated and regulated by machines that meticulously learn the human behavior. The amount of information surpasses any human capacity to contain, comprehend, or keep up with current events. This motivated some tech giants, such as Facebook and Google to think about machine "trust identifiers," an artificial intelligence technology, to help people sift through daily junk (Carbone, 2017). Facebook and Google, according to Dardeli, "are the floods of information . . . Designing better algorithms on these platforms will not prevent us from drowning. And there will always be nefarious persons, organizations, or governments that will try to, and may successfully, out-Facebook Facebook or over-Google Google" (Dardeli, 2018). Through technology, we have come together to consent and disclose our information and display our lives online; hence, left behind permanent footprints. This has given a reverse power to giant techs to control what we see, search, and sometimes, believe.

The 21st century has ushered in a wealth of knowledge to the world. A UNESCO Report (2016) identified a lack of national strategy and policy with regards to media and information literacy in the MENA region. It seems there is no unified structure or consensus on applying MIL strategies. There are examples of Arab countries which are actively creating and encouraging MIL workshops or trainings. For example, Abu-Fadil (Abu-Fadil, 2016) discussed the Media and Digital Literacy Academy of Beirut (MDLAB), in Lebanon, and how it provides media and digital literacy trainings and classes in Arabic. Grizzle (Grizzle, 2016) explained how UNESCO and the University of Beirut have come together to provide MIL education of a Massive Open Online Course (MOOC) in the language of Arabic. These examples highlight some instances of countries promoting MIL workshops and trainings, but there is still a missing component in the region. Grizzle stated, "There is no country in the Arab States Region with a national policy on MIL" (Grizzle, 2016: 28). This makes us ponder, what are the reasons for this lack of national policy in the region?

In Algeria, Boujemma (Boujemma, 2016) addressed the historical illiteracy challenges due to French colonialism, which took many years to undue and promote a literate society. This history can help explain why Algerian society and educational system is lagging behind in MIL strategies and policies. Boujemma (Boujemma, 2016) described the progress and changes in the Algerian school system since 1962, and further explained how there is continuing digitalization in the classroom with smart boards and computers despite a prevalence of low quality schools but did not mention the use of MIL in the curriculum or educational system. This pushes us to ask another question, when will MIL policies catch up with Algerian society and the educational curriculum?

In a Pew report on social media use, more than three quarters of Americans reported accessing news using social media (Mitchell et al., 2016). Of notice, 64% of social media users mostly access news on Facebook (Gottfried, Shearer, 2016). In the same report, Instagrammers (63%) and Facebookers (62%) said that news finds them while browsing the content; however, social media websites such as Reddit, Twitter, and LinkedIn are on the rise regarding news dissemination and consumption. News trust is of paramount importance when it comes to consumption.

Mitchell (Mitchell, 2016) found news consumers in the U.S. to have equal trust between news from branded news organization and news from their friends or relatives. Despite the high numbers of online news seekers, only 4% of Americans seem to trust news on social media (Fletcher et al., 2014; Mitchell, 2016). We find it important to note that the current means of data collection and research—surveys, interviews, big data analysis— make it hard to prove trust levels of the participants, because trust is the result of reasoning, cognition, and feelings. It is another issue to prove which element drives trust of news. Additionally, the way information circulates and piles up is unprecedently fast.

Media Literacy as a concept

Media literacy is a big concept with multiple underlying literacies and definitions including news, computer, privacy, peace, and film to name a few, which makes it an open field for more additions and definitions (Mendoza, 2007). In this article we emphasized the fact that media literacy aims at promoting the citizen's power of knowing the media workouts. The ubiquity of media means of consumption and tools of production stand as one of the main agents of social socialization. Many of us socialize with a tool, a device, a program, a quest, a show, or else of media means and categories. It feels as if with media, everyone has his/her own software socializer. We posited that software is authored, therefore, incomplete. With that said, information processing

and preprocessing, to use James Beninger's (Beninger, 1986) terms, stood as our main lens through which we looked at the findings. Many students mentioned verifying information, but none mentioned how algorithms preprocess and recommend information. Many pre-service teachers from the US or Algeria stated that they consult reliable sources, verify the sources, and Google information if confused. They seem not to know that Google has monopoly over our search hits, what ranks first, and what gets read at a particular point in time. This is performed and done using its secret agents of algorithms, and many students prefer the algorithms to perform the task for them (Rieh, Hilligoss, 2008). The same math formulas supply news to us on Facebook and do the initial information filtering for us. Some students have reported that news hits them without their intent to seek it.

Aboulkacem and Haas (Aboulkacem, Haas, 2018) found that students get fatigued and overwhelmed with information; news reliability is not their priority, and if they verify news, they do it superficially. This is alarming as today's teachers determine tomorrow's leaders. Also noteworthy is how friends, family members, and Facebook comments potentially sway the pre-teachers' opinions or determine their news believability. Social Impact Theory (Latané, 1981) was used to study how software, family and friends could interchangeably represent Strength, Immediacy, and Number. Merging Social Impact Theory with Software Studies, we posit that information is unprecedently governed and processed to meaningfully inform or mislead the public. Do we really have freedom of expression and access of information despite the advancement of the means of media access and production? We would like to close with a dilemma exposed by a few U.S., pre-service teachers and we categorized it as information saturation syndrome. A female student said, "When news is shared through social media, you never know what is true." When our access to information is governed by software scripts, you never know how complete or lacking is the information accessed. As we remarked, the MENA region lags behind many countries such as the U.S., Canada, Australia and else in media education. Media literacy, we posit, needs to be nationally acknowledged and citizens should have the absolute right to understand the media workouts and know how to code and decode media messages, especially in totalitarian countries.

4. Results
Study Context and Purpose

The purposes of this qualitative study were to survey pre-service teachers' use of media to access news and information in Algeria and the United States. We explored perceptions and practices as to how information is accessed and shared across informal/social media according to pre-service teachers from both countries. In addition, we explored how pre-service teachers verify the content they browse using their digital devices. A final goal in our study was to determine if the perceptions and practices of future teachers support the need for implementing news media literacy in educational curriculums.

We used convenience sampling scheme for this study. The participants in this study were pre-service teachers attending a university in southeast Texas, and pre-service teachers attending a university in the north of Algeria. Both populations were enrolled in preparatory courses for teaching in public schools upon graduation. The participation was voluntary and the professors in charge of the courses administered the survey face to face. The U.S population (N = 124) had a mixture of White (n = 75), Hispanic (n = 21), Black African American (n = 13), Asian (n = 9), and Biracial (n = 6). The Algerian population (N = 144) was homogeneous and classified as Mediterranean. The majority of participants in this study were females, but gender was not a focal variable in our analysis.

Data Analysis and Presentation

Data were collected as part of a mixed method survey study using scale items and open-ended questions (see Aboulkacem & Haas, 2018). For this research, we have analyzed the qualitative part using QDA miner software and following the InVivo scheme, i.e., we display the results using the students' own words. The survey contained four open-ended questions and they mainly inquired about the participants' opinions towards how news is shared across social media, news verification, and their main news sources. The noticeable difference as we started processing and typing the data was that the Algerian participants provided fair amounts of answers compared to their American counterparts. Therefore, we had more data to analyze from the Algerian students and we do not claim the research results to be generalized out of their contextual interpretation.

Another important difference in participant responses was the depth and connections noted to support responses. The majority of Algerian participants responded in more formal academic terms and provided more specific examples to support their thoughts, whereas the American participants provided very simple responses which were stated in an informal/social tone with few supporting details. In Table 1 we display the ranked sources of news access by Algerians (*N*= 144) followed by American pre-service teachers (*N*= 124).

Table 1. Medium of News and Information Access of Algerian and American Pre-service Teachers

Algerian Pre-service Teachers		American Pre-service Teachers.	
News Source	*Frequency (N=144)*	*News Source*	*Frequency (N=124)*
TV	116	TV	151
Newspaper/Magazines	97	Facebook	49
Blogs/Websites	88	Blogs/Websites	29
Facebook	81	Newspaper/Magazines	24
Radio	27	Radio	11
Friends/Family	17	Twitter	11
Instagram	12	Friends/Family	5
Twitter	8	Snapchat	3
Snapchat	2	Instagram	1
Reddit	2	YouTube	1

The tables display frequencies of source access among pre-service teachers in Algeria and the U.S. Despite that the number of participants is not equal, we can still draw some observations about news media ecologies from both countries. Remarkably, Television remains the top choice for students to access news and information. Algerian students tend to have a higher readability of printed newspapers than their U.S counterparts. Additionally, it is noticeable that Algerians revert to their friends and family more so than pre-service teachers from Texas. Lastly, the use of social media does not vary much regarding the source, with Facebook being the most used; however, regarding frequency, American students tend to use Facebook for news curation less than the Algerian participants. Below we display the results of our coded data, its frequency, and provide exemplar quotations to support our findings. Figure I below displays the codes generated from the Algerian pre-service teachers' (*N*= 144) corpus. The sub codes are clustered under main themes/questions.

