Critical Digital Literacies in Education 4.0:
Preparing Students for the Uncertainties of Post-Truth World

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Abstract: Industrial revolution 4.0 has brought forth the new drivers of change which include extreme longevity, the rise of smart machine and systems, computational world, new media ecology, super structured organization, and globally connected world. Two of the prominent changes that greatly affect literacy education are the new media ecology and the digitally connected world. This paper focuses on how literacy is redefined by the advancement of digital technologies and the challenges of facing misinformation in the post-truth era. Based on the review of research on students' ability to evaluate online information and assess the credibility of the sources, I offer recommendations for applying critical digital literacies in all levels of education.

Keywords*: online information, critical digital literacies, post-truth*

Abstrak: Revolusi industri 4.0 mendorong pencetus perubahan, yang meliputi tingkat harapan hidup yang lebih panjang, munculnya mesin dan sistem pintar, dunia berbasis data komputasi, ekologi media terbaru, organisasi berbasis struktur super, dan dunia yang terkoneksi secara global. Dua agen perubahan utama yang sangat berpengaruh pada pendidikan literasi adalah ekologi media terbaru dan dunia yang terkoneksi digital. Artikel ini berfokus bagaimana konsep literasi diredefinisikan oleh kemajuan teknologi digital dantantangan menghadapi informasi yang tidak benar dalam era *post-truth*. Berdasarkan tinjauan riset mengenai kemampuan siswa dalam mengevaluasi informasi daring, dan kemampuan siswa dalam menilai sumber informasi, penulis memberikan rekomendasi mengenai aplikasi pembelajaran digital critical literacies di semua jenjang Pendidikan.

Kata-kata Kunci: *informasi online, critical digital literacies, post-truth*

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The full force of the changes in our society has been attributed to the industrial revolution. The 4th industrial revolution has brought forth the new drivers of change which include extreme longevity, the rise of smart machine and systems, computational world, new media ecology, super-structured organization, and globally connected world. In the field of literacy, the new media ecology and the globally connected world have redefined what it means to be a literate person. What does it mean to educate when every student with a mobile phone can access and produce news that may go viral at any moment? Educators face an urgent question about how they prepare students to assess information they constantly receive from multiple platforms and sources in time where fake news and misleading information are prevalent.

The information infrastructure is powerful. On the one hand, it can do good in some ways, for example, as the catalyst for driving support on various social issues, such as fund raising for education and promoting environmental awareness (Dosemagen, 2017). On the other hand, information that is not true, can trigger violent acts, such as the case of the Pizzagate, where a man driving from North Caroline to Washington D.C. to attack a pizza place because he was influenced by the conspiracy theory suggesting the pizzeria was harboring child sexual slavery under its basement (Fisher, Cox, & Hermann, 2016). This politically-motivated fabrication of information in fact has many followers due to easy distribution of information through various social media sites. The man is an example of people falling for fake news to the extent that triggers violent action.

Considering the increase reliance on online contents as the sources of information for multiple purposes in our daily life and the negative effects of incorrect information (such as, fake news, hoaxes, and smear campaign), literacy educators and researchers play important roles in identifying students' ability to evaluate online sources and facilitate learning that encourage critical literacy development. Critical literacy involves performing the critical reading necessary to pick carefully through the large amount of information available both in print and digitally, demonstrating the cogent reasoning and use of evidence while engaging in civic interactions. If students are not prepared to critically evaluate the information that bombards their social media feeds, they can be easily deceived by false claims and misleading arguments. Critical digital literacy engages students to ask question about, "the sources of that information, the interests of its producers, and the ways in which it represents the world, and understanding of these technological developments are related to broader social, political and economic forces" (Buckingham, 2015: 25). Thus, digital literacy will continue to be a necessity for informed and engaged citizenship.

The first part of this paper reviews research on the changing nature of literacies and students' ability to evaluate online information. The second part of the paper provides example of strategies and resources in teaching digital critical literacies.

