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Guided literacy instruction: Helping students read multimodal English-medium texts

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ABSTRACT

This article reports a phenomenological study investigating the implementation of guided literacy instruction, geared to L2 students in reading multiple texts as the fabric of today's literacy practice. Guided literacy instruction in this study aimed to promote the role of a student reader as a designer, navigator, interrogator, and interpreter in reading multimodal English-medium texts. Interviews, observations, and think-aloud protocols were used to collect data. Two L2 students volunteered to take part in this multimodal text-based reading project. Findings showed that the students experienced different reading activities resulting from the absence and presence of guided literacy instruction. The students' experiences differed in the ways the students maximized the use of webpage text features, navigated texts across hyperlinks, and interpreted multiple modes of texts during a meaning making process. The empirical implication of this study is that future research is needed to investigate factors influencing the implementation of guided literacy instruction in reading multimodal English-medium texts. Pedagogically, multimodal text can be a meaningful learning resource that students can use to learn a range of knowledge and language resources beyond the classroom zone.

Keywords: Guided literacy instruction; literacy; multimodal literacy; phenomenological study; student as a multimodal reader

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INTRODUCTION

Literacy education focuses on the construction of meaning tied to social contexts. This is not only about a matter of skills acquisition, knowledge transmission or natural growth, but also about the building and negotiation of identities and cultures within a community to have full participation in the community and in the wider society (Joyce & Feez, 2016; Serafini, 2012a). Since the Internet has become the center of today's literacy and life, it has changed the way we access, use, and exchange information in our daily lives. It has also shaped the functions and forms of literacy practices (Danielsson & Selander, 2016; Leu et al., 2013; Leu, Kinzer, Coiro, Castek, & Henry, 2004; Serafini, 2012a).

With regard to the reshaping function and form of today's literacy practices, the roles of readers are reconstructed as well within the social context of web page reading in all aspects of daily lives (Coiro, 2011a, 2012; Hassett & Curwood, 2011; Serafini, 2012b). Serafini (Serafini, 2012a, 2012b) explains that the roles of readers in today's literacy practice has shifted from a code-breaker, text participant, text user, and text analyst to a navigator, interpreter, designer, and interrogator. The expanding four roles or resources as social practices are essential since these roles serve the purpose as the theoretical framework of being a literate web page reader (Groenke & Prickett, 2012; Hassett & Curwood,

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2011; Serafini, 2012b).

Previous research provides essential information on understanding the practices and experiences of students as web page readers. We cannot determine the students' successful web page reading experience on the basis of their performance in non-digital context literacy practice (Castek & Coiro, 2015; Coiro, Sekeres, Castek, & Guzniczak, 2014; Danielsson & Selander, 2016), but also on the explicit instruction during reading classroom activities (Groenke & Prickett, 2012; Hassett & Curwood, 2011) and the range of their online experiences in both inside and outside of the classroom (Castek & Coiro, 2015). Furthermore, Castek and Coiro (2015) claim that information on students' cognitive activities during reading is essential for the instructor to guide students towards more strategic cognitive activities in reading web page texts. This implies that we need to design and develop instruction to assist students in becoming more literate in reading web page, by taking students' experiences during web page-based literacy practices into account.

This present study aims to provide empirical information on the experiences of students when being assisted with guided literacy instruction in reading web page texts and to give an empirical account of the shaping of the instruction based on students' experiential accounts. In this respect, students' experiences with the presence and absence of guided literacy instruction are cross-examined in a qualitative way to know to which extent their experiences are similar or different and to which extent the designed instruction is pedagogically workable in assisting students to become more skillful and proficient web page readers. Moreover, this study also serves to endorse the significant roles of readers that this new literacy plays a role in contemporary language classrooms.

The nature of reading multimodal texts: Web page as multimodal text

It is very vital for teachers to understand the process of web page construction and writing before deciding to design instruction for students to assist them in reading a web page. A web page is arranged and constructed in such a way to ease its access for the users to get information, and it should be read in a non-sequential manner (Lotherington & Jenson, 2011; Nielsen, 1997). Its layout consists of framed sections, bold words, and underlined phrases that link the users to other pages, and its technological differences such as frames, menu buttons, or navigation bars are designed to assist the web users to search for the information and fuel their reading curiosity.

The non-sequential nature of web page, web page features, and technological differences of web pages have profoundly influenced the ways of reading. Prior research on the behaviors of online readers (Coiro, 2003; Coiro & Dobler, 2007; Nielsen, 1997; Sung, Wu, Chen, & Chang, 2015) showed that web page readers rarely read web pages word by word. They scanned the web page for important words, phrases, and sentences, and paid more attention to such web page features as highlighted words and phrases, typeface variations and colors, and subheadings. Moreover, they had more opportunities and choices to choose which information that they should read first. They even stopped reading if they did not find information they were looking for, and exploited hyperlinks provided on the web page to find another web page that met their reading needs.

A web page is rich with features. In general, a website has at least five key elements: appearance, content, functionality, usability, and search engine optimization (Trevellyan, 2017; Web Solution, 2012). One website can contain multiple pages that a reader must navigate through clicking on hyperlinks and hypertexts available on the site. As seen in Figure 1, as the examples of its rich features, a page of a website may contain a menu that refers to the section of information about a website, works with the system of navigation, places at either the top or bottom of a web page. It also has social proofs or sharing bars to enable its readers to share website information to their social networks.

Web pages are structured in a modular fashion. As a *designer*, a web page reader must be proficient in reading modularly-structured information (Danielsson & Selander, 2016; Kress, 2010; Serafini, 2012a), becoming more active in reading by designing his or her own reading pathway, and designing which mode should be navigated and interpreted first and which one is later. The reader must be able to organize what is to be navigated and interpreted by shaping available modes into meanings (Danielsson & Selander, 2016; Kress, 2005; Serafini, 2012a). A web page reader is also a *navigator*, who is able to move from a mere word-level code breaker to a multiple modes-level code breaker (Danielsson & Selander, 2016; Kress, 2005; Serafini, 2012a, 2012b), resulting a proficient navigator who is able to navigate between textual mode-based and multiple mode-based web page texts, segmented information, different manners of reading the texts, and visual information (e.g., charts, graphs, diagrams, and images).

