Filipino students' competency in evaluating digital media content credibility: 'Beginning' to 'emerging' levels

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ABSTRACT

This study investigates Filipino students' reasoning competency levels in evaluating the credibility of digital media content and whether significant statistical differences exist in their competency by education status, sex, age group, Internet use, or geographical location. Four hundred twenty-four students representing the senior high school, undergraduate, and postgraduate levels responded to four modified versions of the Stanford History Education Group's civic online reasoning tasks. The study found that most students have 'beginning' competency levels in author-checking, fact-checking, and bias-checking but 'emerging' competency levels for image-checking. Younger students and those who spend more hours online have higher mean competency levels for verifying the authenticity of a social media page. Postgraduate students fared better in distinguishing facts from opinions in arguments, while students residing in the Masbate province consistently registered lower mean scores for author- and fact-checking. This study indicates the need to strengthen Filipino students' information/media literacy across educational levels.

Keywords: *information literacy, media literacy, disinformation, native advertising, sponsored content*.

INTRODUCTION

According to Wardle and Derakhshan (2017), the digital world that we live in today is suffering from an "information disorder" in which people can quickly spread false information for different purposes. They use the term "disinformation" to refer to the intentional spreading of incorrect information. Disinformation not only affects people's decisions but also leads to psychological harm. Disinformation campaigns have damaged people's reputations and caused extreme emotional distress (Klein & Wueller, 2017). When people believe that false information is accurate, they can become vehicles to spread false news via social media (Walters, 2018). Consequently, when readers are consistently exposed to incorrect information they receive from their social network, they begin to be confused about what is true, doubt their understanding of factual events, and eventually succumb to relying on falsehoods (Rapp & Salovich, 2018). However, being misled that a piece of news is accurate leads to a cynical attitude where they consider all media, whether reliable or not, untrustworthy (Fisch, 2018).

Because exposure to disinformation is harmful, educators believe there is a need now more than ever to combat the spread of disinformation in the digital age by teaching people to evaluate the credibility of digital media content they read or view (Jones-Jang et al., 2019). In this study, "credibility" is defined as the "believability" of data (Wathen & Burkell, 2002). 'Digital media content,' on the other hand, refers to information/communication created, viewed, modified, or distributed via media technology (Guinibert, 2022).

Media literacy in the Philippines

In 2013, the Enhanced Basic Education Act was instituted in the Philippines, which extended the ten-year basic education to 12 years in the K-12 education system (Philippine Presidential Communications Development and Strategic Planning Office, 2012). This act provided an additional two years in senior high school to keep Filipino students on par with international peers who spend 12 years in school to master basic literacy competencies. Previous core courses offered in the first year of undergraduate education became part of the senior high school curriculum, such as literacy and composition courses. However, the Media and Information Literacy course is a new one added to the senior high school curriculum implemented in 2016. The curriculum guide for this course states that it "aims to develop students to be creative and critical thinkers and responsible users and competent producers of media and information" (Department of Education, Philippines, 2013, p.1). A section in this curriculum guide related to content credibility evaluation is Module 6: Media and Information Languages. By the end of this module, students should have learned how to "evaluate media and information with regard to codes, convention and messages in regards with the audience, producers, and other stakeholders" and "produce and assess the codes, convention, and messages of a group presentation" (Department of Education, Philippines, 2013, p.3).

Despite the initial efforts of the Philippine government to educate its learners to be media literate, the proliferation of disinformation via media platforms continues to prevail in the country (De Leon et al., 2019; Elemia, 2016). For example, Ong and Cabañes (2018) exposed how architects of networked disinformation in the Philippines systematically influence Filipinos' perception of people and events that eventually affect the outcome of elections. Ressa (2019), on the other hand, exposed how some Filipino politicians increasingly use fake accounts, bots, and trolls to manufacture reality.

The troubling growth of disinformation campaigns has prompted Facebook, the most popular social media platform in the country, and many non-profit (e.g., Philippine Association for Media and Information Literacy, 2020) and non-governmental organizations (e.g., Out of the Box, 2021) to give free workshops and resources on how to spot fake social media accounts, identify sources of disinformation, and practice responsible online social behaviors (Etter, 2017). However, many Filipinos fall prey to manipulative forces that sway their thinking and emotions despite these efforts. A study on how students evaluate the credibility of information is thus significant because such knowledge can help educators, curriculum developers, and policymakers conceptualize programs that could help Filipino citizens be more responsible and discerning consumers of information. As McGrew et al. (2017) put it: "If students cannot determine what is trustworthy – if they take all information at face value without considering where it comes from – democratic decision-making is imperiled. The quality of our decisions is directly affected by the quality of information on which they are based" (p.7).

REVIEW OF LITERATURE

Empirical studies on information credibility evaluation have found that young people cannot distinguish between reliable and misleading information (McGrew et al., 2017; Clary & Tyrell, 2018; Nygren & Guath, 2019). However, those who can effectively identify misleading news appear to use specific information-processing strategies: Scan the websites listed in search engines to verify information, spend adequate time examining the webpage, evaluate the online content, and refer to fact-checking sites (Leeder, 2019).

Certain variables also appear to be associated with correctly identifying credible online content. For example, those who are older (Steinfeld et al., 2016; Nee, 2019), are analytical thinkers (Pennycook & Rand, 2020), have higher educational attainment, and live in city centers (Murrock et al., 2018) tend to exhibit higher levels of criticality. It was also found that those who frequently use social media, navigate the Internet, and have more experience in photography/digital imaging, are better detectors of fake images in online news (Shen et al., 2019).

On the other hand, specific strategies are related to poor identification of disinformation. These include merely relying on top articles in engine search results to verify information (Leeder, 2019) and accepting only information aligned with one's beliefs (Steinfeld, 2016; Moravec et al., 2019; Tully et al., 2020). Moreover, people who consider high-sounding texts as profound and overclaim their knowledge of events tend to consider false news accurate (Pennycook & Rand, 2020).