Accessing Information in Digitally Connected World

The digital revolution has brought changes to how information is disseminated and how people access news. According to Purcell et al. (2010), practices of news consumption have changed in three different ways: (1) from news consumed in fixed places and at fixed times to mobile news consumed at moments selected by the user; (2) from generalized news to customized news, tailored to the user's individual desires and needs; and (3) from news consumed passively byusers to news to which they actively contribute. Another shift in practice is how people access information. While in the 20th century people get the information through contact with media organizations via print product, broadcast channels, and the news website, the communication platform emerged in the 21st century has shifted the way people access their information. People increasingly rely on distributed form of discovery, (Kalogeropoulos, Fletcher, & Nielson, 2019) to get their news via platform products and services such as social media and search engine.

Social media sites provide news in an aggregated way through mixing news article from different sources and present them alongside other contents, such as friends' posts, advertisements, and sponsored contents, thus, enabling people to get all information at one place. The social network sites' ability to provide these services has contributed to the increasingly central role of social media sites as the source of news (Gottfried and Shearer, 2016; Nelson & Taneja, 2018), the place for spreading propaganda for political influence (Timberg, 2016), and the fertile ground for generating fake news.

The United Kingdom Office of Communications (Ofcom)'s qualitative study (2016) that explores people's ways of accessing news and their perceptions of their online behaviors provides in-depth analysis of how 22 individuals of diverse age group from across the United Kingdom access information in their daily life. The study highlights six main findings: (1) when it

comes to online news, what people say doesn't always corelate with what they do. Researchers observed that participants under-reported a wide range of factor driving their online news intake; (2) most online consumption is facilitated by smartphones, which drives passive consumption due to the smartphone user interfaces; (3) the newsfeed interface is becoming ubiquitous, and keeps people 'in-app'. The style of the news is indistinguishable from other types of contents (i.e. advertisements, promoted contents, or entertainment) that makes it difficult for the participants to make evaluation and judgement of the news; (4) most participants are aware of the potential problems with online news but don't act on this knowledge, or rely on superficial cues; (5) constant availability of 'new' news has driven greater changes in behavior than ever before. The bombarding news that constantly coming into their news feeds made the participants prioritized quantity over the quality of the news; and (6) Social media blurs the boundaries between news and other content, impacting people's ability to critically understand what they see.

The reliance on getting information from the distributed form of discovery (i.e. social media sites) has impacted people's ability to remember the source of the information they read. Hobbs (2010) describes this condition as "source stripping", where people seem to forget the source of the information not long after they read the news. Because people are less able to identify the source of the information, they are more prone to be exposed to fake news and other types of misinformation.

In addition to the impact of the changing ways of accessing information, readers' ability to comprehend and evaluate online information is also crucial for being effective participants of digitally connected world. The next section reviews studies on students' ability to comprehend and evaluate digital information. The research will inform how educators can facilitate literacy learning that prepare students for the industrial revolution 4.0 era.

Research on Students' Digital Literacies

The twenty-first century literacies reflect media saturated, technologically advanced, and globally connected world. The ability to comprehend online resources is paramount in the age of industrial revolution 4.0 where social interactions are largely mediated by digital communication tools and the learning process is facilitated by technologically-based instruction. Despite the changing nature of literacy to include multimodal and semiotic affordances in constructing texts and communication, classroom learning has mostly engaged students with print-based texts.

Unfortunately, print-based reading comprehension ability is not necessarily isomorphic with online reading comprehension. Research implicates the complexity of online reading that "appear to have no counterpart in traditional reading" (Afflerbach & Cho, 2010:217).Previously, Coiro and Dobler's research (2007) shows that online research and comprehension involve the use of offline reading comprehension with additional skills beyond those offline reading skills that are more complex. Correlational studies between traditionally print-based reading comprehension achievement and online reading comprehension indicate that there was small correlation between these two variables (Leu, Castek, & Hartman, 2006; Coiro, 2011). Similarly, case studies have shown that students with low reading scores can sometimes perform better on online research and comprehension tasks (Leu at al. 2013& 2014).