As an *interrogator*, a skillful and proficient web page reader must be able to consider multiple perspectives when encountering each mode in the multimodal text. The reader should be aware that a system of social power and ideology also contribute toproducing multimodal texts (Kress, 2005; Serafini, 2012a, 2012b); therefore, he or she must consider the aspects of text production by looking at the historical, cultural, and social contexts of the text. Moreover, the reader must also look at the aspect of text reception by carefully asking and interrogating the meaning potential of the modes of a text to themselves, and by relating the modes to their own perspectives that are brought into the meaning-making process from multimodal texts.

In addition to becoming a *designer*, a *navigator*, and an *interrogator*, a skillful and proficient web

page reader should also become an *interpreter* when reading multimodal texts. An interpreter is an individual who is able to construct meanings and respond to the various communicative modes in the text (Kress, 2005; Serafini, 2012a, 2012b; Youngs & Serafini, 2011). An interpreter should activate his or her prior knowledge when encountering the modes, relate his or her experiences to the texts, and construct understandings from multiple perspectives. In relation to this interpretation activity, images and features of a text are never neutral (Kress, 2005; Serafini, 2012a, 2012b), but play the role as objective representations of reality interpreted by a reader. It implies that teachers cannot direct the interpretation of their students when trying to make meaning from the modes in the text they are reading. However, teachers can give an explanation about the sociocultural contexts of the text production to give understanding to the readers when they make meaning from the multimodal texts.

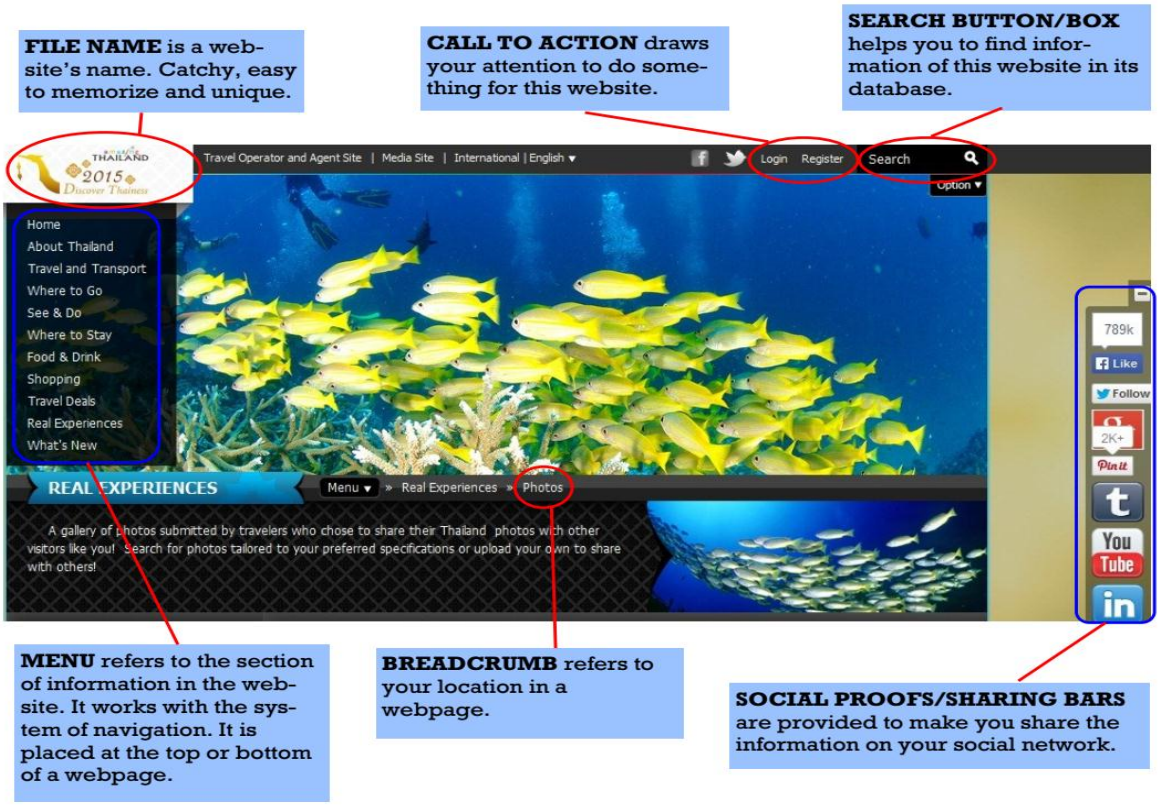

Figure 1. Some features of a webpage (Source: The author's instructional materials)

Guided literacy instruction

Guided literacy instruction in this study is defined as the active communication and interaction between teacher or instructor of reading and students, which can be well-structured or less structured in nature since the instruction is developed and re-developed following the dynamic and interactive relationship between students as readers, web pages, and the instructor. Some researchers even argue that the models of literacy instruction must be developed from the observable actions of young students, since they often own higher levels of knowledge about the strategies of reading the Internet than most adults in their academic environment (Bråten & Anmarkrud, 2011; Castek & Coiro, 2015; Leu et al., 2004). Therefore, it is evident that we can design and develop literacy instruction by taking students' experiences into account, our reflection as an instructor on the roles that we play during online reading, and the possibility of naturally occurring instructions resulting from the interaction between the instructor and the students in classroom activities.

Additionally, we must consider students' experiences when doing independent reading into shaping the designed instruction, since their experiences reflect the level of metacognitive awareness of their reading strategies, and so can be used to bring this level up into web page reading strategies (Bråten & Anmarkrud, 2011; Wilson, 2008).