Chaiken and Ledgerwood's (2012) theory of heuristic and systematic information processing is the overarching theory that guided the analysis of the students' evaluation of digital media content credibility. According to this theory, when people come across new information, they judge its credibility by relying on two types of information processing strategies depending on their interest in the topic and motivation to check its veracity: heuristic and systematic information processing strategies. Heuristic information processing is a more efficient way of evaluating the information, focusing on salient and easily comprehended non-content cues in the text. When we use heuristic information processing, we use mental shortcuts or simple rules of thumb based on our past experiences and observations to guide our evaluation.

Over the years, various studies have contributed to expanding the categories of heuristic information processing strategies used. These studies report that instead of analyzing the content of the information, many rely on some aspects outside the text itself to guide them in accepting or discarding others' arguments, such as: 1) Reputation – evaluating communicator's credibility, expertise, and likability; 2) Endorsement – relying on approval/recommendation by others; 3) Persuasive intent – detecting communicator's ulterior motive through embedded advertisement (Metzger et al., 2010); 4) Design – judging based on the appeal of the web page, color scheme, font style, presence of, and usability of interactive elements (Wathen & Burkell, 2002); 5) Currency – looking at the date of the content's publication; 6) Coverage – evaluating based on the content's length, detail, and scope of information presented (van Zyl et al., 2020); 7) Expectancy violation – judging based on how viewers' expectations are not met by the writing or presentation style (Metzger et al., 2010); and 8) Confirmation bias – evaluating the credibility of information based on how the central message aligns with the viewer/reader's perspective (Moravec et al., 2019).

In contrast, the systematic type of processing information involves more effort and is a time-consuming process because the reader aims to thoroughly understand the content through "careful attention, deep thinking, and intensive reasoning" (Chaiken & Ledgerwood, 2012, p. 246.) According to Britt et al. (2019), examples of strategies for systematic evaluation of news fall into three categories: 1) Assessing the accuracy of information by a) verifying that the details provided are factual and realistic; b) evaluating the credibility of the news origin; and c) corroborating the information from other reputable sources; 2) Evaluating the relevance and logic of the support given for the claims made, and 3) Assessing the sufficiency of support by determining whether the issue is tackled not just from one but multiple perspectives.

This study aims to contribute to the growth of literature that describes and assesses how Filipinos evaluate the credibility of digital media content. It posits these research questions:

- RQ1. How did the students fare in their reasoning competencies in evaluating the credibility of digital media content?
- RQ2. Are there significant statistical differences in the students' reasoning competency levels by educational status, sex, age group, Internet use, or geographical location?

METHODS

Respondents' demographic profile

From February to May 2020, 424 students (37% senior high school, 36.8% undergraduate, and 26.2% postgraduate[1]) enrolled across 13 educational institutions in the Bicol Region, Philippines, voluntarily responded to four modified tasks patterned after the Stanford History Education Group (SHEG). Of this sample, 63.7% were female, and 36.3% were male. Students' ages ranged from 16 to 52 ($M = 21.8$; $SD = .492$), with 83.7% belonging to the 16-25 age group, 12.3% to the 26-35 group, while 4% were aged 36 and older. Participants' places of residence represent the six provinces of the Bicol region, Philippines: Albay (24.1%), Sorsogon (21.2%), Camarines Sur (19.8%), Catanduanes (13.9%), Masbate (13.7%), and Camarines Norte (7.3%). The students also reported that, on average, they spent five hours online each day, with 37.7% spending 0-3 hours ('Low' Internet users); 39.4% spending 4-7 hours ('Moderate' Internet users), and 22.9% reporting spending more than seven hours each day online ('High' Internet users).

Table 1 summarizes the demographic profile of the respondents in frequency counts.

Table 1. *Respondents' demographic information (N = 424)*

Sex		Age group		Educ. level		Internet use		Province	
Female	270	16-25	355	Senior High School	157	(Low) 0-3 hours	160	Albay	102
Male	154	26-35	52	Under- graduate	156	(Moderate) 4-7 hours	167	Sorsogon	90
		36 and older	17	Postgraduate	111	(High) 8 hours or more	97	Cam. Sur	84
								Catanduanes	59
								Masbate	58
								Cam. Norte	31

Research instruments

The instruments used for this survey are anchored in the civic online reasoning tasks developed by the Stanford History Education Group (SHEG) (Wineburg et al., 2016). The SHEG uses the narrow term "civic online reasoning" instead of the broader "critical media literacy" to signal that the assessments focus only on evaluating and using online information to make decisions about socio-political concerns (McGrew et al., 2017). The sample tasks consist of open-ended questions, which enable the practice of three skills when evaluating online information: identifying the source of the story, weighing the evidence presented, and verifying information from other sources. The tasks are categorized according to complexity, with five developed tasks for middle, high, and college students.

This study adapted four of the five tasks targeted at high school students, which practice the following specific information evaluation skills: 1) Determining which of the two arguments is stronger; 2) Explaining which of the two Facebook posts is a better source; 3) Assessing the strength of evidence based on a photo; and 4) Selecting which of the two articles is a more reliable source (Wineburg et al., 2016). This set was selected because the skills practiced by these tasks are commonly used by individuals across educational levels when evaluating online content. Moreover, its printed format does not require computers or the Internet to answer the tasks, unlike the set for college students. This was an important factor since some target respondents may not have access to computers or the Internet.

Two education and media studies experts modified the SHEG instruments developed for this study. Content validation of the four tasks was done by selecting digital media content (e.g., social media posts, articles on Philippine news websites) relevant to the Philippines' socio-political climate and minimally rephrasing the original questions to suit the prompts. Three iterations of the tasks were pilot-tested among students with similar profiles to ensure that the test instructions were clear, the format was readable, and the target respondents across educational levels could handle the contents' difficulty level.

The following tasks were included in the open-ended survey administered to students by the province coordinators.

Task 1 (Author-Checking). This task tests students' ability to verify the authenticity of a Facebook page. Facebook posts from two purported accounts of the

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[1] Masters and doctorate students.