	Count	% Codes
How do you verify News		
Feeling sourcing	20	3.4%
Generic news verification	84	14.4%
I do not verify news	45	7.7%
Opinion on Social Media		
Emotional Reaction Eliciting	9	1.5%
SM manipulates, rumors, propaganda, fake news	78	13.4%
Social media does not lie about religious News	1	0.2%
Social media is useful	64	11.0%
Social mediacan be right or wrong	52	8.9%
You need to be critical of SM	26	4.5%
What is News?		
It can be true/false	18	3.1%
News Finds me	5	0.9%
News informs	125	21.4%
News is authored/subjective/opinionated	4	0.7%
News needs critical thinking	8	1.4%
User Generated News	2	0.3%

Fig. 1. Codes and Themes Identified for Algerian Participants

Frequency codes of Algerian pre-service teachers' responses analyzed using QDA Miner software.

We ran frequency codes to be able to understand the most important responses to the main questions on news definition, verification, and news opinions regarding social/informal media. As to news verification, most students contended to generic news verification. This code envelops any superficial verification with no details of how it is done or performed. When asked about news verification, a pre-service teacher said, "I would check different sources especially if it was a very sensitive and serious news, verify whether it is true or just rumors... I would read different sources on journals, electronic newspapers, etc." Another female teacher spoke to the verification of her news stating, "I check whether the same exact information can be found in different websites." Answers like these were highly frequent and less informative or structured as to how news is verified. The number of students who declared they do not verify news was relatively high, as these are supposed to be future leaders of the society.

News is pivotal to democracy and civic engagement. We have created a code, feeling sourcing, to describe the action of reverting to family and friends or public comments on social media to sense or feel the truth of the piece of news. As a process, it has less reasoning, but we found it recurrent in multiple answers. "See if people are talking about that news and see their opinions about it," a student attested.

With regard to social media and how the students felt about news and information traffic, 78 participants considered social media as a nest for propaganda, fake news, and rumors. A participant said, "National and international news are bias and manipulating. They provide a limited amount of a topic that people should focus on..." Another student remarked, "Social media in Algeria is manipulating, especially on the political side." To speak to rumors and fake news, this quote summarized the dilemma, "Nowadays, social media are wrongly used. People share false information. They spread rumors and inappropriate content without taking into consideration the user of the social media." A great number of students (*n* = 64) expressed their positive attitude towards social media being a great platform for information and news dissemination. Critical thinking is highly required as we connect to social media and sift through content. 26 students emphasized and alluded to the fact that information consumption should be supplied with critical thinking. A male student said, "Most of the time news are shared very quickly without any critical vision and source of checking. We, the Algerians, tend to accept everything and believe as true, however, very few people question the date and ask for explanation and evidence. Social media are

very biased. Stereotyping everything." Concerning the students' definition of news, most students (*n*=125) consider news to be informative about various events across the globe. However, interestingly enough, only four students considered news as authored and opinionated.

	Count	% Codes
What is News?		
Info about the current world	82	20.3%
Violent and depressing	9	2.2%
information distributed to people	15	3.7%
How do you verify News		
Comparing the sources or Google it	29	7.2%
I do not verify news	42	10.4%
Generic news verification	38	9.4%
Feeling sourcing	13	3.2%
Opinion on Social Media		
incomplete and biased news	30	7.4%
Social media is fast and Junk news	14	3.5%
Promotes Hate speech	5	1.2%
Social Media is opinionated and exagerates news	64	15.8%
Information Saturation Syndrom	11	2.7%
SM requires critical thinking	22	5.4%
great source of information	7	1.7%

Fig. 2. Codes and Themes Identified for American Participants

Frequency codes of American pre-service teachers' responses analyzed using QDA Miner software.

When asked about their own definitions of news, American pre-service teachers mostly stated that news could travel across multiple media with a purpose to inform the public about current events, locally and internationally. However, despite the scarce amount of answers pertaining to the fact that news reports violence and causes depression, we deemed it necessary to highlight this finding. To support this, a female student said, "The news is depressing; mostly one sided." As far as news verification, the participants answers were fairly split among generic news verification, comparing the sources or using Google search engine, and no news verification. As mentioned earlier, the American students did not supply much information for analysis; therefore, their answers of no news verification could be linked to the unwillingness to cooperate. Thirteen students stated the use of their feelings or the curation of other's opinions and thoughts to evaluate news. A student said, "I would ask my friends or read through the comments, or even read further into it if I want to know." Another female student said, "I bring it up in conversations or ask my parents about that subject."

The last question asked about students' impressions about news on social media. More than half the participants (*n* = 64) considered social media a platform of opinion sharing and news exaggeration. As an example, a female pre-service teacher contested, "I think the news within social media is used to fuel hate and fear and not spread the information." Another teacher summed the problem, and said, "By the time it has circulated throughout social media, it has been twisted, retold, not fact-checked, and spreads by word of mouth, making it unreliable." Also, as we have noticed the discourse of social media, a great many numbers of topics could be divisive and incite hate speech. A few students referred to the fact that the way news travels on social media promotes hate speech. A female pre-service teacher wrote that news is, "Very one sided, opinions escalate very quickly. There is no room for friendly discussions."

Limitations

The study took place in two different universities with particular contexts and media cultures. Media consumption follows hard cultural and social values; therefore, it is important to consider the location of both data collection settings. Additionally, both populations were selected following

convenience sampling, so the study findings should be interpreted within the ecologies they happened and with caution not to randomly generalize them. Social media research changes frequently with the change of technology and the medium used for study; hence, this study stands as a snapshot from an ever-changing system that needs more studies for us to grasp the meanings of social media flow of information and how people react, sift through, and verify what they share and what is shared with them.

Implications

Students must learn to be critical consumers of news and information, but to do so they must learn and practice the necessary skills. Curriculum design and implementation may provide a solution to teach and instill basic news literacy skills in students. In addition, professional development for pre-service and in-service teachers to effectively teach news literacy is essential. The world is changing, as well as technology and education. It is a responsibility of schools and educators to cater to informal literacies and observe the changes in students' practices and attitudes as a result of technology advent. The UNESCO "Media and Information Literacy Curriculum for Teachers" (UNESCO, 2011) is a great initiative and start to inspire educators to build teachable units and open the dialogue with everyone who has access to social media.

Further, family media literacy is quite important. Reading and writing to children give them advantage at school and in life. We equally believe that media conversations and dialogues at home can bring about critical reflection and help promote wise use and consumption of information. Everybody is connected and algorithms decide what we see, read, and even feel. Algorithms can be flawed, incomplete, and can promote false information. The workings of software and technology can be a starter for family literacy education. None of us is safe. We all click, share, comment, and follow. Wise clicking is now a critical media literacy skill. Children and adults alike need to learn to pause before clicking, typing, publishing, posting, or marking a permanent digital footprint online. Those skills do not develop by default. They need to be consciously taught and promoted in school, homes, and third spaces.

5. Conclusion

News literacy is equal to consumer literacy. Bad nutrition may lead to devastation of health and various ailments. Bad information consumption affects the minds and spirits of people. News elicits emotions, divisiveness, sharing of news without verification, and the spread of rumors. Valid news helps citizens practice their civic duty. News literacy is not just a skill. It is a way of life and media education relevant to news and information assessment is a must and concerns people of different ages. Nobody is immune to the dangers of toxic and false information.

The pre-service teachers from our study showed a contradiction between what they felt about news being false and manipulated and their failure to show practical ways to verify news other than advising the public to be critical. Data showed conflicting opinions regarding social media and news. Some teachers agreed that social media is necessary and extremely helpful to access news about the world. Others considered it a tool of propaganda, fake news and social publicity.

To critically consume information is an individual responsibility and maybe one of the most needed skills that guarantee the safety of information consumption. Being critical is a skill that needs time, practice, reflection, and consistent evaluation. Critical thinking builds as a result of a long-term exercise of questioning and opening the dialogue with knowledgeable peers. Critical thinking requires flexibility of perception and openness to change as we progress and learn. News used to be gated. Today, every individual is his/her own gatekeeper but not everybody has the skills. Awareness about the dangers of gobbling raw information could be a dialogue starter or a learning journey kicker for many social media users. Social media is used by everybody and, despite the regulations, it generates both valid and incomplete information. It is in the hands of the users to decipher and sift through information as the regulation of every bit of information is impossible.

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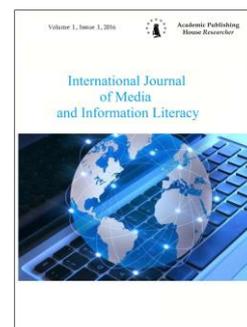
Assessing Network Media Literacy in China: the Development and Validation of a Comprehensive Assessment Instrument

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Abstract

Network media literacy is the foundation of Internet usage and builds sustainable development that can help people to participate more easily in knowledge societies. Nevertheless, no validated and standardised test assesses the level of network media literacy. Therefore, this study established and calibrated an instrument for use in network media literacy research and practice. Items were formed based on a composite conceptual model and administered to the general population across most of the country. The psychometric properties of the questionnaire were examined using multidimensional item response theory. Differential item functioning was used to exclude the items with distorted ability estimates. Almost all of the remaining items showed good discrimination and difficulty parameters based on the fitted model with three stable dimensions. This study created a thorough questionnaire called the general network media literacy test (GNMLT), with scoring determined in relation to classical test theory. The GNMLT is a valid and reliable measure for assessing the network media literacy of Chinese individuals. Practitioners could use the scale before implementing literacy promotion and education.