At the heart of guided literacy instruction are explanation, modeling, and guided practice. Explanation is to build students' awareness of their roles of a web page reader as a designer, navigator, interrogator, and interpreter (Coiro, 2011a, 2011b, 2012, Serafini, 2012a, 2012b), and on the page features of a website that contribute to the meaning-making process, while Modeling is a strategy of an instructor or a teacher to demonstrate the procedures of reading a web page, for example, showing the ways of designing the reading pathway, navigating the images and hyperlinks, expressing feelings or opinions on the images of the web page, and relating opinions, thoughts, or feelings with personal experiences or values of social

and cultural identity which are highly required to make meaning from information on the web page. Modeling is also to demonstrate a teacher's strategic actions in a meaning-making process, such as activating prior knowledge, setting a reading purpose, skimming a text, locating details in the text, identifying the topic implied by the image in the page, asking questions, and making connections between modes on the web page (Coiro, 2011a, 2011b). Guided Practice is an instructor's direct control over students' literacy activities, involving instructor – students' active interaction that discusses students' experiences. This is also an essential part of the instruction to develop and re-develop the instruction for pedagogical purposes.

METHOD

Methodological consideration

This phenomenological study sought to understand participants' experiences, understandings, and perceptions of the phenomena of multimodal reading, especially of their roles as webpage readers when being assisted with the absence and presence of guided literacy instruction (Bowden & Green, 2005; Bowles, 2010; Padilla-Diaz, 2015; Prosser, 2000; Richards, 2003). In this study, both experiences of the author as a reading instructor and the students as participants were empirical evidences of the possibility and usability of guided literacy instruction designed to promote their roles as skillful and proficient multimodal text readers. Think-aloud protocols allowed the instructor to record her experiences when assisting the participants to read webpage in this project through well-designed and naturally occurring instruction resulting from her interaction with the participants. In doing so, the participants' accounts as transcribed from the think-aloud protocols and interview were interpreted intentionally to explore and to make sense of their worlds, in this context, that happened during reading and making meaning of webpage (Bowles, 2010; Rubin & Chisnell, 2008).

Guided literacy instruction development

Guided literacy instruction in this study was developed to assist the students in becoming literate web page readers, by promoting their roles as a designer, navigator, interrogator, and interpreter of multimodal English-medium texts. To facilitate students' reading web page activities, the guided literacy instruction was developed in four steps: *analysis, design*, *development*, and *implementation*. The author used the Serafini's four roles of readers in multimodal texts as a framework to analyze students' needs in reading web page in the *analysis* phase. Serafini (2012a, 2012b, 2011) proposes that the readers have four roles of their literacy activities in reading web page as a multimodal text: designer, navigator, interrogator, and interpreter. The roles were also informed by the author's experiences when reading web page and interacting with all modes in the page for comprehension purpose. In this phase, the author's literacy needs were also taken into account considering her multiple identities as a reading lecturer, a literacy researcher, and a global citizen who is familiar with web page-based literacy activities.

Later in the design phase, the four roles of readers were also used to design the intended guided literacy instruction. Specification of this instruction is to make students a skillful and proficient reader of web page as the most encountered multimodal text (Castek & Coiro, 2015; Coiro, 2012; Serafini, 2012a, 2012b). After implementing this set of guided literacy instruction (see Appendix 1 for the blueprint of the instruction), students' roles as a designer, navigator, interrogator, and interpreter were promoted and strengthened, allowing for being a skilled and proficient web page reader.

Development and *Implementation* were inseparable phases in this study. Researchers (Bråten & Anmarkrud, 2011; Castek & Coiro, 2015; Wilson, 2008) have emphasized the importance of examining the quality of students' strategies to inform the literacy instruction, so the author developed guided literacy instruction during web page-related reading activities, where she implemented the instruction to assist students in reading. Then, she treated the students' accounts on their experiences during the absence and presence of guided literacy instruction as information to redevelop the instruction. She then displayed similar tasks to make skill implementation process becoming more effortless and automaticin order to strengthen students' roles in making meaning of web page information and to construct skillful experiences of comprehending multimodal information as well.

Materials

This three-month web page-based reading project emphasized the design and implementation of guided literacy instruction to assist participants in their reading web page activities. Reading is considered as a means of action to get both information and for pleasure (Olson & Dishner, 2004) and is essential in every content subject, such as science and literature. One of the university curriculum requirements is to teach English based on content subjects such as Biology, Agriculture, and Law, to enrich students' English language skills and to master the content subject. To meet this requirement, the web page content selected for this project was Biology. The author selected five subtopics for the participants and allowed the students to choose one out of five sub-topics for their reading materials. The topics chosen by the participants for this reading project were biotechnology and metabolism.

In this project, the participants chose web pages such as Wikipedia, Global Farmer Network, and New York Times (links of the pages are cited in the discussion session) and the images suggested by Google. Wikipedia was the top website chosen by both participants. The primary mode of pages on this website is a textual mode, with visual (mostly in form of still images) and audio as supplementary modes. As reported on its website, www.globalfarmernetwork.org, Global Farmer Network is a website of a non-profit group of

farmers around the world, and the contents of this website are the farming tools, technologies, and strategies for farming productivity and profitability in a sustainable manner. This website is dynamic and consists of texts, images, and videos that present information to its users. The New York Times, www.nytimes.com, is an American online daily newspaper that focuses on reporting news from around the world. This website offers dynamic layout, with videos, texts, images, animations even video games to its users. Google was chosen by the participants as the search engine website due to its familiarity and simplicity. The participants also chose the images provided in the search feature of Google website for their reading materials.