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former Philippine Vice President Leni Robredo were selected. Each post was related to the COVID-19 pandemic. The first post reports the orientation conducted by the Office of the Vice President to its employees regarding the COVID-19 virus. In contrast, the second post reminds the public to take extra care because the Philippines confirmed its first case of COVID-19 afflicted patients. However, the first post has a blue verification badge or checkmark that signals the former Vice President's authentic Facebook account (VP Leni Robredo, 2020), while the second post does not (Vice President Leni Robredo, 2020).

Task 2 (Fact-Checking). This task tests students' ability to spot factual and opinion statements in the views presented by former Philippine Senators Aquilino Pimentel III and Panfilo Lacson regarding former Philippine President Duterte's threat to abolish the Visiting Forces Agreement (VFA) between the Philippines and the USA on account of the latter's revocation of Senator Bato's visa (Rey, 2020). Sen. Lacson's argument can be considered fact-based because, according to him, Pres. Duterte's threat has nothing to do with Sen. Bato's case because the Philippine senate has ratified the VFA after much deliberation. On the other hand, Sen. Pimentel III's argument may be considered opinion-based because, according to him, he believes that Pres. Duterte may have a basis for his threat because he thinks Sen. Bato is being punished by the US for being a Duterte ally.

Task 3 (Bias-Checking). This task tests students' ability to identify news labeled "branded content" as potentially biased due to their commercial interests. A "branded content" is a type of 'native advertising' believed to be "content produced in conjunction with the advertiser, or by the advertiser, that runs within the editorial stream" (eMarketer, 2013, para. 3). Two online news articles that similarly endorse liquefied natural gas to solve the Philippines' looming electricity crisis were selected. The first article can be considered straight news (Lucas, 2016). On the other hand, the second article contains the label "branded content" (Inquirer.Net, 2020) in bold fonts located at the top left of the article before its title. Although the font size used for the label is so much smaller than the size used for the title, the label is visible. Another starred label, 'Sponsor (sic) Content,' can be seen printed after the title before the body of the article, but this label is less visible

because of the smaller font size and grayscale color used.

Task 4 (Image-Checking). This task tests students' ability to judge the credibility of a photo accompanying a headline of online news (Ronda Balita Online, 2018). The headline says, "Cebu parish priest impregnates two daughters of his associate pastor." The picture that accompanies this headline depicts two men. One of the men appears to be leading away another man whose head is covered with a black cloth. A website, The Filipino Times (2018), however, reported that the photo used for the headline was taken from a different news article bearing the headline, "Policemen arrest fellow cop during raid of a drug den" (Sun Star Philippines, 2015).

The SHEG's (2020a; 2020b; 2020c) rubrics guided the author and a qualified academic specializing in media studies in assigning the appropriate reasoning competency level for each task. A rating of 1 was assigned to indicate a "Beginning" level, 2 for "Emerging," and 3 for "Mastery." Because the assessment rubrics were particular, the inter-raters aimed for a 100% agreement (de Vet et al., 2006). Any discrepancies in the individual rating were resolved through discussion to assign the most appropriate competency level for each task.

Table 2 specifies the rubrics used by the inter-raters in assessing the students' reasoning competency levels in each of the four tasks.

Students' reasoning competency levels in evaluating the credibility of digital media content

Table 3 displays the frequency and percentage of reasoning competency levels (Beginning, Emerging, Mastery) assigned to students in their evaluation of the digital media content for each of the four tasks.

For Task 1 (Author-checking), more than half of the students (65.8%) are at the "beginning" competency level. This result means that a significant majority surveyed did not consider the blue checkmark as the sign that Post 1 is the authentic Facebook page of the Philippine Vice President Leni Robredo and, therefore, more reliable. Instead, the students attributed either of the posts' authenticity to its being more detailed, confirmation of what they know, consistency of the message with the accompanying photo, and the significant number of followers and 'likes' for the page.

Table 2. *Rubrics used to assess students' reasoning competency levels (SHEG, 2020a; 2020b; 2020c)*

Competency Levels	Task 1: Author-checking	Task 2: Fact-checking	Task 3: Bias-checking	Task 4: Image-checking
BEGINNING (1 point)	Student selects the second post as more trustworthy or provides an irrelevant explanation for selecting the first post.	Student argues that [Sen. Pimentel] made a stronger argument or argues that [Sen. Lacson] made a stronger argument but provides an incoherent or incorrect explanation.	Student argues that the article is untrustworthy for reasons unrelated to the sponsor or provides an unclear or irrelevant answer.	Student argues that the post provides strong evidence or uses incorrect or incoherent reasoning.
EMERGING (2 points)	Student identifies the blue check mark but does not explain its significance; or identifies the first post as the actual Facebook account but does not provide an explanation.	Student argues that [Sen. Lacson] made a stronger argument but provides a vague or incomplete explanation	Student identifies the sponsorship of the article as a factor that may make it less trustworthy. At the same time, the student does not provide a complete explanation, or the student makes statements that are incorrect or irrelevant.	Student argues that the post does not provide strong evidence, but the explanation does not consider the source of the post or the source of the photograph, *or* the explanation is incomplete.
MASTERY (3 points)	Student identifies the blue check mark and explains that the first post is a more trustworthy source because it is from the verified Facebook page.	Student argues that [Sen. Lacson] made a stronger argument based on evidence from the argument or that [Sen. Pimentel] did not provide relevant evidence.	Student identifies the sponsorship of the article as a factor that may make it less trustworthy.	Student argues the post does not provide strong evidence and questions the source of the post and/or the source of the photograph.

For Task 2 (Fact-checking), nearly half of the participants (44.6%) are also at the "beginning" level. This finding shows that most students cannot determine that factual information, represented by Sen. Lacson's comments, provides more convincing evidence for the credibility of online news than the opinion expressed by Sen. Pimentel III's statement. Instead, they judged the argument as more sound if it agreed with their own views.

For Task 3 (Bias-checking), an overwhelming 98.3% of the respondents are at the "beginning" level. This means that almost all students did not consider the label "sponsored content" in the second article as a sign of bias, making it potentially unreliable. Only one postgraduate student was aware of the label's significance and used it as a cue to doubt the second article's trustworthiness. The rest relied on other clues, such as the expert's reputation, the content's details, and the writing style. For example, the article labeled 'sponsored content' was deemed more credible because of its carefully crafted headline.