Keywords: Network media literacy, multidimensional item response theory, differential item functioning, score, China.

1. Introduction

Today, we are witnessing a major shift in information and communication technology, as the Internet is becoming one of the most dominant media. Contrasted with the traditional, linear, hierarchical, logical, rule-governed conventions of print and audiovisual media, the Internet and mobile networks are characterised by multimedia texts, hypertextuality, anarchic organisations, synchronous communication, interactivity, cultural diversity and inclusivity (Livingstone, 2004). As network devices increasingly augment our brains and senses, our knowledge is becoming more widely distributed, and we are becoming 'the sum of our connections and relationship' (Pegrum, 2014). People are increasingly coming to live in a network society structured around network or digital communications. Thus, the Internet has emerged as the 'dominant cultural logic' of our time. Correspondingly, a new form of literacy is emerging, which studies have termed 'computer literacy' or 'Internet literacy' (Livingstone, 2004).

Media literacy is traditionally defined as the ability to understand, analyse, evaluate and create media messages in a wide variety of forms (Aufderheide, 1993), or similarly referred to as the ability to access, analyse, evaluate and communicate messages in a wide variety of forms

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(Young, 2015). Moreover, the plurality of literacy, or the idea that different kinds of literacy are related to the acquisition and application of literacy in particular social contexts, has come to be recognised (UNESCO, 2004) as well-worn terms like 'visual literacy', 'digital literacy' and 'information literacy' have more recently been joined by 'multiliteracies', 'attention literacy' and even 'network literacy'. It is becoming increasingly evident that navigating overlapping personal, social and professional networks – all linked together technologically by the Internet – requires a level of network literacy (Pegrum, 2014). To empower people to make effective use of networks, capitalising on their benefits while avoiding some of their more obvious pitfalls, it is essential to begin fostering media literacy that focuses on the network (Doyle et al., 2012).

The rationale for a media literacy test. Apart from the traditional domains of media literacy, network media literacy introduces several key points that bear consideration. Critical thinking is a particular construct for Internet literacy, as several international studies have supported the link between media literacy and critical thinking. The Feuerstein group examined media literacy as a means to develop critical thinking in children, and concluded that as pupils increased their experience with their media literacy programmes, they showed greater gains proportionally in media analysis and critical thinking skills (Feuerstein, 1999). In addition, Silverblatt, Miller, Smith and Brown (Silverblatt et al., 2014) identified the primary element of media literacy as 'a critical thinking skill that enables audiences to develop independent judgments about media content'. Media literacy is first and foremost about applying critical thinking skills when facing high-capacity network information. Moreover, network spaces like the Internet create forms of literacy that go against traditional understandings of what constitutes content or an interaction; thus, critical literacy becomes emancipatory (Gounari, 2009).

Attitude towards media is an important factor in media literacy competency. Attitude reflects one's desire to positively influence an individual's motivations and perceptions (Powell et al., 2011). Numerous studies have suggested that media has a significant effect on an individual's attitude (Chen et al., 2013). In a networked age, digital literacy is depicted as the awareness, attitude and ability of individuals to appropriately use digital tools (Martin, Grudziecki, 2006), which highlights the intrinsic characteristic of attitudes towards communication, expression and social action (Goodfellow, 2011). It is clear that new media like the Internet have had a dramatic effect on society by modernising peoples' traditional values and attitudes. Thus, conceptualisations of attitude that involve network media literacy align with current thinking about what generates positive individual outcomes.

A comprehensive measure of network media literacy. UNESCO has deconstructed the media and information literacy (MIL) competency standard into three aspects: (i) access and retrieval, (ii) understanding and evaluation and (iii) creation and sharing. In addition, MIL competency is a combination of three cognitive elements: attitudes (rights, principles, values and attitudes), knowledge and skills. These combined cognitive elements are more relevant in a complex environment.

Following UNESCO's deconstruction, network media literacy could be defined as a set of competencies that empowers an individual to access, retrieve, understand, evaluate and use to create and share information and media content via networks in a critical and effective way. Based on this framework and the factors listed in the text, our ultimate conceptual model consisted of three main domains: media skills, media critical thinking and media attitude.

A questionnaire is needed to define and operationalise an individual's network media literacy. However, a validated and standardised test of this literacy is not available. Therefore, in this study, we aimed to develop and explore the psychometric properties of a questionnaire on network media literacy by applying a multidimensional analysis to validate its use. Additionally, we investigated the most optimal methodology for calculating the scores.

2. Materials and methods

Item generation. To generate an item pool, we searched the literature for relevant instruments measuring media, information or digital literacy. We also consulted members of the China Media Literacy Society and experts in the area of media literacy for additional items not represented in the existing measures.

To ensure face validity, 10 students each from the primary school, middle school and university levels were asked to comment on the questionnaire items and give feedback on areas

such as the formulation and relevance of the questions and appropriateness of the responses. The items were adapted based on this information. This resulted in a pool of 71 items, after duplicate items were deleted. Both the students and expert panel confirmed the face validity of the scale.

Participants. The participants in the study were gathered from a generally diverse population from 30 provinces in China. Their willingness to participate was ascertained through the processes dictated by the Institutional Review Board at Zhejiang Media Literacy Institute.

Demographic questions sought information about gender, age, occupation and level of education. The next section presented a randomised series of 71 statements (GNMLT). The questions were assessed on the same 5-point Likert scale from 1 (Strongly Disagreed) to 5 (Strongly Agreed).

We classified the participants into two groups based on residence: large and medium-sized cities (municipalities, provincial capitals and prefectures) and small cities (counties, villages and towns). In addition, according to the social development statuses of the different regions based on the Human Development Index (HDI), we classified the participants into two groups: HDI+ and HDI-, which comprised participants with an HDI level above and below the average level of the country (HDI=0.693), respectively. Age grouping was based on the traditional adult age (18).

3. Discussion

We calculated descriptive statistics for the participants' demographics, including frequencies and proportions, to provide preliminary statistical information. We then calibrated the scale based on item response theory (IRT) (Edelen, Reeve, 2007).

A critical assumption of IRT is unidimensionality, which we tested in two ways. First, we used modified parallel analyses (MPA) incorporated into the ltm package to test for the probability of unidimensionality ($\alpha = 0.05$). Second, we used the rule of thumb that the ratio of the first to the second 'eigenvalue' should be above three (Ismail et al., 2013).

Next, we sought to examine the psychometric properties of the GNMLT using multidimensional item response theory (MIRT) in the R software package (Chalmers, 2012), which returned α and β parameters for each item per dimension. Typically, the α parameter indicates the discriminative power of that item. Items with higher scores are better able to discriminate between literate and illiterate individuals. The β parameter presents the difficulty of the imminent dimensions. Higher absolute β scores indicate easier items, while scores towards zero indicate more difficult items. Squared β parameters indicate the degree to which a certain item explains the variance within a certain dimension (Ismail et al., 2013).

We used differential item functioning (DIF) to investigate the degree to which some of the items gave advantages or disadvantages to certain participant groups in relation to the estimates of their ability. The rationale of DIF analyses is to identify items that distort the ability estimates for participants and thus jeopardise the correctness of overall test measurements (Magis et al., 2010). Items that are identified to distort test measurement are referred to as having DIF.

We determined the optimal number of dimensions for the test by comparing the different models with varying numbers of dimensions performed based on MIRT. First, we conducted a deviance test (chi-square test). Second, we compared the differences in Akaike's information criterion (AIC) and the Bayesian information criterion (BIC). Typically, lower AIC and BIC values indicate a better fitting model. When selecting the appropriate number of dimensions, statistical solutions and content-driven arguments must be weighted (Ismail et al., 2013).

Scoring. Finally, to make the GNMLT ready for practical use, we calculated test scores using the classical test theory (CTT) approach and compared them with test scores generated via IRT analysis. In CTT, test scores are simply a sum of the number of correctly answered items (each correctly answered item is assigned one point). In contrast, IRT scores account for the level of difficulty per item. Next, we compared the scores generated via the CTT approach and those generated via IRT analysis using a Pearson correlation test. If the CTT scores were a close approximation of the IRT-derived test scores, then they were considered potentially favourable for practical proposes, as they were easier to calculate. We identified the cut-off point of the scores and evaluated its sensitivity and specificity.