Participants

Two of the English Education students, both are female, volunteered to participate in this small-scale project. The first participant, Bea (a pseudonym), twenty-two years old, considered herself as a proficient reader in using the Internet to help her complete her college assignments. In her fourth year, she frequently used the Internet for both academic and recreational purposes. During the interview, she reported that she spent three to four hours per day using the Internet. She used network provided by her cellular provider, and sometimes she went to the Internet café with her college friends. The second participant, Keke (also a pseudonym), twenty years old, was still in the first year of her bachelor degree. Keke had studied English since she was in elementary school. From the interview, it was revealed that her habitual use of the Internet was not as frequent and proficient as Bea was, as her Internet usage was limited only to the academic context, mostly to help complete her college assignment.

Procedures

The first stage. The first stage aimed to prepare the participants for their readiness for the second stage geared to collect data. This stage consisted of four meetings. In the first meeting, the author asked the participants to introduce more about themselves and their motives for volunteering. The purpose of this activity was not only to establish rapport between the author and the participants but also to examine their readiness level of joining the project. About the motives of volunteering in this small-scale project, Bea stated that "I want to see how far my comprehension strategies can go by reading web pages in this project (Interview #1, December 2014), while Keke stated that "I want to try reading web pages with instruction. I want to see how to guide others to complete their reading assignment, plus I will get a new experience from this," (Interview #1, December 2014). The purpose and the process of data collection needed for this project were explained to the participants in this meeting. The roles as participants of the project were also clarified, including their rights of asking questions during this project, choosing appropriate dates and times of conducting the interview, and responsibilities for completing assignments in the project. After sharing information about the project and their roles as participants, the author requested both participants to sign an informed consent form.

In the second meeting, the author explained about elements and features of a web page, modes in the web page, and the integration of linear and modular layout of a web page. The author then modeled the four roles of a reader by reading web page. All experiences were presented verbally during the session, and the participants were invited to ask questions regarding the author's think-aloud process. Later, the participants practiced the think-aloud activities with the author's assistance in the third meeting. No data were recorded, yet the video recorder, checklist, and notebook were shown to the participants to familiarize themselves with the instruments for data collection and to anticipate awkwardness possible happened in the second stage. In the fourth meeting, the participants and the author discussed the readiness for data collection stage.

The second stage. The verbal data were collected during the second stage of the project. The second stage consists of six meetings with effective five meetings for data collection. To ensure the validity of the data, think-aloud protocols, interview and observation were conducted as methods of data collection in this study, while the member checking procedure was also implemented at the end of the data collection sessions (Bowden & Green, 2005; Creswell, 2012; Richards, 2003). The participants' cognitive processes during reading web page with the absence of instruction were concurrently video-recorded. In this session, although with absence of guided instruction, the researcher presented herself during the activities, observing the participants' web page reading actions and prompting the participants to think aloud their cognitive process and actions, for example, "can you tell me why do you skip that part?" and "show me again how did you find this website."

Next, the author assisted the participants in reading web page with guided instruction, where she video-recorded the interaction between the participants and the author concurrently. After reading activities were done, the think-aloud protocols were conducted retrospectively to video-record the participants' information on their intents, decisions, reasoning, and thoughts on the presence of guided literacy instruction during their web page reading activities. The post-protocols interview took event a week after to investigate the participants' experiences when assisted with guided literacy instruction. At the end meeting of this second stage, the author also gave access to the participants to the documents of their reading activities.

Data analysis

To begin with, the author reviewed the recordings of concurrent think-aloud sessions to get a general understanding of the ways the participants read and completed the assignments about biotechnology and

metabolism. After that, she transcribed the data into written documents and coded under the themes of cognitive process, actions, and experiences themes. The data then were presented in comparative way to examine to what extent are the participants' experiences on webpage reading activities with presence and absence of guided literacy instruction similar or different, and to what extent is the instruction pedagogically feasible to assist students become more skillful and proficient webpage reader.

FINDINGS AND DISCUSSION

In what ways are the students' experiences with the absence and presence of guided literacy instruction similar or different?

Similarity #1: Recognizing webpage features

The first similarity highlighted in this study was the participants' experiences in recognizing the features of a webpage, which were menu or table of content, hyperlinks, visual images, and search button. The data analysis reveals no qualitatively different experiences in recognizing webpage features, more specifically the features of table of content and visual images appeared in the page, with the absence and presence of guided literacy instructions. For example, Bea explained how her prior knowledge of text features helped her recognizing webpage features even without being guided by the instruction.

> I recognized the webpage features and I knew the roles of some features. When I read, I noticed that table of content on Wikipedia gave me information on which part should I read first based on my interest and purpose. I knew that words that varied in colours, fonts and sizes, when clicked, could lead me to other page of information. I knew that the images were interesting and summarized the information on the webpage. Well.. It was similar with what I did when reading print-based reading texts.

Bea chose to read about biotechnology as her preferred reading topic. She chose to read Wikipedia, the encyclopedia website (https://en.wikipedia.org/wiki/ Biotechnology) to understand about the topic. Her narration shows that the absence of guided literacy instructions on her experience less contributed to her efforts on recognizing webpage features. From her account, she recognized table of content, visual images and hyperlinks signaled by colorful words, fonts and sizes. Bea explained that she already had prior knowledge on the text features contained in print-based reading texts, and she applied her prior knowledge on reading the webpage which was dominated with textual mode, even without the instruction to do so. She could identify hyperlinks and hypertexts, could explain the function of images, and the function of table of content. Bea's experiences support the documented research findings discussing the behavior of students to connect their prior knowledge with the new knowledge encountered in their later reading experiences (Castek & Coiro, 2015; Coiro, 2011a, 2011b; Coiro et al., 2014; Widodo, 2016, 2017). In this recent study, as due to the similar mode she encountered, Bea activated her prior knowledge on the text-based features to recognize the features of a page in a website she was reading.

Similarity #2: Implementing printed text-based comprehension strategies

As efforts to complete the reading tasks, the participants implemented comprehension strategies they already possessed. The strategies occurred naturally during the absence and presence of guided literacy instruction, as shown by Keke's narration.