Reading online multimodal texts requires readers to decode and navigate design elements and visual images in addition to understanding the written language (Serafini, 2012).Earlier research has found that students struggled with many aspects of online reading, which include searching for and evaluating information (Bartlett & Miller, 2011; Bennett, 2012; Gasser, Cortesi, Malik, & Lee, 2012). These researchers argued that many students did not know how to discriminate the reliable, trustworthy information from the bad ones. One of the factors is their inability to recognize bias and propaganda.

Labeled as the digital natives, students nowadays are confident users of the Internet. All aspects of their life, both the academic and the personal, are intertwined with technological tools. While they are able to seamlessly use all their social media to participate in various networks, they are not necessarily savvy in evaluating information that flows through social media channels. Responding to the fact that young people's reliance on the Internet as the source of information in their daily lives, Stanford University History and Civic Group conducted a study that assessed how youth from middle school to college level evaluated the online information. The researchers in this group found that, "students are not prepared to navigate the maelstrom of information online" (McGrew, Breakstone, Ortega, Smith, & Wineburg, 2018: 185). Students struggled to distinguish reliable sources from the unverified ones and were easily duped by the online information commonly available in the social network sites.

In similar vein, Forzani's research (2018) that involved 1434 seventh grade students from two

U.S states shows that students struggle to evaluate the credibility of the information during online reading in science. She found that "students were not especially skilled at the related areas of locating, synthesizing, evaluating, or communicating but were particularly unskilled at evaluating" (P. 386). Qualitative research on students' evaluation of information on the internet has also shed light on the students' process of searching credible information online. Using discourse analysis, Harrison (2018) analyzes instances of students' conversations during the process of their learning using the Internet. The analysis shows that students demonstrate a high degree of engagement and collaborative learning. However, there is no sufficient evidence that shows students' development of depth of analytical thought during the interaction.

As a response to the current state of students' low online evaluation skill, researchers stress the importance of digital media for civic participation in the society as well as keeping up-to-date with the new development of science and technologies. Effective civic participation of informed citizens is characterized by the awareness of the competing discourse in the online sources and the ability to distinguish between truthful information and misinformation.

Teaching Critical Digital Literacy in the Post-Truth World

As the above-mention research suggests, students are not sufficiently equipped to evaluate the online sources. They are vulnerable to being deceived by the information constantly flowing through their social media platforms. In the wake of U.S election, Brexit, and elections in European countries, people are beginning to realize the danger of fake news and other misinformation for the civil society. Oxford Dictionary has chosen "post-truth" as 2016 world of the yeart o capture the phenomenon of the increased challenge in evaluating information in this digital era. The dictionary defines post truth as, "relating to or denoting circumstances in which objective facts are less influential in shaping public opinion than appeals to emotion and personal belief."

Post-truth world is characterized by the intense spreading of various types of misinformation, such as fake news. Allcott and Gentzkow (2017, p. 213) defines faken ews as, "news articles that are intentionally and verifiably false, and could mislead readers." Tying the term specifically on the online environment, Rochlin (2017) defines fake news as

> "a knowingly false headline and story is written and published on a website that is designed to look like a real news site and is spread via social media. The intent of this sort of fake news is to have as many people like and share the fake story as possible, because the more clicks a link receives, the more money in advertising it will generate" (p. 388).

In the US context, fake news is not only used to define false stories spreading on social media, but it is also often used by politicians to discredit some news organizations' critical reporting. President Trump, for example, often called the news media as spreading fake news when they reported the news that disfavor the president and his family. Thus, muddying discourse around fake news. In Indonesia, people begin to widely use the word 'hoax' in similar way.

The phenomena of fake news, hoaxes, alternative facts, and other similar types of misinformation have contributed to the raising of awareness regarding education for the unpredictable world. Levitin (2017) argues that the best defense against sly prevaricators in the age of digital information is the ability to think critically. As social species, we have the tendency to believe what other people tell us. Levitin provides strategies to spot problems with the information we encounter in our daily life. He argues that critical thinking, "distinguish between claims with evidence and those without the evidence." (p. 17).