4. Results

Participant characteristics. Figure 1 shows the socio-demographic characteristics of the participants. The project recovered 6,478 samples, and the effective recovery rate was 91.96 %, including 55.3 % for males and 43.8 % for females. The mean age was 28±11.4yrs. The survey involved 30 provinces, with 30.9 % of the participants coming from Zhejiang, 6.3 % from Shanxi, 5.7 % from Shandong. Urban and rural areas accounted for 66.9 % and 33.1 % of the participants, respectively. In terms of education, the primary level and below accounted for 6.8 % of the participants, the middle-school level (including vocational high school and technical school) accounted for 33.2 % and the university level and above accounted for 40 %. Cross-analysis revealed no significant difference in educational composition between the men and women. The sample was fairly representative of the general population in China.
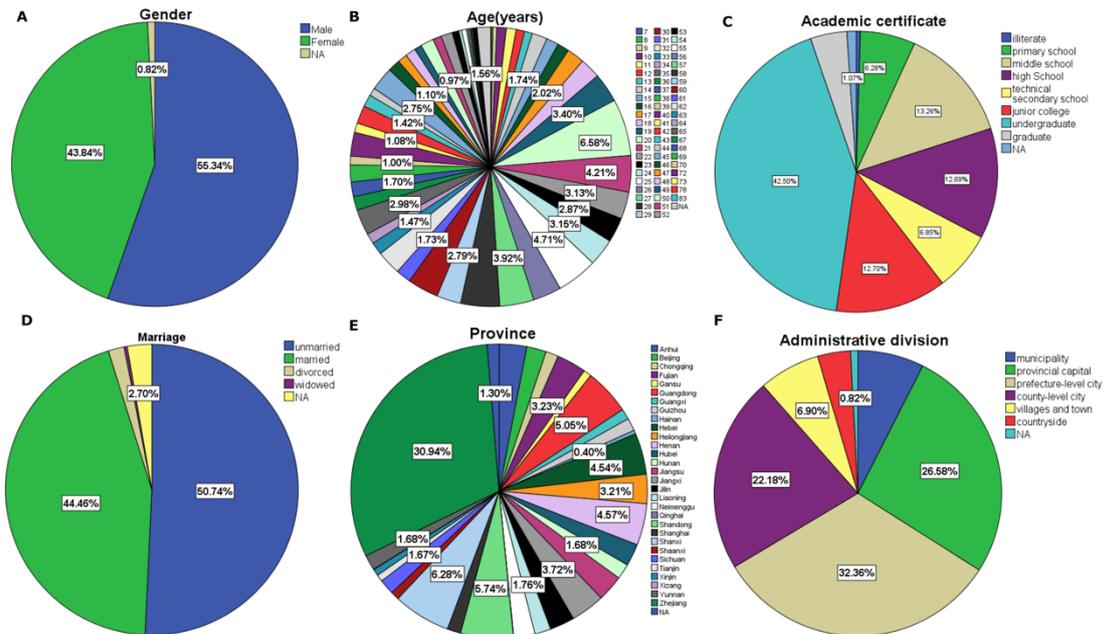

Fig. 1. Participant characteristics

Profile of the participants in this study. 55.3 % were male and 44 .8% were female. The largest proportion (41.8 %) was aged 26–30 years, followed by those aged 21–25 years (39.6 %). 87.9 % of the participants were unmarried. 70.7 % of the participants were college- or university-educated, and 17.2 % had received a graduate school education.

Differential item functioning. With a given latent trait, estimates of item characteristics should hold true regardless of the group being tested. The importance of literacy competence underlines the strong need to understand the gender gap in literacy achievement (Schwabe et al., 2015). Socio-demographic variables such as subject residence are held to affect network users' willingness and ability to productively use network media. This effect can create a participation divide between distinct region groups (Hoffmann et al., 2015).

We began by using DIF to develop a broader applicable scale. We identified 48 items as candidates for deletion from the list and subsequent analysis due to distorted ability estimates, as indicated by a significant DIF (Figure 2). In addition, three items were deleted between region groups. For example, participants from the countryside (rural) received relatively lower ability estimates on item 1 ('Acquire information knowledge through a network') than the reference groups (P = 0.1939). This distortion also held for items 2 ('Freedom to show themselves on the Internet') (P = 0.1204) and 4 ('Satisfy curiosity through a network') (P = 0.0732). Therefore, these three items were excluded from further analyses.
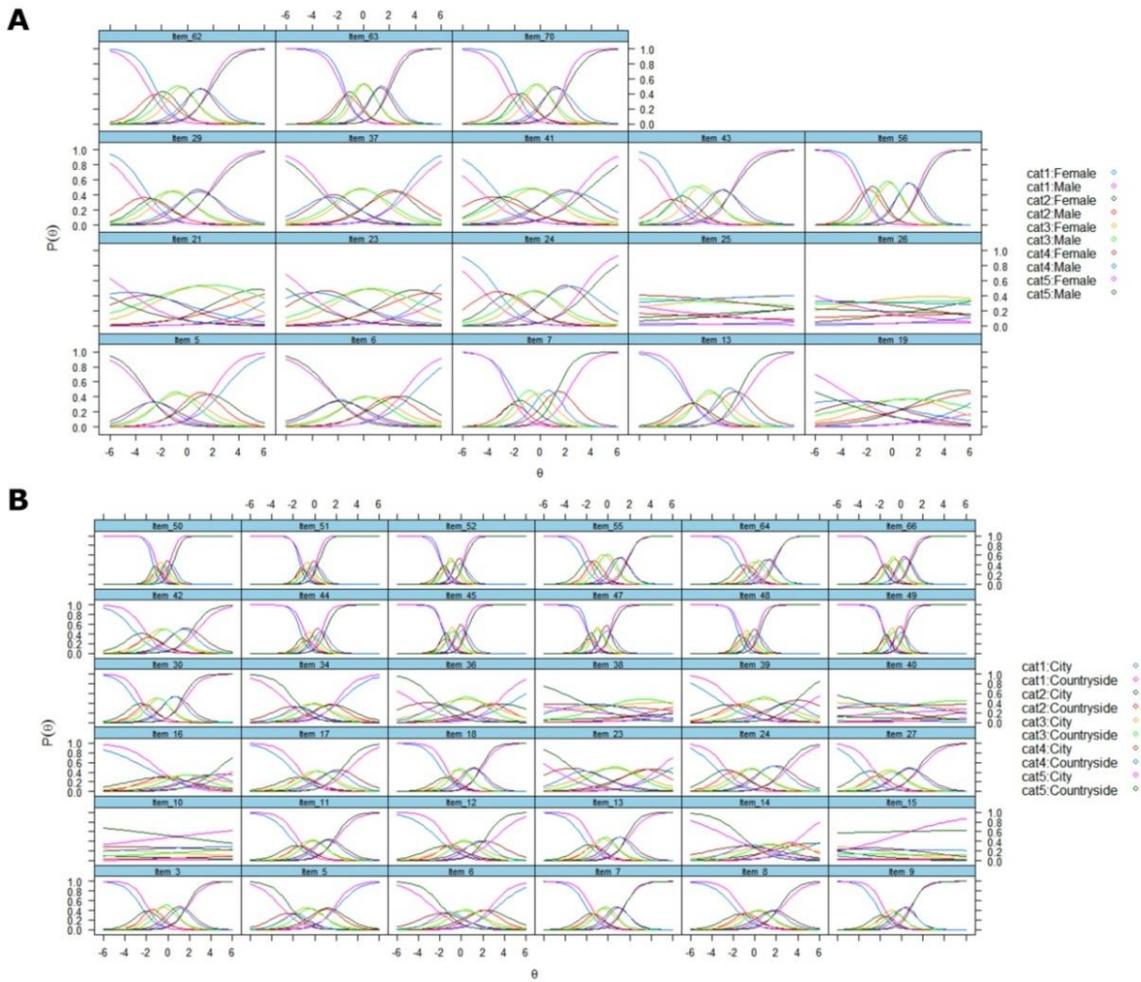
Fig. 2. Differential item functioning in gender grouping (A) and region grouping (B)
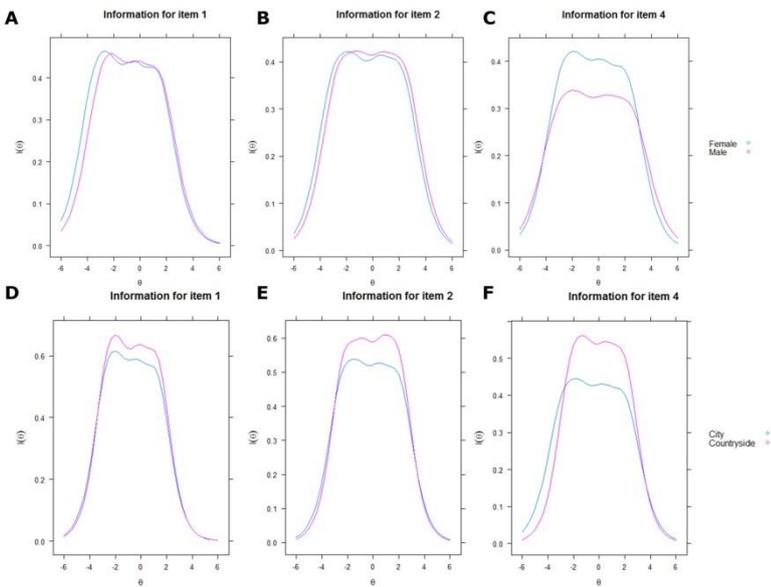

Fig. 3. Information trace for Items 1, 2 and 4. θ_p is the ability of a person.
I(θ) refers to the corresponding test division

Multidimensional item response theory. Before fitting an appropriate IRT model, the critical assumption of unidimensionality was assessed. The test for unidimensionality using MPA on all of the participants together was significant ($P = 0.009$). The ratio of the first to second eigenvalue was $7.342/2.191 = 3.35$.