> The teacher gave us tasks to do, and I remembered that I had to do a fast reading to locate the answer to save time. We were expected to do this in our reading class when reading printed material. This was easy, and I did not need the teacher to instruct me how to scan.

Keke mentioned the strategies she implemented during her web page reading process with the absence of guided literacy instruction. For her reading task, Keke was assigned to explain the process of metabolism (as her preferred topic). For this research purpose, Keke was allowed to choose which mode was convenient for her to show her comprehension outcome. Keke's activities, with the absence of guided literacy instruction, involved accessing Wikipedia (https://en.wikipedia.org/wiki/ Metabolism) to find out information about metabolism and writing the definition of metabolism on her notebook. She accessed this encyclopedia website to read the textual information on metabolism. While reading the information about metabolism, Keke scanned the web page to locate answers to the questions given to her. Another strategy that she implemented was locating the details in the text, as an effort to understand the text and to complete the task efficiently. Her prior knowledge of scanning printed text and locating details in the text seemed sufficient enough to support her completed the tasks even with the absence of guided literacy instruction. In addition to that, Bea's account gave more information on what strategies she implemented during her reading activities.

> I read the title of the web page first, and I read the first sentence of each paragraph on the page. Later, I focused on the last paragraph of the page. I know that first sentence of paragraphs and the last paragraphs often are the important parts in the text. My high school teacher and also my teacher of Reading 1 taught me that I can find the main idea in the first sentence of each paragraph, and I should also read the last paragraph to confirm the idea that I get from reading all paragraphs. I did the same when reading this page.

During reading, Bea transferred her text-based comprehension strategies to web page reading context, since she felt that the strategies could help her making meaning from the text on the page. To enable her to decide which strategies were helpful for her, she activated her prior knowledge about her past experiences during receiving the explanation on how to comprehend textual information. Her preferred strategies, which were finding the main idea and monitoring comprehension, were then due to the appearance of a textual mode on the page as the dominant mode that carries information. The participants' experiences were similar to prior research (Coiro, 2011a, 2011b; Coiro et al., 2014) which reveal that students appear to transfer their offline reading strategies to online reading context when it is implanted within inquiry activities with content-specific goals. In this study, Keke and Bea transferred their text-based reading strategies, namely scanning the text, locating details, activating prior knowledge, finding the main idea, and monitoring comprehension, to the web page as new informational text with the aim to understand its content meaning.

Differences of reading a web page with the absence and presence of guided literacy instruction

Difference #1: Maximizing web page features

During the interview, the participants were asked to explain how the experiences of reading a web page with the absence and presence of guided literacy instruction might be different. Bea explored her enthusiasm during the presence of guided literacy instruction to try various keywords.

> I typed a set of keywords on the search bar, and then I stayed on the search page results, clicking on the web pages that attracted my interest. However, after given instruction on trying various keywords on the search page, I could get the results that more suited my reading purpose.

Bea's account shows that guided literacy instruction is needed to help the readers get information that is closest to what they have expected. As a limitless source of information, the information on the Internet was only limited to the keywords typed into the search engine bar. For Bea, keywords variation on the search bar means more choices of web pages to meet her reading needs, thus she had to be able to decide which information offered was best suited her needs by trying to type the 'right' keywords. Guided instruction on how to search information by typing correct keywords was then very helpful in assisting her to choose web page that she needed. The next narration shows how Keke recalled her experiences on recognizing web page features and maximizing those features.

> Without instructed, if I wanted to search for the image of anabolism and catabolism, I typed 'anabolism and catabolism' and clicked on the images suggested by the search page result. I did not think that Google already provided the menu for image browsing on the below of the search bar. To be honest, I never really paid attention to the functions of features.

Keke's experiences with web page features were slightly different from Bea's experiences, since Keke, despite her awareness of the features, did not realize that the features contributed to the efforts of searching for websites that best suited her reading purpose. As shown by the above extract, as a beginner web page reader, Keke failed to maximize the availability of menu for image browsing provided by Google website, implies that the knowledge on features of a web page alone is not enough. To be a proficient web page reader, the reads have to use that knowledge to meet their reading purpose in a more effective way. Guided literacy instruction hence is needed to assists students in maximizing the available features during reading web page. These narrations support the statement of others on the importance of literacy instruction to help readers become proficient "real world" readers as required in today's century (Groenke & Prickett, 2012; Leu et al., 2013, 2004), especially how to maximize the features of the Internet to make meaning.

Difference #2: Navigating across hyperlinks, hypertexts, and modes

Hyperlinks and hypertexts are two main ingredients of web page as online multimodal texts. Not only do hyperlinks and hypertexts highlight the modular nature of multimodal texts, but they also provide possibilities of continuous pathways for reading the texts (Trevellyan, 2017; Web Solution, 2012). Hyperlinks and hypertexts make possible for the readers to locate from more general information to the more specific information and vice versa.

From Similarity #1, it is shown that the participants already realized that words or images that are distinctive and attractive in various sizes, colors, and fonts, when clicked, led them to another page of information and therefore helped them read web page even without instruction. However, the knowledge alone is not enough. Little did they know about how to make their reading activities effective by navigating across hyperlinks and hypertexts, as alluded by Keke.

> Before this (the instruction), I never tried to click the words typed in blue while the rests were in black, or the images on the page. I knew it would lead me to another new page, it would give me information of the words and images themselves. Yet I hesitated that if I clicked on those kinds of words, I would not complete my original reading task right now.

The above extract reveals that, even though Keke knew that the words are hypertexts, she was reluctant to click the words, since she was trying to complete her

reading task in time as assigned. Unwillingness to navigate across hypertexts and hyperlinks, as experienced by Keke before given guided literacy instruction, shows that the participant was still trapped into the notion of inefficient reading activities that could happen if they navigated across pages and sites through hypertexts and hyperlinks. Similarly, Bea alluded her feelings.