The rise of conflicts and social unrests is connected with the easily accessible information in the digital format. To face the challenges of post-truth world, researchers suggests educators to implement pedagogical strategies that challenge learners to carefully analyze and reflect on all form of information in their capacity as consumer as well as producer of information. The practices associated with this process are in line with digital critical literacy.

Due to the changing nature of technological tools, spaces, and texts, it is challenging to have a fixed definition of critical literacy in the digital age. Some researchers define literacy as the proficiency to use digital tools for various purposes, including social interactions in multiple contexts. Jones and Hafner (2012), for example, define literacy as, "the ability to adapt the affordances and constraints of these tools to particular circumstances (p. 13). Whereas, Marsh's definition of critical literacy (2016) is influenced by the concept of literacy as social practice. Marsh (2016, p. 202-209) categorizes digital literacy into three components, which include the operational dimension (i.e. the range of skills that students use when they engaged with digital technologies), the cultural dimen-

sion (i.e. the way in which producers and readers of texts draw on their social cultural context in the design/production and reading/viewing process), and the critical dimension (i.e. the process of thinking critically of how texts have been shaped by power relations).Digital critical literacies are closely related to media literacy. Garcia, Seglem, & Share (2013) argue that critical media literacy is a form of "progressive educational response that expands the notion of literacy to include different forms of mass communication, popular culture, and new technologies and also deepens literacy education to critically analyze relationships between media and audiences, information, and power" (P. 111).

Furthermore, Seargeant & Tagg (2018) posit that "the way people use the technology is as important as how it is designed, and that their use depends on their understanding of the affordances and implications for online communication" (p. 185). Considering the entangled relationship between the users and the technological affordances, the authors argue for critical digital literacy education which focuses on how technology works socially and the implications on the way the society functions in the new ecology of online interactions. Students need to learn internet safety as well as how to navigate online information.

Comber and Grant (2018) shows that the study around analyzing fake news can be integrated in the curriculum. By curating a range of texts that showed diversity and contradictions and modeling the good journalistic practice, the researchers engaged students in critical reading and analysis of contemporary texts students found in their everyday life. When inviting students to read and discuss a wide range of contemporary texts, teachers teach students how to distinguish facts from opinions, the accuracy of facts and the soundness of opinions, the evidence for claims and the quality of reasoning in arguments and emphasizes that, "facts are assertions of empirical truth, which may be corrector incorrect" (Janks, 2018:96).

Researchers, librarians, and educators have worked on strategies and framework for teaching critical digital literacy to equip students for the present digital landscape. The following list provides resources for analyzing credibility of information and best practices for teaching critical literacy at various levels.

LibGuides and Information Literacy

LibGuides are web-based application and content management system used to create and organize electronic guides. An example of a LibGuide that can help students to develop critical

analysis of online information sources is provided by an Indiana University library through the following site: http://iue.libguides.com/fakenews/claim. The LibGuide provides a section on how to identify and avoid fake news by showing an example of evaluating a website with specific pointers to check for the credibility of the sources. The website displays an example of the dubious article from the internet that looks legitimate on the surface. The LibGuide then model what readers need to look for in order to evaluate the sources, for example, checking the author's background through LinkedIn, checking the claims in the article by comparing it to the scientific articles, and other features. Another example is the Online Satirical News LibGuide by Ed Koltonski (2017). This is a tool that teaches students to identify fake news presented as satire. Even though most of the LibGuides are part of the university libraries' effort to help university students in assessing online information, the platform is a good source for everyone interested in improving their digital literacy skills. Teachers can use them for teaching secondary school students.