Given these findings in support of multidimensionality, MIRT was applied to the remaining 20 items. A one-dimensional model postulating general literacy was tested against a two- to six-dimensional model. Table 1 shows that the difference between the models up to model 5 is significant at the $\alpha = 0.05$ level.

Table 1. Comparing multidimensional item response theory models

Model	Log-likelihood	AIC	BIC	Comparing models
Model 1	-144443.9	289087.8	289757.5	
Model 2	-139902.4	280042.9	280839.9	(Model 1 versus Model 2; χ^2 = 9,082.893, d.f. = 19, $P < 0.001$)
Model 3	-137543.2	275360.4	276277.9	(Model 2 versus Model 3; χ^2 = 4,718.467, d.f. = 18, $P < 0.001$)
Model 4	-137154.1	274616.1	275647.5	(Model 3 versus Model 4; χ^2 = 778.263, d.f. = 17, $P < 0.001$)
Model 5	-136859.5	274059.1	275197.6	(Model 4 versus Model 5; χ^2 = 589.093, d.f. = 16, $P < 0.001$)
Model 6	-136934.3	274238.6	275477.6	(Model 5 versus Model 6; χ^2 = -149.502, d.f. = 15, $P = 1.000$)

Table 1 shows the log-likelihood, Akaike's information criterion (AIC) and Bayesian information criterion (BIC) parameters for the fitted models with the MIRT() function. The final column shows the comparisons between the nested models using a deviance test (chi-square statistic, degrees of freedom, *P*-value). The models reflect the number of dimensions tested ('Model 1' contains one dimension, 'Model 2' contains two dimensions, etc.).

Table 2. Factor summary of Model 5

	Factor1	Factor 2	Factor 3	Factor 4	Factor 5	Communalities
Item 20	.058	-.009	.159	-.383	.051	0.221
Item 22	.126	.101	.122	-.523	.008	0.489
Item 28	.035	.300	.034	-.276	-.142	0.342
Item 31	-.045	.864	.027	-.009	-.006	0.737
Item 32	.023	.935	-.010	.022	.013	0.861
Item 33	.086	.543	-.022	-.026	.015	0.348
Item 35	.044	.232	.021	-.181	-.099	0.185
Item 46	.359	.009	.242	.013	.064	0.279
Item 53	.618	.059	-.054	-.255	-.057	0.610
Item 54	.770	.014	.005	-.099	.008	0.672
Item 57	.685	.008	.127	.016	.126	0.524
Item 58	.798	.033	.019	.048	-.053	0.699
Item 59	.683	.028	.028	.060	-.142	0.598
Item 60	.041	.010	.098	-.014	-.526	0.348
Item 61	.400	.014	.097	.052	-.400	0.547
Item 65	.197	-.038	.538	.117	.086	0.393
Item 67	-.008	.019	.808	-.038	-.016	0.680

Item 68	.004	.062	.745	-.045	-.030	0.630
Item 69	-.029	-.076	.753	.030	-.005	0.500
Item 71	.017	.059	.692	-.041	-.035	0.563
SS loadings	2.912	2.091	2.682	.634	.525	

The five-factor model is summarised in Table 2, which displays the factor loading for the items in each dimension. From a conceptual viewpoint, the fourth and fifth factors contain items that cover varying subject areas.

To cross-validate the structure, we performed a principal component analysis (PCA) using oblique rotation to test the factor structure. The contribution rates of Factors 4 and 5 were 4.77 % and 4.14 %, respectively, and the eigenvalues were less than 1. The first three factors accounted for 57.70 % of the total variance.

Overall, the three-dimensional model had a better fit and more coherent content. In addition, the factor communality estimate of item 35 in Factor 2 was relatively low (0.185), indicating the small homogeneity of this item. Hence, items 20 ('Network information can lead the trend'), 22 ('Networks can influence behaviour'), 35 ('I want others to be honest with me on a network'), 60 ('I can distinguish between harmful information') and 61 ('I can measure the media information') were excluded from further analyses.

Table 3. Item characteristics on the three subscales of the 15-item test

Items	Short item description	α1 (SE)	α2 (SE)	α3 (SE)	β1 (SE)	β2 (SE)	β3 (SE)	β4 (SE)
Media attitude								
Item 28	Control of network information is necessary	0.504 (0.022)	0.834 (0.027)	0.169 (0.036)	2.126 (0.108)	4.001 (0.113)	4.496 (0.118)	3.893 (0.119)
Item 31	On-line advertising exaggerated the effect of goods	0.547 (0.05)	2.781 (0.096)	0.365 (0.099)	5.443 (0.188)	9.214 (0.266)	9.749 (0.287)	6.362 (0.256)
Item 32	The information content on the network is not always correct	0.963 (0.081)	4.175 (0.163)	0.478 (0.167)	8.078 (0.326)	13.48 (0.504)	14.443 (0.55)	9.775 (0.448)
Item 33	Sometimes there is a bias on the network	0.384 (0.023)	1.155 (0.037)	0.164 (0.042)	2.497 (0.094)	4.381 (0.101)	4.302 (0.108)	2.083 (0.116)
Media critical thinking								
Item 46	Information classification	0.718 (0.024)	0.234 (0.020)	0.702 (0.024)	1.463 (0.074)	2.777 (0.079)	2.702 (0.084)	1.643 (0.085)
Item 53	Evaluation of the different views	1.723 (0.039)	0.884 (0.045)	0.471 (0.067)	3.414 (0.132)	6.242 (0.165)	7.027 (0.18)	4.754 (0.173)
Item 54	Network delivery implications	2.200 (0.047)	0.782 (0.052)	0.861 (0.076)	4.878 (0.161)	8.243 (0.202)	8.379 (0.214)	4.762 (0.203)
Item 57	Know the popular term on the network	1.38 (0.033)	0.404 (0.032)	0.825 (0.044)	2.736 (0.105)	4.952 (0.12)	4.988 (0.127)	2.9 (0.129)
Item 58	Distinguish between harmful information	2.204 (0.048)	0.645 (0.055)	0.912 (0.074)	4.482 (0.154)	7.691 (0.195)	7.935 (0.208)	4.838 (0.196)
Item 59	Measure the media	1.683 (0.037)	0.479 (0.043)	0.699 (0.057)	3.608 (0.139)	6.236 (0.161)	6.373 (0.169)	3.94 (0.163)
Media skill								
Item 65	Production of network video	0.555 (0.028)	0.052 (0.021)	1.175 (0.021)	1.326 (0.061)	2.053 (0.068)	1.177 (0.074)	1.247 (0.1)

Item 67	Focus on hot events and comments	0.873 (0.053)	0.462 (0.028)	2.169 (0.031)	3.605 (0.117)	5.576 (0.143)	4.832 (0.147)	1.528 (0.148)
Item 68	Share articles	0.831 (0.047)	0.5 (0.027)	1.826 (0.03)	3.132 (0.118)	5.249 (0.142)	5.061 (0.147)	2.548 (0.143)
Item 69	Follow celebrity and forward	0.418 (0.048)	0.125 (0.03)	1.862 (NA)	2.227 (0.081)	3.174 (0.097)	2.200 (0.101)	0.691 (0.123)
Item 71	Share information across multiple media	0.68 (0.045)	0.319 (NA)	1.886 (NA)	2.979 (0.109)	4.887 (0.129)	4.248 (0.134)	1.369 (0.135)

Items are paraphrased for brevity. This table displays slopes transformed into a varimax-rotated factor loadings metric: item discrimination parameter [α (SE)] and item difficulty parameters for the three respective dimensions [β (SE)].

After the aforementioned analyses, we constructed a three-dimensional GNMLT test based on 15 items. Table 3 presents the three-dimensional solution with the factor labels. The factor labels 'media attitude' (MA), 'media critical thinking' (MC) and 'media skill' (MS) reflect the content of the respective factors.

Bifactor validation. Next, we performed a confirmatory factor analysis (CFA) of the factor structures. Figure 4 shows the path diagram for the model.
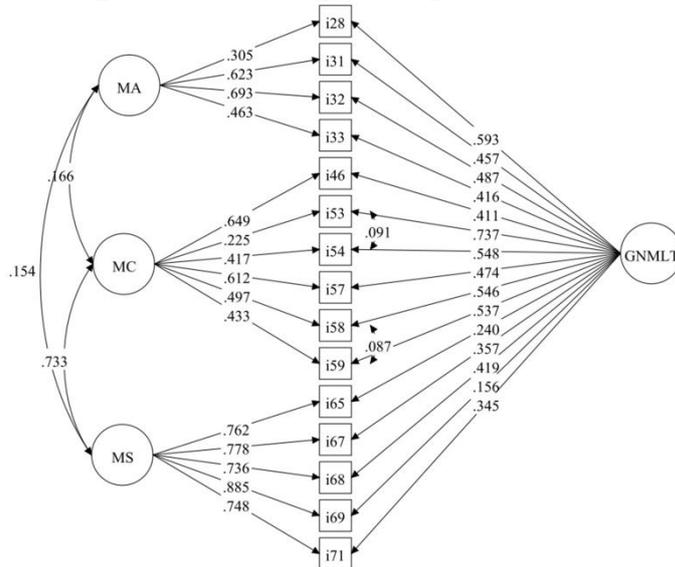

Fig. 4. Standardised path diagram

Results of bifactor CFA of the GNMLT. MA = media attitude; MC = media critical thinking; MS = media skill.