Table 3. *Students' reasoning competency levels for Tasks 1-4 (N = 424)*

Assessment Tasks	Competency Levels					
	Beginning		*Emerging*		*Mastery*	
	f	Percent	f	Percent	f	Percent
Task 1 (Author- checking)	279	65.8%	71	16.7%	74	17.5%
Task 2 (Fact- checking)	189	44.6%	126	29.7%	109	25.7%
Task 3 (Bias- checking)	417	98.3%	6	1.4%	1	0.2%
Task 4 (Image- checking)	123	29.0%	208	49.1%	93	21.9%

For Task 4 (Image-checking), students fared better, with most students registering an "Emerging" competency level (49.1%). This result indicates that more students provided sound arguments for why the photo accompanying the headline in a news report could not be trusted. The majority of the students cited the seeming inconsistency between the headline and the image.

Differences in students' reasoning competency levels by demographic profile

This study used one-way ANOVA to determine any statistically significant differences in the reasoning competency levels among groups by demographic profile. An independent sample t-test, on the other hand, was used to compare significant statistical differences between the competency levels of male and female groups per task (Lærd Statistics, 2018). If the ANOVA displayed statistical differences between groups, the Welch F Test and Games-Howell post hoc test for multiple comparisons were run when the homogeneity of group variances assumption was violated (SPSS Tutorials, 2022). The level of significance (p) and the confidence interval (*C. I.*) were set at <.05 and 95%, respectively.

Significant statistical differences among groups observed for author-checking. Significant demographic differences were observed in verifying the authenticity of a Facebook post by age group, [F (2, 421) = 4.963, p = .007], Internet use [F (2, 421) = 8.295, p = .000] and province [F (5, 418) = 6.488 p = .000].

The results indicate that the average competency level for author-checking was significantly higher for students aged 16-25 (M = 1.57, SD = .801) than those aged 26-35 (M = 1.31, SD = .612) (p = .021, 95% *C. I.* = [0.03, 0.49]). Similarly, those aged 16-25 had higher average competency levels for author-checking compared with those aged 36 years and older (M = 1.12, SD = .332) (p = .000, 95% *C. I.* = [.22, .67]).

When it comes to Internet usage, the results show that the average competency level for author-checking was significantly higher for students who were spending eight hours or more each day browsing the Internet (M = 1.77, SD = .823) than those spending between 4 and 7 hours only (M = 1.50, SD = .783) (p = .026, 95% *C. I.* = [.03, .51]). A significantly higher average competency level in author-checking was also observed in students who reported spending eight hours or more online than those who only spent three hours or less (M = 1.38, SD = .698), (p = .000, 95% *C. I.* = [.16, .63]).

The post hoc tests also show that the mean competency level for author-checking is consistently significantly lower for respondents residing in Masbate (M = 1.00, SD =.791) compared with those residing in the other Bicol provinces: Camarines Norte (M = 1.65, SD = .798), (p = .001, 95% *C. I.* = [.21, 1.08]), Camarines Sur (M = 1.63, SD = .773), (p = .000, 95% *C. I.* = [.38, .88]), Sorsogon (1.61, .817), (p = .000, 95% *C. I.* = [.36, .86]), Catanduanes (M = 1.58, SD = .875), (p = .000, 95% *C. I.* = [.24, .91]), and Albay (M = 1.56, SD = .791), (p = .000, 95% *C. I.* = [.33, .79]).

Significant Statistical Differences Among Groups Observed for Fact- Checking. A statistically significant difference was also found in the average competency level for fact-checking by educational level [F (2, 421) = 6.661, p = .001] and province [F (5, 418) = 4.905, p = .000].

The post hoc test reveals that between undergraduate (M = 1.64, SD = .770) and postgraduate students (M =2.00, SD =.853), the latter showed higher mean competency levels for fact-checking (p = .001, 95% *C. I.* [-.60, -.12]). The same post hoc test also indicates that respondents residing in Masbate (M = 1.45, SD = .730) registered lower average competency levels for fact-checking as compared with those living in Camarines Sur (M = 2.08, SD = .867) (p =.000, 95% *C. I.* [.25, 1.02]) and Albay (M = 1.89, SD = .757) (p = .005, 95% *C. I.* [.09, .80]). A significant difference in the competency for fact-checking was similarly noted between respondents located in Camarines Sur and Sorsogon (M = 1.70, SD = .800) (p = .034, 95% *C. I.* [.02, .75]), with respondents residing in the former exhibiting a higher mean competency level.

DISCUSSION

Implications of students' reasoning competencies in evaluating the credibility of digital media content

The findings of this study have several implications for literacy/media teachers and curriculum developers, especially in the Philippines.

Task 1 results, which show older students' low competency to pinpoint the blue checkmark on a Facebook page as a sign of its authenticity, indicate the need to teach context-specific heuristics to identify disinformation posted on a particular social media platform (Johnson & Ewbank, 2018). Knowing the jargon, symbols, and icons used in particular media outlets will help students detect falsehood and bias in texts outright. For example, Facebook (2020), Twitter

(2020), and Instagram (2020) all use the blue checkmark icon beside the profile name to signal that a social media account is authentic, while Reddit does not because the latter values anonymity over authenticity (Asimov, 2016).

The results for Task 2 also suggest that most students do not know what makes an argument strong. For example, giving more value to facts rather than opinions, personal experiences, or beliefs to support arguments is a mark of critical thinking (Halpern, 1998). It appears then that teaching critical thinking skills, which is a part of systematic information processing, may need to be enhanced if Filipino educators want to develop a more discerning populace when evaluating the credibility of online information (Gordon, 2018).

The most interesting finding of this study is that a great majority did not consider the label "branded content" or "sponsored content" in a news article as a sign of bias, making it potentially unreliable. As the Internet is increasingly being used as a news and commercial platform, many news websites combine journalistic information and strategic communication to engage readers in the content to subtly influence them to buy products or services (Wang & Li, 2017). This strategy is called "native advertising," in which sponsors pay content creators to associate the function of the sponsor's brand or mission with the storyline of the article (Fulgoni et al., 2017). This intent is disclosed to its readers by news websites by labeling the articles with terms such as "sponsored content," "sponsored links," or "branded content."