Stanford Assessment of Civic Online Reasoning

The online information assessment on how students from middle school to college level evaluate online information was designed by scholars from Stanford History Education Group. The assessment, which include both the paper and the electronic versions, measures various areas of online resources, such as home page analysis, news on Face book analysis, news on Twitter analysis, evaluating evidence, news search analysis, claims on YouTube analysis, and many other types of information from the social media sites. While intended to be tools for assessing students' ability to evaluate online sources, the assessment can be used as material for critical literacy teaching. Teachers can use these assessments to model critical literacy process in evaluating the texts. The assessments can also be used as the model to create similar tasks involving different online information. Teachers can also adept this assessment as the reference to create assessment and teaching materials to teach critical literacy in different languages through the use of online information texts written in languages other than English. The example of assessment and rubrics can be found in https://sheg.stanford.edu/civic-online-reasoning.

Websites for Checking Sources of Information

Brand news organizations, such as The Washington Posts, the New York Times, and CNN, have included the fact-check sources to

check claims particularly made by politicians. The fact-check websites provide independent and reliable information related to claims and online information. Students who develop critical thinking skills and information literacy proficiency are expected to consult these sources to help validate or refute the information they encounter. The following are examples of fact-check websites:

1. How to spot fake news. A step-by-step guide by FactCheck.Org for determining the quality of an information resource. http://www.factcheck.org/2016/11/how-to-spot-fakenews/

2. Framework for Information Literacy for Higher Education. Based on the idea of information literacy as an education reform movement, this framework guides the teaching and use of information literacy to find, understand, and use quality, reputable information. http://www.ala.org/acrl/standards/ilframework

3. News: Fake news: A library resource-round-up. Offers links to quality webinars, library guides, and resources, news, and further reading http://www.programminglibrarian.org/articles/fake-news-library-round

Framework of Best Practices for Teaching Critical Literacy

Academic organizations as well as literacy researchers and educators are in a unique position of being responsible to find ways to help students of all ages to develop information literacy and critical thinking skills. They have proposed frameworks for best practices in teaching critical literacy. In 2017, Association of College and Research Libraries (ACRL) has issued "Framework for information literacy for higher education" in their Word Press site http://acrl.ala.org.proxyiub.uits.iu.edu/framework/, which combines news, features, professional development, discussion board, and Twitter feed. This association also provides a literacy toolkit in the form of LibGuide. Teachers can use this comprehensive source to teach information literacy. ACRL also provides helpful definition of information literacy, which they characterizes as "the set of integrated abilities encompassing the reflective discovery of information, the understanding of how information is produced and valued, and the use of information in creating new knowledge and participating ethically in communities of learning" (ACRL *Framework for Information Literacy for Higher Education,* 2016:3). This framework is realized into six frames which consist of the following statements:

- Authority is constructed and contextual
- Information creation as a process
- Information has value
- Research as Inquiry
- Scholarship as Conversation
- Searching as Strategic Exploration

ACRL has actively encouraged educators to use their platform and repository to get resources for teaching critical literacy.

Other frameworks are conveniently available in the guidelines and worksheet formats. One of the examples is the framework developed by The Global Digital Citizen Foundation (2015). The framework approaches critical thinking through the basic questions 'who, what, where, when, why, and how'. The foundation provides the worksheet to engage students by using its prompts and questions to generate group discussions or individual consideration of information.

The resources discussed in this section bridge the theories of critical literacy and the practical application. The strategies, worksheets, and other tools are the means to implement the concept in the learning process. Educators are encouraged to constantly update themselves with resources to help students develop digital critical literacy skills. It is also necessary to keep abreast of the current development of technologies to understand how the technological advancement might affect literacy practices in the 21th century.

CONCLUSION

As the possibilities for accessing information and learning engagement expand with recent development of digital communication technologies, literacy instructions at all level of education need to consider the changing landscape of knowledge production and challenges that lay ahead for critical literacy educators. The process of sharing, processing, and consuming information online is something that is learned instead of natural intuition. Sifting through a multitude of information and evaluating its validity and truthfulness should be part of the education 4.0 curriculum to prepare students for the uncertainty of the post-truth world. Students need to develop digital critical literacy that will allow them to not only evaluate the information but also to contest, deconstruct, critique in order to discover legitimate information and knowledge. Teaching students to be careful consumer of online information requires substantial amount of time. Teaching a one-off lesson on the subject of text evaluation will not guarantee that students can adept to distinguishing between credible and untrusted information. Rather, integrated critical literacy curriculum across the subject

areas will provide sustainable effort to developing students' online information evaluation skills.