Considering the fit indices of the model, we calculated the ratio of χ2/df as 2.14. In addition, Table 4 presents the other fit indices and evaluates them in line with the related literature. This indicated a good fit with the proposed model (Muthén, Asparouhov, 2012). Thus, we confirmed that the model has three factors.

Table 4. Evaluation of fit indices under CFA

Indice	Sample statistic	Perfect fit	Good fit	Decision	Rationale
χ2/df	2.14	χ2/df≤ 2	χ2/df≤ 3	Good fit	(Sideridis et al., 2014)
RMSEA (Root Mean Square Error Of Approximation)	0.037	RMSEA≤ 0.05	RMSEA≤ .08	Perfect fit	(Iacobucci, 2010)
RMR (Root mean square residual)	0.050	RMR≤ 0.05	RMR≤ 0.08	Perfect fit	(Brown et al., 2006) (Hu, Bentler, 1999)
SRMR	0.022	SRMR≤0.05	SRMR≤ 0.08	Good fit	(Brown et al., 2006)

(Standardised root mean square residual)					(Hu, Bentler, 1999)
CFI (Comparative Fit Index)	0.983	CFI≥ 0.95	CFI≥ 0.90	Perfect fit	(Hu, Bentler, 1999) (Sivo et al., 2006)
TLI (Tucker-Lewis index)	0.974	TLI≥0.95	TLI ≥ 0.90	Perfect fit	(Iacobucci, 2010)

When performing reliability analysis as a result of the CFA, we calculated the Cronbach's alpha (α) internal consistency coefficient for the total scale made up of three factors as α=0.908, that for the factor of media attitude as α=0.824, that for the factor of media critical thinking as α=0.877 and that for the factor of media skill as α=0.878.

Test scores. Test scores represent the aggregate of the item responses. To validate the stability of the GNMLT test, we grouped the samples by age, province, gender and region. The distribution of the test scores showed a close-fitting score curve in all subgroups (Figure 4 A-D).

Level of education directly affects an individual's literacy (Hobbs, 1998; Kellner, Share, 2005). Figure 4E shows the total distribution of literacy, with the samples grouped by education level. The total scores for the extreme groups are 38.41 ± 9.63 for the illiterate group and 56.58 ± 9.76 for the postgraduate group, with Cohen's d = 1.87 (Jacobson, Truax, 1991).

We conducted receiver operating characteristic analysis to determine the possible cut-off of the GNMLT. We used education level above university to identify the participants with adequate literacy. The curve for the GNMLT showed that scores ≥ 50 on the scale had a sensitivity of 70.31 % and a specificity of 60.18 % for predicting adequate literacy (Figure 4F).

CTT has been replaced by IRT (Wirth, Edwards, 2007), and its scoring is relatively simple. In this study, the IRT and CTT scores were highly correlated (r = 0.897, P = 0.000). Figure 4G shows the CTT score curve. The cut-off value was estimated at 8 points. The area under the receiver operating characteristic curve for predicting adequate health literacy is 0.684 (95 % CI, 0.671–0.695, p <0.001). The GNMLT curve shows that scores ≥ 8 on the CHLCC had a sensitivity of 58.26 % and a specificity of 70.62 % for predicting adequate literacy.
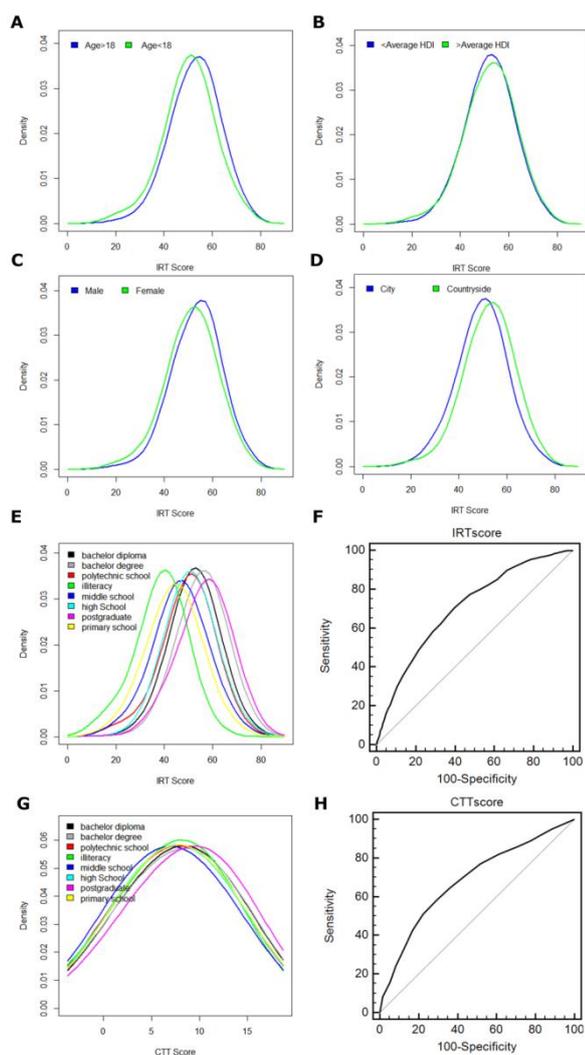
Fig. 5. Test scores and cut-off values

The X-axis is the test score, and the Y-axis reflects the fraction of the subject's score. (A-D) Test score distribution in each subgroup according to age, HDI, gender and region, respectively. (E) IRT test score distribution based on education level. (F) ROC curve for IRT test score. (G) CTT test score distribution based on education level. (H) ROC curve for CTT test score.

5. Conclusion

Over the past decade or so, the Internet and mobile network technology have transformed multiple facets of life in society that have changed our work and leisure patterns. Indeed, network media literacy is becoming indispensable.

However, although the field of media literacy is growing in terms of both interest and participation, relatively little quantitative research has examined media literacy evaluation (Bergsma, Carney, 2008; Cheung, 2016). An important reason for this is the challenge of measuring media literacy (Arke, Primack, 2009). As Scharrer states, "The results of participation in media literacy curricula are not often explicitly defined and measured, but there is a generalized notion about what these outcomes are" (Scharrer, 2002: 354). To show the value of literacy, tools must be developed and possessed to accurately measure and report different literacy results.

Of note, media literacy is an umbrella concept. In the understanding, manufacture and coordination of culture represented by symbol, text, geometry, sound and image, media literacy is emerging and spreading in the digital information signal (Peek, Beresin, 2016). In view of this, this initial measurement tool was based on current media literacy research and focused on the more modern form of Internet communication. Based on the MIL Assessment Framework of UNSEO,

attitudes, knowledge, skills and critical thinking represent logical starting points in the development of network media literacy measures.

As the latent characteristics of individual literacy are indirect, this study focused on multidimensional IRT analysis. Most of the items showed good discrimination parameters based on the model that was fitted, indicating that individuals with various literacy levels could be discriminated adequately.

After serial modelling and verification by PCA and bifactor CFA, the final scale had three solid dimensions. Hence, we concluded that a three-dimensional test was the best solution in this case. We loaded three subscales together in the model and mapped them onto literacy: media attitude, media critical thinking and media skill. These subscales exhibited satisfactory reliability. Taken together, the items reflected the overall construct of network media literacy in the Chinese population.

This scale also measured network media literacy in general. For this purpose, larger and more diverse samples were used in this study, which covered most regions of China. The calibration process included differential item functioning and factor analysis, resulting in a final 15 questions. Moreover, the scale was stable when validating the different subgroups (Fig. 4A-D) and valuable in targeting the general population.

The final version of the GNLMT consisted of 15 questions that required about 5 minutes to complete, showing the increase in time needed to accomplish the scale. Short scales like this should encourage the measurement of literacy before any educational intervention. The GNLMT could be used to assess levels of literacy in population surveys.

We determined the optimal scoring method for the practical use of the test on the population. Determining test scores for the 15 items using both CTT and IRT showed very high correlations. In light of this, the CTT method is preferable, because the calculations are easily performed by hand: each correct response receives a score of 1 and each incorrect response a score of 0.