Based on the result for Task 3, it appears that the Filipino students in this study either did not notice the words 'Branded Content' and 'Sponsor (sic) Content' in the article because they were printed in much smaller font sizes or they did not realize the implications of such labels. It is also possible that the screenshot taken of this online article when it was printed in the survey questionnaire may have further reduced their ability to decode the significance of this phrase. Wojdynski (2016) found in an experiment that readers are likely to recognize an article as advertising if the disclosures are prominently displayed and if they are familiar with the nature of native advertisements. However, it should be noted that it is part of the nature of native advertising to make the article non-interruptive, non-obtrusive, and seamlessly align with the news narrative to downplay the process and the actual intent of marketing a sponsoring brand (Fulgoni et al., 2017). For instance, in the article used for Task 3 (Inquirer.Net, 2020), this downplaying of the commercial purpose of the news is evident by making the font size of the words "Sponsor (sic) Content" much smaller than the rest of the article and muting its font color to grayscale.

The result for Task 3 suggests that information/media literacy teachers may have to integrate the decoding of bias in the implicit messages of media texts into their syllabi and uncover how text creators use language, images, and design to influence readers' points of view and actions. If students know the persuasive techniques and the genre features of native advertising, they will be equipped to spot these tell-tale signs in news articles. In that case, they may be more critical of the messages and arguments contained in the text rather than take them at face value, just as what appeared to have happened with the participants in this study. Strengthening the teaching of information and media literacy to primary and higher education students may help them determine when news is straight or a subtle advertisement.

The finding that students in this study fared better in detecting the implausibility of the image that accompanied the headline for Task 4 corroborates the result of Shen et al.'s (2019) study that people are less gullible when evaluating the trustworthiness of images. To reach a mastery level of image-checking, however, more educational efforts should be invested in not only identifying misleading still images but should extend to evaluating deep fakes or doctored videos. Much information is spread these days that make people appear as though they said or did things they never did through artificial intelligence (Joseph, 2019). If students know the giveaway signs that images have been altered or used out of context, they would be warier of the credibility of the news they read or watch.

Overall, the result that a majority of the students are at a beginning competency level for three out of the four tasks (author-, fact- and bias-checking) is consistent with similar studies from other countries that conclude that generally, people are poor detectors of false or misleading information (Clary & Tyrell, 2018; McGrew et al., 2017; Nygren & Guath, 2019). This overall result indicates a need to teach appropriate heuristic and systematic information-processing strategies across educational levels, including lifelong learning programs beyond university.

Implications of the demographic differences in reasoning competency levels

First, the results show that students in the youngest age group (16-25) consistently exhibited higher average

competency levels than their older counterparts (26-35; 36 years and older) when it comes to the ability to recognize the blue checkmark on a Facebook page as a sign of its authenticity. This makes sense because younger people are assumed to be 'digital natives' (Prensky, 2001). Since youth tend to obtain more information about current events from social networking sites than from news repositories (Marchi, 2012; Nee, 2019), then their early and constant exposure to the world of social media, as compared to the older generations, puts them at an advantage when it comes to knowing the features of the social media sites that they use.

The results also reveal that students who spend more hours online also displayed higher competency levels for the ability to verify the authenticity of a Facebook page author. This result is plausible because students who do not frequently access the Internet would also be expected not to know the icons associated with verification badges on social media sites. This data confirms Shen et al.'s (2019) finding that the amount of time spent navigating social media predicts the ability to evaluate the credibility of information posted online.

This result thus suggests that lifelong learning programs offered for older individuals should include teaching heuristics to evaluate the credibility of online sources. While systematic information processing strategies are considered superior to heuristic strategies in verifying information (Chaiken & Ledgerwood, 2012; Chiu & Oh, 2020), heuristics can help readers filter the signs that a piece of news might be falsified. In navigating through social media sites, for example, individuals may benefit from knowing the significance and use of blue checkmarks, hashtags, profile pictures, 'follow' buttons, 'friend' requests, links, and bots. As Burkhardt (2017) puts it, "most people have no clue how the technology that envelops them works or what physical principles underlie its operation" (p. 22). Teaching individuals across ages the features and principles of media technologies can prevent people from being easy targets of purveyors of disinformation.

However, it is interesting to note that students from the Masbate province consistently displayed a lower mean competency level in verifying the authenticity of a Facebook post compared to their peers residing in the other provinces. It is possible that students from Masbate may have reported low Internet usage not by choice but because of a deficient digital infrastructure in their locality. During the height of the COVID-19 pandemic, when schools in the Philippines had to hold classes entirely online, it was reported that some students residing in the province of Masbate had to climb hilltops for Internet signals to access digital learning resources and attend online classes (Magsambol, 2020). Generally, in the Bicol region, Internet users from rural areas reported connecting to 4G networks only half the time, the lowest percentage compared with other parts of the country (Nedescu, 2019). It should also be noted that the Philippines lags behind in Internet speed compared to other countries. At the time of the study, Ookla's Speedtest Global Index reported that the Philippines ranked 110th out of 139 and 103rd out of 179 countries in mobile data and fixed broadband speed, respectively (Hallare, 2020).

Studies have reported that access to digital infrastructure positively correlates with quality education (ITU & UNESCO, 2015; Murrock et al., 2018; Shen et al., 2019). As such, local governments in the Philippines must rectify this problem and follow the successful implementation of other countries (e.g., South Korea, China, Taiwan) in expanding broadband connectivity in remote areas to facilitate the undisrupted delivery of quality education to students, including the opportunity to practice their media and information literacy skills (Zaballos et al., 2019).

The results further indicated that significantly more postgraduate students fared better in distinguishing fact from opinion in arguments. This finding is aligned with the studies by Murrock et al. (2018) and Pennycook and Rand (2020), which found a relationship between higher educational attainment and objective news analysis skills.