> Reading activities should be kept on track, right? I considered this as stayed on the page. What if I clicked on those words (hypertexts)? I might not have finished doing my reading assignment on time. Maybe after this (after interview session), I would open some information that earlier caught my interest during my previous reading activities.

The narration shows Bea's hesitance due to the urge to finish her reading assignment as fast as she could, and clicking on hypertexts and hyperlinks might have caused her to slow down her reading pace and fail to submit her reading task on time as previously planned. This implies that the participants needs guided instruction to read web page with purpose.

Navigating across modes gives the participants another new experience when reading web pages. As illustrated by Bea in the following excerpt,

> I never noticed before that what I chose to read first matters for my reading web page experience. I mean, I always chose the language-based reading text to satisfy my reading curiosity. I always associated the reading activity with reading the language – the English words, phrases and sentences, and other modes besides language were only supporting my understanding after I read the information, of course. I felt that the instruction given to me to pay attention only to the modes that attracted my interest and attention first was new and unfamiliar.

The process of selecting modes shows the first activity as a navigator of her own reading pathways. The 'selecting the modes' here does not suggest that we have to isolate one mode from the others. On the contrary, no meaning-making process can happen if we treat each of the modes exclusively (Duncum, 2004; Kress, 2005; Serafini, 2015). The modes extract process in the context of this current research suggests the reader choose which mode is dominantly contributing to the meaning-making process when reading the web page. Keke's experiences when navigating through modes are shown furthermore:

> So many images illustrated the process of anabolism and catabolism. I knew I had to choose one, yet the decision was never easy. I did not understand some of the images, and the rest of them looked similar, so I hesitated to choose. I spent my time moving my cursor through images, and I clicked any image that attracted my eyes. All of those images contain difficult words! I was not sure at first, but then teacher assured me to keep browsing and looking for the images, so I continued reading and I chose images with the explanation as for my reading text.

The instruction given to Keke during choosing the modes she wanted to make meaning from, as narrated above, functions not only to keep her to read, yet also to contribute to her cognitive strategies when reading. The experiences of navigating through images – the modes she preferred to read as her reading pathways – challenged her notion of efficient web page reading, which was previously only limited to web page with textual mode-dominated information, as shown by her efforts to continue to 'spent her time' navigating across images.

From these accounts, the differences of the participants' experiences when reading web page with absence and presence of guided literacy instruction are on the participants' perceptions that navigating across hyperlinks, hypertexts, and modes are inefficient and more challenging for them, even though their web page reading experiences were engaging. This is similar to the findings on readers' dispositions toward reading on the internet, more precisely toward actions resulted from the readers' shifting from printed text-based reading settings to Internet reading environments (Coiro, 2011a, 2012) which are navigation and selection of modes.

> So many images illustrated the process of anabolism and catabolism. I knew I had to choose one, yet the decision was never easy. I did not understand some of the images, and the rest of them looked similar, so I hesitated to choose. I spent my time moving my cursor through images, and I clicked any image that attracted my eyes. All of those images contain difficult words! I was not sure at first, but then teacher assured me to keep browsing and looking for the images, so I continued reading and I chose images with the explanation as for my reading text.

The instruction given to Keke during choosing the modes she wanted to make meaning from, as narrated above, functions not only to keep her to read, yet also to contribute to her cognitive strategies when reading. The experiences of navigating through images – the modes she preferred to read as her reading pathways – challenged her notion of efficient web page reading, which was previously only limited to web page with textual mode-dominated information, as shown by her efforts to continue to 'spent her time' navigating across images.

From these accounts, the differences of the participants' experiences when reading web page with absence and presence of guided literacy instruction rest on the participants' perceptions that navigating across hyperlinks, hypertexts, and modes are inefficient and more challenging for them, even though their web page

reading experiences were engaging. This is similar to the findings on readers' dispositions toward reading on the internet, more precisely toward actions resulted from the readers' shifting from printed text-based reading settings to Internet reading environments (Coiro, 2011a, 2012) which are navigation and selection of modes.

Difference #3: Interpreting multiple modes

Interpretation is a challenging action a reader may experience during reading activities. Interpretation means to give responses to various modes of the text based on readers' prior knowledge, cultural values, norms and social roles in their society (Kress, 2010; Serafini, 2011). However, interpretation requires interrogating activities to happen first. What is being interrogated in this process involves the 'old meaning' the participants already own, and the modes that carry meaning they encountered when reading the web page. Therefore, it is evident that guided literacy instruction is highly required by the participants to assist them in interrogating the 'old meaning' and later interpreting that meaning to a 'new meaning'.

In the web page reading session with the presence of guided literacy instruction, Keke was guided to select which web page best suited her reading needs. Since she was assigned to explain the process of metabolism (as her preferred topic), Keke was allowed to choose which mode was convenient for her to show her comprehension. She then decided to draw a diagram that showed anabolism and catabolism as the metabolism process. To guide her reading activity, she was asked to write down or draw the relationships among nutrition, metabolism, and energy. Related to this activity, Keke remarked her experience.

> The teacher said I could do anything to make me convenient in completing my assignment. So I copied the information on the web page (http://simplebiologyy.blogspot.co.id/2014/06/anabolism-and-catabolism.html) and I pasted it on Word. Yeah..it made me comfortable to complete the task. When seeing what I did, my teacher seemed curious and observed my reading process. I was uncomfortable at first since she then asked me to find images, paste them on the Word (Microsoft Word), and edit the information. But then I followed her suggestion and it helped me understand the process of anabolism and catabolism. I changed the colors of the words, I right-clicked on the difficult words and found out the synonyms, and I reproduced the images. It was fun.