This study has some limitations. First, it used convenience sampling, which might have generated a selection bias. However, given the filtration of items with DIF and the valid and cohesive three-dimensional structure, the sample distribution and distinctiveness of the different subgroups did not indicate any flaws in the sample. Second, some of the information used in the scale was context- or language-specific. To use the GNLMT in other regions, researchers may need to re-examine some items to ensure that they are suitable for these contexts. It would also be worthwhile to study the use of literacy scales across different ethnic groups. Third, the GNLMT did not cover the entire media literacy perspective, and was not meant to supplant traditional media literacy skills. Individuals must have traditional literacy skills other than network literacy to expand their knowledge (Young, 2015). However, as network media literacy research develops alongside media literacy studies in the mobile network world, additional measurement tools and areas will need to be developed to keep measurement efforts current and applicable.

In conclusion, the present study outlines the development and validation of the 15-item GNLMT. This newly developed instrument provides a user-friendly measure of network media literacy for use in the general Chinese population.

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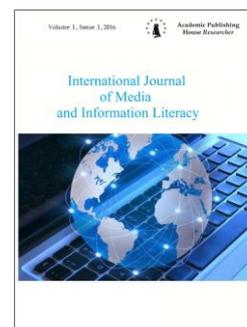
Media Literacy and Critical Thinking

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Abstract

The ability to develop a critical distance from the messages being conveyed through the channels of mass communication is of vital importance. However, the value of Media Literacy education extends beyond media analysis, furnishing critical thinking skills for people who are in danger of losing the ability to come to independent conclusions based on the systematic assessment of evidence. According to Renee Hobbs and Richard Frost, media literacy education enhances critical thinking across a broad range of disciplines: The first large scale empirical study measuring the acquisition of media literacy skills in the United States concluded that incorporating media message analysis into secondary level English language arts curriculum ... improved students' reading, viewing and listening comprehension of print, audio and video texts, message analysis and interpretation, and writing skills. In addition, it should be emphasized that that the discipline of Media Literacy is essentially apolitical. Media Literacy educators teach people how to think, not what to think. What determines the validity of an analysis is the following: 1) the systematic application media literacy methodologies; and 2) the contentions must be supported with concrete examples (e.g., television episodes, films, and social media threads). Instead, the discipline of Media Literacy furnishes individuals with the skills to develop an independence of thought so necessary to the survival of democracy.

Keywords: media literacy, critical thinking, media literacy strategies

1. Introduction

Digital media technology has led to an overwhelming influx of information, which challenges the ability of individuals to develop a critical distance from the content they are exposed to on an ongoing basis. Media Literacy provides strategies for the systematic analysis of content conveyed through the channels of mass communications. But in addition, Media Literacy promotes critical thinking across a broad range of disciplines, providing individuals with the skills so necessary to the survival of democracy.

2. Materials and methods

This article focuses on the topic of media literacy critical thinking. Further, it can be useful to consider other media literacy approaches that might offer a fresh perspective into critical thinking in the modern times.

3. Discussion

One of the most dispiriting developments of the Trump era has been the assault on critical

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thinking skills throughout American society.

Our current digital media landscape is characterized by an overwhelming influx of information. To illustrate, as of July 2017:

- Ninety percent of the data in the world... has been created in the last two years alone.

- (The) output of data is roughly 2.5 quintillion bytes a day. As the world steadily becomes more connected with an ever-increasing number of electronic devices, that's only set to grow over the coming years.

- On average, the US alone spit out 2,657,700 gigabytes of Internet data every minute (Hale, 2017).

Digital media technology operates according to the communications model of microcasting, in which information is tailored to an individual's particular interests and expectations. To illustrate, digital billboards can instantly customize its marketing message to the drivers of oncoming vehicles.

The digital media landscape is comprised of individual Information Silos. Each Silo contains information that serves its own particular ideology. The information in each Silos is self-referential, meaning that the sources reinforce the ideas and beliefs of the Silo. The composition of these Information Silos can be explained by the psychological principle of Selective Perception, in which an individual tends to select and interpret content that is in sync with his/her prior dispositions and conceptions. As a result, audience members only patronize their own particular silos, remaining ignorant of the points of view of rival Silos. Thus, a person viewing Fox news is exposed to an entirely different narrative regarding Russian involvement in the 2016 U.S. presidential election than if he/she watches MSNBC television programming — and vice versa.

This informational segmentation, then, helps to explain the emergence of Fake News – a world of "Alternative Facts," in which reality is reduced to a matter of opinion. Individuals now inhabit realities of their own choosing, selecting programming that reinforces their own worldviews. Young people choose to immerse themselves in Augmented Reality platforms that offer a far more engaging, attractive, and accepting world than the challenges that they must face in "real life."

The term "Alternative Facts," coined by Trump insider Kelly Ann Conway, describes this rejection of fact and logic, in favor of emotional appeals — most notably fear, anger, and envy. In this mass-mediated landscape, the criterion for acceptable communicator is no longer who is most truthful but rather who is the most persuasive storyteller.

As President, Trump has normalized lying as a legitimate form of discourse. Trump describes his untruths as instances of "Truthful Hyperbole", which he describes as an innocent form of exaggeration, as well as a very effective form of promotion. In addition, Trump makes a further distinction between "innocent exaggeration" and "guilty exaggeration," in which the Function (or purpose) of a lie can justify its fabrication. Reporter David Barstow provides this example of an "innocent exaggeration":

"Mr. Trump was asked in a deposition about a script that had been prepared for Trump University instructors. According to the script, the instructors were supposed to tell their students the following: "I remember one time Mr. Trump said to us over dinner, he said, 'Real estate is the only market that, when there's a sale going on, people run from the store.' You don't want to run from the store." No such dinners ever took place, Mr. Trump acknowledged. In fact, Mr. Trump struggled to identify a single one of the instructors he claimed to have handpicked, even after he was shown their photographs. Nonetheless, Mr. Trump was not bothered by the script's false insinuation of real estate secrets shared over chummy dinners. Asked if this example constituted "innocent exaggeration," Mr. Trump replied, "Yes, I'd say that's an innocent exaggeration." (Barstow, 2017).

It is, therefore, not surprising that the Washington Post identified 24 instances of "false or misleading claims" during the course of a single interview published in the New York Times in December, 2017 (Stanage, 2017).

It is within this context that Media Literacy has emerged as an essential area of study. Media Literacy is a critical thinking skill that is applied to the source of most of our information — the channels of mass communication. This critical thinking skill enables individuals to identify messages that are being conveyed in the media.

The discipline of Media literacy provides a range of strategies by which citizens can distinguish between false news and legitimate information:

Verification Sites check the veracity of statements made in the media. As an example, the following verification sites were compiled by iste.org:

Fact Check. This nonpartisan, nonprofit project of the Annenberg Public Policy Center of the University of Pennsylvania monitors the factual accuracy of what is said by U.S. political players, including politicians, TV ads, debates, interviews and news releases.

Media Matters. This nonprofit and self-described liberal-leaning research center monitors and corrects conservative misinformation in the media.

NewsBusters. A project of the conservative Media Research Center, NewsBusters is focused on "documenting, exposing and neutralizing liberal media bias."

Open Secrets. This nonpartisan, independent and nonprofit website run by the Center for Responsive Politics tracks how much and where candidates get their money.

Politifact. This Pulitzer Prize winning website rates the accuracy of claims by elected officials. Run by editors and reporters from the independent newspaper Tampa Bay Times, Politicfact features the Truth-O-Meter that rates statements as "True," "Mostly True," "Half True," "False," and "Pants on Fire."

ProPublica. This independent, nonprofit newsroom has won several Pulitzer Prizes, including the 2016 Prize for Explanatory Reporting. ProPublica produces investigative journalism in the public interest.

Snopes. This independent, nonpartisan website run by professional researcher and writer David Mikkelson researches urban legends and other rumors. It is often the first to set the facts straight on wild fake news claims.

The Sunlight Foundation. This nonpartisan, nonprofit organization uses public policy data-based journalism to make politics more transparent and accountable.

Washington Post Fact Checker. Although the Washington Post has a left-center bias, its checks are excellent and sourced. The bias shows up because they fact check conservative claims more than liberal ones (Snelling, 2018).

Another category of strategies consists of Quantitative Research Methodologies, in which numerical data furnishes perspective into the following areas of interest: Content, Social, Business/

Entertainment, News, Educational, Economic.

Channels of Communication (e.g. Text, Data, Video, Graphics).

Designated Information: Information that is transmitted through specific media (e.g. phone calls or fax transmissions) or to specific audiences.

Undesignated Information: Information directed to a broad audience; Personal Information; Information that does not stand for itself but is woven into an economic context (e.g. information about/from businesses or industries).

Two techniques commonly employed in the quantitative analysis of Big Data are Cross-analysis and Keywords. Cross-analysis refers to an approach designed to identify correlations between data sets by identifying corresponding numerical patterns. Keywords is a methodology in which scholars trace the appearance and frequency of words throughout data sets to provide insight into social movements, developments, and influences.

In addition, software has been developed that assists in the quantitative analysis of Fake News:

- Visual analytics refers to a technique involving the digital display of patterns of information. These Data Visualization Tools shows the intertwined web of Twitter users who spread both the claims and the fact checks, and how they are connected to one another.

- Web Browser Plug-ins can both detect and block fake-news stories. For instance, the Chrome extension "Fake News Alert" informs its clients when they are visiting a site "known for spreading fake news."