This finding implies that teaching systematic information processing strategies, such as distinguishing facts from opinions, should be emphasized in basic education and beyond. Indeed, assessing the claims and supporting details presented in arguments may be challenging and time-consuming, but learning to be vigilant with information is a life skill that should not end with primary or secondary schooling (Britt et al., 2019). Continuing educational programs on evaluating the credibility of information must be made available to young and old, whether in in-school or out-of-school contexts. Perhaps the Media and Information Literacy curriculum of the Philippine Department of Education must focus more on teaching heuristic and systematic information processing strategies to students to make them more critical of the information they consume. As it is, the development of critical media literacy through the actual critique of digital media content appears to be glossed over in favor of knowledge about media and

information literacy concepts (Department of Education, Philippines, 2013).

It is also quite interesting to note that students residing in Camarines Sur and Albay registered higher average competency levels for the ability to fact-check. Among the provinces in the Bicol region, Camarines Sur and Albay are considered the two centers of commerce and education. It can be surmised that students residing in these areas have better access to technology, Internet services, and educational opportunities that allow them to exercise their critical abilities. This result resonates with the findings of Murrock et al. (2018) that individuals who live in city centers tend to display a greater ability to detect disinformation in a news analysis test, perhaps because of their exposure to learning resources that they could freely access through technology and digital facilities.

CONCLUSIONS

This study provides data on how Filipino students evaluate the credibility of digital media content. This baseline data can then be used by media, communication, literacy, and lifelong learning curriculum developers and teachers to create materials and lessons that will enhance students' skills in judging the credibility of information they are bombarded with every day as they log on to the Internet.

First, this study found that some heuristics are more critical to be used than others to address a particular digital content credibility evaluation task, such as identifying the significance of the blue verification badge on a social media page or the label "branded content" on a news article. Students must be taught when to use a particular heuristic for what purpose and on which online platform.

Moreover, heuristic and systematic information processing strategies must be taught in the primary education curriculum and to people across age groups within or outside educational institutions. As disinformation prevails on the Internet, the public needs to be more vigilant in scrutinizing cues or evidence in the texts they read or view. Enhancing people's critical media, information, news, and digital literacy skills will entail the concerted efforts of government, non-governmental and educational institutions.

Lastly, the presence of robust digital infrastructure in a locality is seemingly associated with students' ability to evaluate the trustworthiness of digital media content. This implies that the digital infrastructure in a locality tends to influence students' information/media literacy

development in these areas. This finding signifies that if the Philippines wants to develop more discerning students of online information, the education and the local government sectors have equal roles in building a robust digital infrastructure in the country.

However, the results of this study should be interpreted with some caution. For example, the study surveyed students in the Bicol region, Philippines, using non-random sampling procedures. A broader investigation involving respondents from other regions in the country using random sampling techniques will determine the extent of Filipino students' skills in evaluating the credibility of digital media content. Future research on this same topic could also explore think-aloud procedures or observations as students read online information and verify their accuracy rather than use a questionnaire as an instrument. Overall, this study's results indicate a need to teach students across educational levels the most appropriate knowledge practices and dispositions to understand how information is produced, searched, valued, questioned, and evaluated in this digital age (Association of College & Research Libraries, 2016). In doing so, students would be better equipped to challenge any form of disinformation they find online and minimize, if not altogether, prevent its spread.

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REFERENCES

Association of College and Research Libraries (ACRL) (2016). Framework for information literacy for higher education. https://www.ala.org/acrl/standards/ilframework

Asimov, A. (2016). *Is there a way to get my account "Verified" like Twitter?* https://www.reddit.com/r/help/comments/4vu3ea/is_there_a_way_to_get_m y_account_verified_like/

Britt, M. A., Rouet, J-F., Blaum, D., & Millis, K. (2019). A reasoned approach to dealing with fake news. *Policy Insights from the Behavioral and Brain Sciences, 6*(1), 94-101.

https://www.niu.edu/clas/psychology/_pdf/PIBBS_F18_Britt_et_al_RFX_.p df

Burkhardt, J. M. (2017). Can we save ourselves? Combating fake news in the digital age. *Library Technology Reports, 53*(8), 22-28. https://www.journals.ala.org/index.php/ltr/article/view/6500/8639

Chaiken, S., & Ledgerwood, A. (2012*)*. A theory of heuristic and systematic information processing*.* In P. A. M. Van Lange, A. W. Kruglanski, & E. T. Higgins (Eds.), *Handbook of theories of social psychology* (p. 246–266). Sage Publications Ltd. https://doi.org/10.4135/9781446249215.n13

Chiu, M. M., & Oh, Y. W. (2020). How fake news differs from personal lies. *American Behavioral Scientist*, 1-16. https://doi.org/10.1177/0002764220910243

Clary, D., & Tyrell, M. B. (2018). Harnessing research-based practices to critique 'truth.' *Literacy Learning: The Middle Years, 26*(3), 26-36.

De Leon, J. J. T., Enriquez, K. C. L., & Tiglao, J. A. C. (2019). Rise of the troll: Exploring the constitutional challenges to social media and fake news regulation in the Philippines. *Ateneo Law Journal, 150*, 150-243.

de Vet, H. C., Terwee, C. B., Knol, D. L., & Bouter, L. M. (2006). When to use agreement versus reliability measures. *Journal of Clinical Epidemiology, 59*(10), 1033-1039. https://doi.org/10.1016/j.jclinepi.2005.10.015

Department of Education, Philippines (2013). *K to 12 senior high school core curriculum – Media and information literacy*. https://www.deped.gov.ph/wp-content/uploads/2019/01/SHS-Core_Media-and-Information-Literacy-CG.pdf

Elemia, C. (2016). *Media literacy in schools needed vs. social media abuse*. https://www.rappler.com/nation/149564-media-literacy-social-media-abuse/

eMarketer (2013, July 22). *How native ad campaigns are shaping up: Definitions of native advertising still vary*. http://www.emarketer.com/Article/How-Native-Ad-Campaigns-Shaping-Up/1010064

Etter, L. (2017, December 17). What happens when the government uses Facebook as a weapon. *Bloomberg Business Week*. https://www.bloomberg.com/news/features/2017-12-07/how-rodrigo- duterte-turned-facebook-into-a-weapon-with-a-little-help-from-facebook

Facebook (2020). *How do I request a verified badge on Facebook?*

https://www.facebook.com/help/1288173394636262

Fisch, A. (2018). Trump, J. K. Rowling, and confirmation bias: An experiential lesson in fake news. *Radical Teacher, 111*, 103-108.