The web page that Keke chose, under the guided instruction of her teacher, consists of both textual and visual modes. The still images on the page compensated the explanation in words, enabling her to understand the process and transferring her knowledge on the diagram mode. Her activities, which were changing the colors of words, finding synonyms of difficult words on the Internet, and reproducing images on the web page to her notebook, helped her to feel convenient when making meaning by navigating across modes. From her account, Keke navigated across texts forms to interrogate the modes before interpreting those modes as the final activity of making meaning process. Although it is potential to raise uneasy feelings for the readers, guided literacy instruction is also possible to build readers' confidence during meaning interpreting activity. For a beginner web page reader like Keke, she really needed teacher's instruction to guide her interrogating and interpreting the meanings the web page brings for her.

Since being literate is also being able to construct new meaning, a reader must be able to construct new meaning by interrogating the information the reader encounters and interpreting the information into new construction of meaning (Leu et al., 2004; Serafini, 2011). Keke's physical activities of constructing the new diagram, as described in her narration, are supported by a claim of others that the web page readers, in their efforts of interrogating meaning, tend to physically construct the information they read (Leu et al., 2004) and that these physical activities are considered to promote the role of readers as interrogator (Serafini, 2011). Correspondingly, Bea remarked her experience when interpreting the modes that she read.

> I chose a web page with an explanation about biotechnology, and I tried to locate the image that was similar to my friend's project. I remembered that orange juice was one of my friend's examples in her project. I wondered if biotechnology was that simple since orange juice is a kind of beverage that is not extraordinary anymore in my life. Maybe because I have a concept in my mind that term technology refers to all sophisticated things such as computers or machines to help humankind live their life in an easier way.

Bea's remark above shows the process of shifting from the 'old meaning' to the 'new meaning' resulting from her reading process. Since Bea was more a proficient web page reader than Keke, she was able to try negotiating the meaning of biotechnology by relating her prior knowledge towhat she had understood about biotechnology from her own experience and with what her friend had experienced in her friend's Biotechnology class. She used this reading activity to confirm her prior knowledge about biology and technology and its relation to a new 'term', new knowledge: biotechnology. She was already aware of the meaning-making activities happened in her real-life experience, and then tried to make her own meaning. The next extract shows how the guided literacy instruction assists her to negotiate the meaning of biotechnology.

> Well… I was actually still confused when you instructed me to confirm my understanding about biotechnology. Then it was then clear when you

> instructed me to type various keywords to locate the answer. I typed 'biotechnology and orange juice' on the search bar and looked-over the web page review to choose which web page I should access. On the third web page, I noticed interesting title "Imagine a world without orange juice?" and you asked me about my feeling about his web page review. I sensed that this web page could offer the information I need. So I clicked on the title and it led me to another new tab. The address of that website is http://globalfarmernetwork.org/2013/09/imagine-a-world-without-orange-juice/. Still not satisfied yet, I typed another phrase, 'orange juice as biotechnology product'. On the top of its search page, Google offered me a link to a web page entitled 'A Race to Save the Orange by Altering Its DNA – NYTimes.com'. I accessed this web page and quite satisfied with the information offered in this web page. There were explanations, images, and videos of producing biotechnology products. Interesting.

The process of shifting from old meaning to new meaning needs guidance (Coiro, 2011a; Groenke & Prickett, 2012). Throughout these instructive experiences, Bea accessed two web pages, http: //globalfarmernetwork.org/2013/09/imagine-a-world-without-orange-juice/ and http://www.nytimes. com/ 2013 /07/28/ science/a-race-to-save-the-orange-by-altering-its-dna.html?_r=1&pagewanted=all&. The web pages were accessed to get adequate information for her reading purpose. Bea negotiated the meaning of biotechnology by processing several cognitive strategies. To begin with, she accessed her prior knowledge on the meaning of biology and technology. After that, she made a connection between the meaning of biology and technology to make sense of the term 'biotechnology'. Next, she connected the meaning of 'biotechnology' based on her prior knowledge and connection strategy, with the dictionary meaning of 'biotechnology' and its example that her friend once gave her. For the third cognitive strategy, she used information from the web page to complete the reading assignment of the project, as well as to satisfy her curiosity on the meaning of biotechnology.

The narrations imply that guided literacy instruction is required to encourage participants to continue their web page reading activities although the activities are challenging for them. Bea's account shows that she was not stopping herself after reading the explanation of biotechnology. She looked for an example. More specifically, an example that could validate her former meaning about biotechnology that is always sophisticated, and a meaning offered by her friend about orange juice as an example of a biotechnology product. She had to locate three web pages to evaluate the meaning (Wikipedia, Global Farmer Network, and New York Times). Since the process of integrating and interpreting meaning from multiple modes in a web page is an active and dynamic process, a proper instruction is required in order to empower the reader as an active agent of constructing meaning from a web page.

How feasible is the designed instruction in assisting students to be more skillful and proficient web page reader?

The students' web page reading experiences with the absence and presence of guided literacy instruction reveal that those who want to become more skillful web page readers require guided instruction to assist them in navigating and constructing their way in reading a web page. This is in line with the claim that skilled web page readers are those who move across multimodal texts or resources by navigating and constructing their reading paths in a more effective way (Castek & Coiro, 2015; Coiro et al., 2014).

Furthermore, several researchers (Coiro, 2011b, 2012; Coiro et al., 2014; Serafini, 2012a, 2012b, 2015) have argued that the Internet requires more skills and strategies for successful internet reading comprehension, thus we have to shift our literacy instruction from helping readers make meaning from printed-based information, to make meaning from online-based information. Hence, guided literacy instruction is significant to help web page readers read web page more effective by navigating and constructing their reading pathways. Guided literacy instruction can also help the shifting process from printed, monomodal text readers to multimodal text readers, by introducing readers more skills and strategies in relation to their shifting roles as web page readers (Castek & Coiro, 2015; Coiro, 2011b; Coiro et al., 2014).

This study provides information for literacy specialists on how to design and develop the instruction based on the students' roles as a web page reader. In this study, the author developed guided literacy instruction by treating the participants' experiences and reading level as qualitative evidence for the feasibility of the instruction to promote the roles of participants in reading a web page as a multimodal text. As shown in the findings, Keke took the liberty to position herself as a beginner reader and Bea as a more proficient reader based on their habitual use of reading internet web page.