- Rumor Identification Applications, such as Hoaxy, visualize the spread of claims and related fact checking online. For instance, Hoaxy can trace the origin of the false claim that millions of votes in the 2016 presidential election were cast by "illegal aliens." By typing in the appropriate search terms, Hoaxy identifies the stories that spread the claims, as well as fact-checking articles that debunked the assertions (Ortutay, 2017).

Finally, numerous Qualitative Approaches can detect false information. Qualitative Analysis consists of a series of methodological "lenses" through which individuals can makes sense of the information being conveyed through the media. According to the University of Utah College of Nursing, this type of research focuses on the "why" rather than the "what" of social phenomena to make sense of the information being conveyed through the media.

4. Results

Two notable qualitative strategies are Function and Word Choice.

Function. Identifying the Function, or purpose of a news report focuses on the following question: Does the media communicator want you to think or behave in a particular way as a result of receiving the information?

A body of information (BOI) operates on the basis of Manifest Functions – surface reasons behind the inclusion of certain information. But in addition, a BOI may contain Latent Functions – instances in which the digital media communicator's intention is beneath the surface and not immediately obvious to the audience. Indeed, at times, the Manifest Functions may be subordinate to its Latent purposes.

To illustrate, Fake news typically fulfills one of the following Manifest Functions: 1) Installing a favorable narrative, 2) Influencing Policies and Events.

But in addition, fake news may fulfill the following Latent (i.e. under the surface) Functions:
- Diverting public attention,
- Undermining Faith in the Media as Societal Watchdog,
- Destabilizing Democratic Systems of Government,
- Accelerating the Loss of Individuals' Critical Faculties.

Moreover by considering why an agent would compose and distribute a particular Fake News item, one can begin to consider the purpose behind the placement of the Fake News.

To illustrate, Barstow has identified the following patterns with respect to the appearance of Fake News stories: The mystifying false statements about seemingly trivial details (Barstow, 2017):

Why would Trump lie about trivial items? Wouldn't this simply reinforce the impression of him as a person whose word cannot be trusted?

One reason might be that this strategy is designed to conceal consequential lies amid all of the whoppers, great and small. Moreover, it enables defenders to dismiss this behavior as a mere character trait: That's just Donald The Fibber again!

The rewriting of history to airbrush unwanted facts (Barstow, 2017):

Why would someone choose to rewrite history? Significantly, this activity was a central feature of the authoritarian society depicted in George Orwell's iconic novel 1984 and, as such, represents a clue in answer to our question.

In the following passage from the novel, the protagonist, Winston Smith, reflects on his job, which involves altering references to past events:

The messages (Winston) had received referred to articles or news items which for one reason or another it was thought necessary to alter, or, as the official phrase had it, to rectify. For example, it appeared from the Times of the seventeenth of March that Big Brother, in his speech of the previous day, had predicted that the South Indian front would remain quiet but that a Eurasian offensive would shortly be launched in North Africa. As it happened, the Eurasian Higher Command had launched its offensive in South India and left North Africa alone. It was therefore necessary to rewrite a paragraph of Big Brother's speech in such a way as to make him predict the thing that had actually happened...

As soon as Winston had dealt with each of the messages, he clipped his speakwritten corrections to the appropriate copy of the Times and pushed these into the pneumartic tube. Then, with a movement which was as nearly as possible unconscious, he crumpled up the original message and any notes that he himself had made, and dropped them into the memory hole to be devoured by the flames.

As soon as all the corrections which happened to be necessary in any particular number of the Times had been assembled and collated, that number would be reprinted, the original copy destroyed, and the corrected copy placed on the files in its stead... In this way every prediction made by the Party could be shown by documentary evidence to have been correct, nor was any item of news, or any expression of opinion, which conflicted with the needs of the moment, ever allowed

to remain on record. All history was a palimpsest, scraped clean and reinscribed exactly as often as was necessary. In no case would it hve been possible, once the deed was done, to prove that any falsification had taken place...

It was merely the substitution of one piece of nonsense for another. Most of the material that you were dealing with had no connection with anything in the real world, nor even the kind of connection that is contained in a direct lie. Statistics were just as much a fantasy in their original version as in their rectified version. A great deal of the time you were expected to make them up out of your head. For example, the Ministry of Plenty's forecast had estimated the output of boots for the quarter at a hundred and forty five million pairs. The actual output was given as sixty-two millions. Winston, however, in rewriting the forecast, marked the figure down to fifty-seven millions, so as to allow for the usual claim that the quota had been overfilled. In any case, sixty-two millions was no nearer the truth than fifty-seven millions, or than a hundred and forty-five millions. Very likely, no boots had been produced at all. Likelier still, nobody knew how many had been produced, much less cared. All one knew was that every quarter astronomical numbers of boots were produced on paper, while perhaps half the population of Oceania went barefoot. And so it was with every class of recorded fact, great or small. Everything faded away into a shadow-world in which, final, even the date of the year had become uncertain (Orwell, 1998).

The Function of this strategy is a response to the old truism, "Those who ignore the past are doomed to repeat it." Imagine how much easier it is to alter public policy if there is no past to learn from.

The branding as liars those who point out his untruths (Barstow, 2017). This is a displacement strategy in which, even if the statement cannot be disproven, the person who delivers the message can be branded as false (i.e. a liar). Thus, after publicly questioning Trump's trade demands with Canada, Prime Minister Trudeau was immediately branded as a weak backstabber. Significantly, no effort was made to correct Trump's previous praise Trudeau, since such an admission would remind the public that favorable statements had been made.

The deft conversion of demonstrably false claims into a semantic mush of unverifiable "beliefs." (Barstow, 2017).

In our digital landscape, there is no longer is an objective measure to distinguish fact from fiction. Consequently, Truth is now a subjective matter, determined by whose Truth one chooses to believe.

Word Choice

Linguist Kenneth Burke's dictum that "language precedes thought" calls attention to the influence of word choice on the ways that we understand our world. Within this context, analyzing word choice can furnish perspective into the point of view of the media communicator. To illustrate, two of Trump's most frequent phrases, "I guarantee" and "Believe me", convey the message that people should place their faith in Trump — above our social institutions and, even the U.S. Constitution.

The elimination of words can also influence how we make sense of our world. To illustrate, the totalitarian regime of Orwell's 1984 adopted the language of Newspeak — a reductive language that abolished words — and, more importantly, the concepts that these words described.

Orwell explains, the purpose of Newspeak was not only to provide a medium of expression for the (proper) world-view and mental habits... but to make all other modes of thought impossible. It was intended that when Newspeak had been adopted once and for all and Oldspeak forgotten, a heretical thought... should be literally unthinkable, at least so far as thought is dependent on words... This was done partly by the invention of new words, but chiefly by eliminating undesirable words and by stripping such words as remained of unorthodox meanings... (Orwell, 1998: 327-328).

Significantly, this practice has emerged as the centerpiece of the Trump administration. In December 2017, administration officials at the nation's top public health agency were notified that the following words and phrases were no longer permitted in official budget documents: 1) Diversity, 2) Entitlement, 3) Fetus, 4) Transgender, 5) Vulnerable, 6) Evidence-based, 7) Science-based.

In response, Dr. Sandro Galea, dean of Boston University's School of Public Health, objected to this new policy "because the words that we use ultimately describe what we care about and what we think are priorities...If you are saying you cannot use words like 'transgender' and 'diversity,' it's a clear statement that you cannot pay attention to these issues." (Cit.: Stobbe, 2017).

Moreover, the elimination of these terms has had a direct impact on the implementation of new policies implemented by the administration. Mike Stobbe observes, "Agency workers have been told not to use the term 'health equity' in presentations or public talks. The term refers to a goal of removing obstacles like poverty and racial discrimination in making sure people have an equal chance to be healthy. Since President Donald Trump took office, a number of federal agencies have moved to downscale data collection on topics like climate change and homeless people who are gay, lesbian, bisexual and transgender and to remove information on such topics from some government websites" (Stobbe, 2017).

5. Conclusion

The ability to develop a critical distance from the messages being conveyed through the channels of mass communication is of vital importance. However, the value of Media Literacy education extends beyond media analysis, furnishing critical thinking skills for people who are in danger of losing the ability to come to independent conclusions based on the systematic assessment of evidence. According to Renee Hobbs and Richard Frost, media literacy education enhances critical thinking across a broad range of disciplines: The first large scale empirical study measuring the acquisition of media literacy skills in the United States concluded that incorporating media message analysis into secondary level English language arts curriculum ... improved students' reading, viewing and listening comprehension of print, audio and video texts, message analysis and interpretation, and writing skills (Hobbs, Frost, 1999).

In addition, it should be emphasized that that the discipline of Media Literacy is essentially apolitical. Media Literacy educators teach people how to think, not what to think. What determines the validity of an analysis is the following: 1) the systematic application media literacy methodologies; and 2) the contentions must be supported with concrete examples (e.g., television episodes, films, and social media threads). Instead, the discipline of Media Literacy furnishes individuals with the skills to develop an independence of thought so necessary to the survival of democracy.

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