Fulgoni, G. M., Pettit, R., & Lipsman, A. (2017). Measuring the effectiveness of branded content across television and digital platforms: How to align with traditional marketing metrics while capturing what makes branded content unique. *Journal of Advertising Research, 57*(4), 362-367. https://doi.org/10.2501/JAR-2017-046

Gordon, M. (2018). Lying in politics: Fake news, alternative facts, and the challenges for deliberative civics education. *Educational Theory, 68*(1), 49-64. https://doi.org/10.1111/edth.12288

Guinibert, M. (2022). Defining digital media as a professional practice in New Zealand. *New Zealand Journal of Social Sciences Online, 17*(2), 185-205. https://doi.org/10.1080/1177083X.2021.1960571

Hallare, K. (2020, December 7). *PH internet speed for mobile, fixed broadband slightly improves, says Global Index*. https://technology.inquirer.net/106825/ph-internet-speed-for-mobile-fixed-broadband-slightly-improves-says-global-index#ixzz6kdh0tjgR

Halpern, D. (1998). Teaching critical thinking for transfer across domains: Disposition, skills, structure training, and metacognitive monitoring. *American Psychologist, 53*(4), 449-455.

Inquirer.Net (2020, January 24). *A greener, cleaner tomorrow*. https://business.inquirer.net/287383/how-to-guide-natural-gas-to-help- energy-crisis

Instagram (2020). *Verified badges*. https://help.instagram.com/854227311295302

International Telecommunication Union (ITU) and United Nations Educational, Scientific and Cultural Organization (UNESCO). (2015). *The state of broadband 2015: Broadband as a foundation for sustainable development*. https://www.broadbandcommission.org/Documents/reports/bb-annualre-port2015.pdf

Johnson, S. T., & Ewbank, A. D. (2018). Heuristics: An approach to evaluating news obtained through social media. *Knowledge Quest, 47*(1), 9-14.

Jones-Jang, S. M., Mortensen, T., & Liu, J. (2019). Does media literacy help in identification of fake news? Information literacy helps, but other literacies don't. *American Behavioral Scientist*, 1–18. https://doi.org/10.1177/0002764219869406

Joseph, R. (2019). Fakebusters strike back: How to spot deep fakes, the manipulated videos that are the newest form of 'fake news' to hit the Internet. *Index on Censorship, 8*(1), 76-81. https://doi.org/10.1177/0306422019841326

Klein, D. O., & Wueller, J. R. (2017). Fake news: A legal perspective. *Journal of Internet Law, 20*(10), 6-13. https://doi.org/10.1371/journal.pone.0225098

Lærd Statistics (2018). One-way ANOVA in SPSS statistics. https://statistics.laerd.com/spss-tutorials/one-way-anova-using-spss-statistics.php

Leeder, C. (2019). How college students evaluate and share "fake news" stories. *Library and Information Science Research*, *41*. https://doi.org/10.1016/j.lisr.2019.100967

Lucas, D. L. (2016, November 25). *Cusi bats for more investments in liquefied natural gas*. https://business.inquirer.net/220150/cusi-bats-investments- liquefied-natural-gas-power

Magsambol, B. (2020, April 9). *During pandemic, students climb a mountain to send class requirement*. https://www.rappler.com/nation/student-climbs-mountain-send-class-requirement-coronavirus-pandemic

Marchi, R. (2012). With Facebook, blogs, and fake news: Teens reject journalistic 'objectivity.' *Journal of Communication Inquiry, 36*(3), 246-262. https://doi.org/10.1177/0196859912458700

McGrew, S., Ortega, T., Breakstone, J., & Wineburg, S. (2017). The challenge that's bigger than fake news: Civic reasoning in a social media environment. *American Educator*, (*Fall Issue*), 4-10.

Metzger, M. J., Flanagin, A. J., & Medders, R. B. (2010). Social and heuristic approaches to credibility evaluation online. *Journal of Communication, 60*, 413-439. https://doi.org/10.1111/j/1460-2466.2010.01488.x

Moravec, P. L., Minas, R. K., & Dennis, A. R. (2019). Fake news on social media: People believe what they want to believe when it makes no sense at all. *MIS Quarterly, 43*(4), 1343-1360. https://doi.org/10.25300/MISQ/2019/15505

Murrock, E., Amulya, J., Druckman, M., & Liubyva, T. (2018). Winning the war on state-sponsored propaganda: Results from an impact study of a Ukrainian news media and information literacy program. *Journal of Media Literacy Education, 10*(2), 53-85.

Nedescu, D. (2019, October 29). *In the Philippines, the urban-rural 4G availability divide varies by region*. https://www.opensignal.com/2019/10/29/in-the-philippines-the-urban-rural-4g-availability-divide-varies-by-region

Nee, R. C. (2019). Youthquakes in a post-truth era: Exploring social media news use and information verification actions among global teens and young adults. *Journalism & Mass Communication Educator, 74*(2) 171-184. https://doi.org/10.1177/1077695818825215

Nygren, T., & Guath, M. (2019). Swedish teenagers' difficulties and abilities to determine digital news credibility. *Nordicom Review, 40*(1), 23-42. http://uu.diva-portal.org/smash/get/diva2:1284623/FULLTEXT01.pdf

Ong, J. C., & Cabañes, J. V. A. (2018). *Architects of networked disinformation: Behind the scenes of troll accounts and fake news production in the Philippines*. https://newtontechfordev.com/wp-content/uploads/2018/02/ARCHITECTS-OF-NETWORKED- DISINFORMATION-FULL-REPORT.pdf

Out of the Box: Media Literacy Initiative (2021). *#MIL4Democracy handbook*. https://www.ootbmedialiteracy.org/mil4democracy/

Pennycook, G., & Rand, D. G. (2020). Who falls for fake news? The roles of bullshit receptivity, overclaiming, familiarity, and analytic thinking. *Journal of Personality, 88*, 185-200. https://doi.org/10.1111/jopy.12476

Philippine Association for Media and Information Literacy (2020). *Free resources*. http://www.pamil.ph/resources/free-resources/

Philippine Presidential Communications Development and Strategic Planning Office (2012). *The K-12 basic education program*. http://www.gov.ph/k- 12/

Prensky, M. (2001). *Digital natives, digital immigrants*. https://marcprensky.com/writing/Prensky%2020Digital%20Natives,%20Di gital%20Immigrants%20-%20Part1.pdf

Rapp, D. N., & Salovich, N. A. (2018). Can't we just disregard fake news? The consequences of exposure to inaccurate information. *Policy Insights from the Behavioral and Brain Sciences*, *5*(2), 232–239.