REFERENCES

Afflerbach, P., & Cho, B. Y. (2010). Determining and describing reading strategies: Internet and traditional forms of reading. In H. S. Waters & W. Schneider (Eds.), *Metacognition, strategy use, and instruction* (pp. 201 – 225). New York, NY: Guilford.

Association of College and Research Libraries. (2017). Framework for information literacy for higher education. Retrieved from http://acrl.ala.org.proxyiub.uits.iu.edu/framework/

Association of College and Research Libraries. (2017). ACRL Framework for information literacy toolkit. *LibGuide.* Retrieved from http://acrl.libguides.com/framework/toolkit

Bartlett, J., & Miller, C. (2011). Truth, lies, and the Internet: A report into young people's digital fluency. London, UK: Demos. Retrieved from https://www.demos.co.uk/

Bennett, S. (2012). Digital natives. In Z. Yan (Ed.), *Encyclopedia of cyber behavior: Volume 1* (pp. 212–219). Hershey, PA: IGI Global

Coiro, J., & Dobler, E. (2007). Exploring the online reading comprehension strategies used by sixth-grade skilled readers to search for and locate information on the Internet. *Reading Research Quarterly*, *42*(2), 214 – 257. DOI: 10.1598/RRQ.42.2.2

Coiro, J. (2011). Predicting reading comprehension on the internet: Contributions of offline reading skills, online reading skills, and prior knowledge. *Journal of Literacy Research, 43*(4), 352-392. DOI: 10.1177/1086296X11421979

Dosemagen, S. (2017, January 28). Social media and saving the environment: Clicktivism or real change? *Huffpost.* Retrieved from https://www.huffpost.com/entry/social-media-and-saving-t_b_9100362

Comber, B., & Grant, H. (2018). Working critically and creatively with fake news. *Journal of Adolescent and Adult Literacy, 62*(3), 329 – 332. DOI: 10.1001/jaal.905

Fisher, M., Cox, J.W., & Hermann, P. (2016, December 6). Pizzagate: From rumor, to hashtag, to gunfire in D.C. *The Washington Post.* Retrieved from https://www.washingtonpost.com/local/pizzagate-from-rumor-to-hashtag-to-gunfire-in-dc/2016/12/06/4c7def50-bbd4-11e6-94ac-3d324840106c_story.html

Forzani, E. (2018). How can students evaluate online science information? Contributions of prior knowledge, socioeconomic status, and offline reading ability. *Reading Research Quarterly, 53*(4), 385 – 390. DOI: 10.1002/rrq.218

Garcia, A., Seglem, R., & Share, J. (2013). Transforming teaching and learning through critical media literacy pedagogy. *Learning Landscape, 6*(2), 109 – 124.

Gasser, U., Cortesi, S., Malik, M., & Lee, A. (2012). Youth and digital media: From credibility to information quality. Cambridge, MA: The Berkman Center for Internet and Society. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2005272

Global Digital Citizen Foundation. (2015). *The ultimate cheat sheet for critical thinking*. Retrieved from https://i1.wp.com/globaldigitalcitizen.org/wp-content/uploads/2016/12/ultimate-critical-thinking-worksheet.jpg?ssl=1

Gottfried, J., & Shearer, E. (2016, May 26). News use across social media platforms 2016. *Pew Research Center*. Retrieved from: http://www.journalism.org/2016/05/26/news-use-acrosssocial-media-platforms-2016/

Harrison, C. (2018). Defining and seeking to identify critical Internet literacy: A discourse analysis of fifth-graders' internet search and evaluation activity. *Literacy, 52*(3), 153 – 160

Hobbs, R. (2010) *Digital and media literacy: A plan of action*. Washington, DC: The Aspen Institute.