Coiro (2012, 2011b) admits that reading a web page can lead to frustration for beginner web page readers. Judging from Keke's accounts, various elements appeared on a web page can be nothing more than distractions for her, resulting inefficient reading activities such as spending time and energy to look for the information on the written text and then focus on the illustration given, rather than directly searching for visual information on the image-browsing feature as provided. The frustration of reading web page was evident to have minimized after the appearance of guided literacy instruction in her reading activities, such as asking her to highlight such web page features as an image search bar, hyperlinks, and hypertexts, modeling the use of those features for her reading benefits, and

assisting her in reading. Keke's experiences as a beginner web page reader confirm that guided literacy instruction works to make certain that beginner web page readers understand the function of web page elements for their reading purpose and that they know how to use those elements to understand the information they are reading.

As a more proficient reader, Bea did not need the instruction to assist her role shifting from a printed-text reader to a web page reader as a designer and navigator as much as Keke did. During observation, the skills she already owned (e.g., recognizing web page features and using prior knowledge) contributed to her successful attempts at designing her reading pathways and minimizing her frustration when choosing the most convenient mode of information for her. Since she was already proficient as a designer of her own reading pathway, she needed instruction to assist her in shifting her role from a code breaker to an interpreter, since being an interpreter requires efforts to make new and expanded meaning and responses to multiple modes of information
(Serafini, 2012a).

The instruction in Bea's reading activities functioned to assist her in negotiating the meaning of "biotechnology" by implementing these strategies: (1) accessing prior knowledge from her printed-based reading experience; (2) making connection between terms to make new meaning; and (3) connecting the old meaning she already had from her prior knowledge and cognitive strategies with the information on the web page to confirm the new meaning she had made. Bea strengthened her roles as the interpreter by defining the meaning of "biotechnology" as something that can be as simple yet sophisticated as "juice made from orange with altered DNA".

Based on this information, the author limited the instruction topromoting the roles of readers as the proficient designer of their reading pathway, navigator across features and comprehension strategies to build meaning, and interpreter that negotiate the meaning resulting from the web page. The findings then suggest that we must tailor literacy instruction to meet the needs of every student, since the students may vary in their level, use, and purpose of reading a web page.

CONCLUSION

The findings of this study described the students' experiences which resulted from the presence of guided literacy instructions during reading webpages. The presence of guided literacy instruction makes differences in the roles of readers when designing the reading pathways, navigating across features and modes, and negotiating new meaning resulting from the interaction and integration of modes. On one hand, guided literacy instruction is still needed by beginner webpage readers to guide them to transfer their printed text reading strategies to a webpage reading context; on the other hand, it makes no difference for the intermediate webpage reader. Guided literacy instruction is then required to strengthen the roles of a beginner webpage reader as a designer of reading pathways and navigator across features, modes and strategies to facilitate the meaning making process of reading webpage. For intermediate webpage readers, this instruction is essential to assist them in becoming more proficient in playing their roles as interrogators and interpreters of modes in the webpage, to reconstruct, negotiate, and renegotiate the meanings brought to them across features and modes in the webpage.

Since the needs of proficiently reading and interpreting a webpage as a multimodal text have become an essential part of today's lives, it is imperative for teachers to become familiar first with various instructions for reading and interpreting Internet webpages. Hence, teachers must become proficient readers of Internet webpages first, before they can become skillful instructors so as to assist their students to read and interpret webpages.

The proposed and discussed instruction in this article provides an example of the design and implementation of literacy instruction by considering teacher's experiences when implementing both naturally occurring instruction for students, and students' experiences when implementing their strategic actions during reading. In conclusion, guided literacy instruction may help train skilled and strategic webpage readers with enough knowledge of webpage features and modes. Although this study is limited to two beginner and intermediate webpage readers, it contributes to the body of research on the development of literacy instruction for multimodal texts, as well as to the literature on the roles of multimodal text readers. In light of the findings of this study, this study suggests more future investigation into the contribution of guided literacy instruction to the skills implementation of multimodal text reading as evidenced by students' reading performance. Other areas of investigative explorations can also rest on the contribution of this guided literacy instruction to the taxonomy of multimodal text reading skills, likewise the contributions of linguistic and cognitive levels to students' reading performance when assisted with guided literacy instruction.

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Appendix 1: Blueprint of Guided Literacy Instruction

Role	Teacher's strategies	Guided Literacy Instruction for students
Designer	- Explaining webpage features - Modeling skimming and scanning the text - Modeling skipping for unimportant parts	- Highlighting webpage features - Locating hyperlinks and hypertext - Asking students to skip hyperboles on the webpage and jumping into the features
Navigator	- Modeling the way of finding information by paying attention the visual images in the webpage - Modeling the ways of using hyperlinks	- Allowing students to read mode that first attracts their attention - Guiding students to click hyperlinks - Guiding students to check whether they get the information they need or not when reading each subheading and its segment. If the students do not get what they need, they can immediately move to other subheadings without feeling guilty for not finishing reading the previous segment
Interrogator	- Showing students to turn off other features or modes if disturbing their meaning making process - Modeling the ways of interrogating own understanding of the meaning of single mode in the text	- Asking students to describe images they see on the webpage - Asking students to interrogate their understanding of one mode without paying attention to the other modes, i.e. understanding the image without reading the text or without listening to the sound effect
Interpreter	- Modeling the way of relating lecturers' prior knowledge to the meaning derived from the modes in the text - Modeling the way of expressing opinions related to the modes	- Guiding students to pause reading and think about the interaction of modes in the text - Encouraging students to relate their personal experiences, cultural values and social opinions, even ideas and beliefs, to the images, animations, language, or other modes in the text - Encouraging students to express their opinion or feeling when seeing the images, animations, or other visual features appeared in the webpage