Ressa, M. (2019). *Propaganda war: Weaponizing the Internet*. https://www.rappler.com/nation/148007-propaganda-war-weaponizing- internet/

Rey, A. (2020, January 24). *Lacson questions ending VFA to get Dela Rosa's visa back*. https://www.rappler.com/nation/250097-lacson-questions-ending-vfa- get-dela-rosa-us-visa-back

Ronda Balita Online (2018, March 7). *Cebu parish priest impregnates two daughters of his associate pastor.* http://rondabalita.news/cebu-parish-priest-impregnates-two-daughters-of-his-associate-pastor

Shen, C., Kasra, M., Pan, W., Bassett, G. A., Malloch, Y., & O'Brien, J. F. (2019). Fake images: The effects of source, intermediary, and digital media literacy on contextual assessment of image credibility online. *New Media & Society, 21*(2), 438-463. https://doi.org/10.1177/1461444818799526

SPSS Tutorials (2022). *ANOVA: Super simple introduction.* https://www.spss-tutorials.com/anova-what-is-it/

Stanford History Education Group (SHEG) (2020a). *What's the evidence: Evaluating evidence rubric.* https://docs.google.com/document/d/1t5TnIGR-mY4ZSxBx2UOfmTZIfyyLCilSYc8OB3J0nds/edit

Stanford History Education Group (SHEG) (2020b). *What's the evidence: Argument analysis rubric.* https://docs.google.com/document/d/1V5kBfeAD-1qpLfIv_TzVCDFpGv83As7MMO2W5sQyVOg/edit

Stanford History Education Group (SHEG) (2020c). *Who's behind the information: News on Facebook rubric.* https://docs.google.com/document/d/1TVE7M3TyJJ3tvWrYU9S4MONHc16FiCPyWwbkU0_9cuQ/edit

Steinfeld, N., Samuel-Azran, T., & Lev-On, A. (2016). User comments and public opinion: Findings from an eye-tracking experiment. *Computers in Human Behavior 61*, 63-72. http://dx.doi.org/10.1016/j.chb.2016.03.004

Sun Star Philippines (2015, August 8). *Policemen arrest fellow cop during raid of a drug den.* https://www.sunstar.com.ph/article/24517/Business/Policemen-arrest-fellow-cop-during-raid-of-a-drug-den

The Filipino Times (2018, March 9). *Busted: Top fake news in the Philippines this week.* https://filipinotimes.net/top-stories/2018/03/09/true-queen-elizabeth-ii-calls-pres-duterte-brave-man/

Tully, M., Vraga, E. K., & Smithson, A-B. (2020). News media literacy, perceptions of bias, and interpretation of news. *Journalism 21*(2), 209-226. https://doi.org/10.1177/1464884918805262

Twitter (2020). *About verified accounts.* https://help.twitter.com/en/managing-your-account/about-twitter-verified-accounts#:~:text=The%20blue%20verified%20badge%20on,of%20public%20interest%20is%20authe ntic.&text=Verified%20badges%20must%20be%20applied,subject%20to%20permanent%20account%20suspension

van Zyl, A., Turpin, M., & Matthee, M. (2020). How can critical thinking be used to assess the credibility of online information? *International Federation for Information Processing*, 199-210. https://doi.org/10.1007/978-3-030- 45002-1_17

Vice President Leni Robredo (2020). https://www.facebook.com/VPLeni/

VP Leni Robredo (2020). https://www.facebook.com/VPLeniRobredoPH/

Walters, R. M. (2018). How to tell a fake: Fighting back against fake news on the front lines of social media. *Texas Review of Law & Politics, 23*(1), 111-179.

Wang, Y., & Li, Y. (2017). Understanding "native advertising" from the perspective of communication strategies. *Journal of Promotion Management, 23*(6), 913-929. https://doi.org/10.1080/10496491.2017.1323264

Wardle, C., & Derakhshan, H. (2017, September 27). *Information disorder: Toward an interdisciplinary framework for research and policymaking.* https://shorensteincenter.org/wp-content/uploads/2017/10/PREMS-162317-GBR-2018-Reportde%CC%81sinformation.pdf?x78124

Wathen, C. N., & Burkell, J. (2002). Believe it or not: Factors influencing credibility on the web. *Journal of the American Society for Information Science & Technology, 53*(2), 134-144. https://doi.org/10.1002/asi.10016

Wineburg, S., McGrew, S., Breakstone, J., & Ortega, T. (2016). Evaluating information: The cornerstone of civic online reasoning. *Stanford Digital Repository*. https://purl.stanford.edu/fv751yt5934

Wojdynski, B. W. (2016). The deceptiveness of sponsored news articles. How readers recognize and perceive native advertising. *American Behavioral Scientist, 60*(12), 1475-1491. https://doi.org/10.1177/0002764216660140

Zaballos, A. G., Iglesias, E., & Adamowicz, A. (2019) *The impact of digital infrastructure on the sustainable development goals: A study for selected Latin American and Caribbean countries.* https://publications.iadb.org/publications/english/document/The_Impact_of_Digital_Infrastructure_on_the_Sustainable_Development_Goals_A_Study_for_Selected_Latin_American_and_Caribbean_Countries_en_en.pdf