Indiana University East Campus Library. (2017). Fake news. *LibGuide.* Retrieved from http://iue.libguides.com/fake-news

Janks, H. (2018). Texts, identities, and ethics: Critical literacy in a post-truth world. *Journal of Adolescent and Adult Literacy, 61*(1), 95 – 99. DOI: 10.1002/jaal.761

Kalogeropoulos, A., Fletcher, R., & Nielson, R. K. (2019). News brand attribution in distributed environments: Do people know where they get their news? *New Media & Society, 21*(3), 583 – 601. DOI: 10.1177/1461444818801313.

Koltonski, E. (2017). Online satirical news. *LibGuide.* Retrieved from https://libguides.library.kent.edu/satiricalnews

Leu, D. J., Forzani, E., Burlingame, C., Kulikowich, J. M., Sedransk, N., Coiro, J., & Kennedy, C. (2013). The new literacies of online research and comprehension: Assessing and preparing students for the 21st century with Common Core State Standards. In S. B. Neuman & L. B. Gambrell (Eds.), *Quality reading instruction in the age of Common Core Standards* (pp. 219 – 236). Newark, DE: International Reading Association.

Leu, D. J., Forzani, E., Rhoads, C., Maykel, C., Kennedy, C., & Timbrell, N. (2014). The new literacies of online research and comprehension: Rethinking the reading achievement gap. *Reading Research Quarterly, 50*(1), 37-59.

Levitin, D. J. (2016). *Weaponized lies: How to think critically in the post-truth era.* New York, NY: Dutton.

Marsh, J. (2016). The digital literacy skills and competencies of children of pre-school age. *Media Education: Studies and Research, 7*(2), 197 – 214. DOI: 10.14605/MED721603

McGrew, S., Breakstone, J., Ortega, T., Smith, M., & Wineburg, S. (2018). Can students evaluate online sources? Learning from assessments of civic online reasoning. *Theory and Research in Social Education, 46*, 165 – 193. DOI: 10.1080/00933104.2017.1416320

Nelson, J. L. & Taneja, H. (2018). The small, disloyal fake news audience: the role of audience availability in fake news consumption. *New Media & Society, 20*(10), 3720–3737. DOI: 10.1177/1461444818758715.

Ofcom. (2016). *Scrolling news: The changing face of online news consumption*. Retrieved from http://ofcom.org.uk

Oxford Dictionaries. (2016, November 16). Oxford Dictionaries word of the year 2016 is…post-truth [Press release]. Retrieved from https://www.oxforddictionaries.com/press /news/2016/12/11/WOTY-16

Purcell, K., Lee, R., Mitchell, M., Rosenstiel, T., & Olmstead, K. (2010). Understanding the participatory news consumer: How internet and cell phone users have turned news into a social experience. *Pew Research Center, Pew Internet & American Life Project, and Project for Excellence in Journalism*. Retrieved from http://www.pewinternet.org/files/oldmedia //Files/Reports/2010/PIP_Understanding_the_Participatory_News_Consumer.pdf.

Rochlin, N. (2017). Fake news: Beliefs in post-truth. *Library Hi Tech, 35*(3), 386-391

Seargeant, P., & Tagg, C. (2016, December 5) The Filter Bubble isn't just Facebook's fault: It's yours. *The Conversation*. Retrieved from https://theconversation.com/the-filter-bubble-isnt-just-facebooks-fault-itsyours-69664.

Serafini, F. (2012). Reading multimodal texts in the 21st century. *Research in the Schools, 19*(1), 26-32.

Timberg, C (2016, November 24). Russian propaganda effort helped spread "fake news" during election, experts say. *The Washington Post*. Retrieved from https://www.washingtonpost.com/business/economy/russian-propaganda-effort-helped-spread-fake-news-during-electionexperts-say/2016/11/24/793903b6-8a40-4ca9-b712716af66098fe_story.html?utm_term=.eebfde8a22f8