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USING SCHEMA-BUILDING ACTIVITIES IN ESP READING CLASSROOM

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This paper aims at accessing the problems and reviewing the relationships and benefits of using schema-building activities in ESP reading classroom. Based on the theoretical background and previous studies, the study reveals the research gaps and builds the conceptual framework to investigate the extend to which pre-reading schema-building activities (Pre-SBAs) were applied in teaching ESP (English for Specific Purposes) reading comprehension for English majors at Faculty of Foreign Languages – Ho Chi Minh City University of Technology and Education (FFL-HCMUTE).

Keywords: Schema-building activities, Pre-reading schema-building activities, ESP reading comprehension, ESP reading classroom.

Introduction

Background of the Study

Recent decades have witnessed an unprecedented growth in the number of English language speakers all around the world. Vietnam is no exception. With the economic boom, and needs of development in trade, sciences, cultural exchanges, media, technology, the internet, as well as other social aspects of Vietnam, English has gained great ground as the first official foreign language for a long time. Tran Minh (2015) reported that there was a correlative link between a country's English proficiency and its economic strengths and innovation. Furthermore, after Vietnam has integrated into The ASEAN Economic Community (AEC) and the Trans-Pacific Partnership Agreement (TPP), Vietnamese workers can work anywhere within the AEC and TPP community. Various good international job opportunities will be opened to those with a high level of English proficiency. Thanks to these opportunities, English language has become more crucial, especially English for Specific Purposes (ESP). Alan stated that a number of interconnected trends such as globalization and the increase in vocational learning and training throughout the world suggested that ESP emerged as a key strand in the ELT context (as cited in Harding, 2007). Since the 1960s, ESP has become a vital and innovative activity in ESL/EFL teaching (Howatt, 1984, as cited in Dudley-Evans & St John, 1998).

The popularity of English use at work and in daily life has made not only General English (GE) but also English for Specific Purposes (ESP) become more essential for workers. For ESP, at least, they can read the ESP materials to obtain the ESP knowledge, to work, and to do research. Because ESP reading is the most important skill for content area courses (Habbash & Albakrawi, 2014; Gözüyeşil, 2014; Le C. Tinh, 2015; Nunan, 2003), it requires a greater degree of concentration, precision, and intensity (Bonyadi, 1996). For example, most of engineering workers' reading needs in their educational or occupational life include reading advertisements, instructions, brochures, tables, graphic charts, lists, and tables (Habbash & Albakrawi, 2014), email, reports, and memos (Spence & Liu, 2013). They also need ESP reading to do research (Gözüyeşil, 2014).

Despite high demand on learning ESP, the current ESP teaching in Vietnam has been ineffective and could not adapt to the needs of the society (Do T. K. Dung & Cai N. D. Anh, 2010; Ho T. T. Thuy, 2014; Nguyen T. H. Tuyen, Pham T. B. Hanh, & Bui T. T. Van, 2015; Pham N. H. Phuong, 2011; Pham T. Huong, 2009; Vietnam Government Web Portal, 2015; Vo T. A. Nguyet, 2010). Many workers, especially engineering workers or technical workers still struggle with reading and understanding the ESP texts (Thuy Vinh, 2009; Dan Phuong, 2015). The ESP course at university does not sufficiently facilitate students to work in the international community. Recently, ESP has received lots of attention from educators, teachers, and the whole society for future development (Pham N. H. Phuong, 2011). Adapting to the requirements of the multinational community, educators and teachers are trying to innovate the ESP teaching methods to improve the quality of the outcomes. Together with this progress, great attention should be paid to high quality training for ESP teachers or ESP student teachers (Do T. K. Dung & Cai N. D. Anh, 2010; Ho T. T. Thuy, 2014). To have proper training for students, the student teachers need to be well-trained. That is the biggest concern needed to be improved to help learners fully achieve a high level of proficiency to work in the international environment.

Tackling the issue of ESP training and learning mentioned above, Faculty of Foreign Languages of Ho Chi Minh City University of Technology and Education (FFL-HCMUTE) has offered an undergraduate program of Technical English. Its aim is to train students to become ESP teachers for technical colleges or vocational schools since 2006. Importantly, since 2016, the faculty has expanded by providing a similar program to train students to be Technical English interpreters and translators. Thus, to help learners become successful users of the ESP language in the workplace, the quality of teaching and learning the ESP courses needs to be highly examined. At present, in these programs, English-majored students have to study five obligated ESP subjects, including English for Information Technology (ENIT), English for Environmental Technology (ENET), English for Electrical and Electronic Engineering (ENEE), English for Mechanical Engineering (ENME), and one optional subject amongst English for Business (ENBU) or English for Nutrition and Food Industry (ENNF), or English for Fashion Design (ENFD).

With such ESP program from HCMUTE in place, its productivity is one of the main concerns for learners. From the first year of establishing the program, the content and teaching method of the teachers have substantially improved. However, the effectiveness of these subjects' teaching methods for English-majored students is still a big concern. Personal communication reveals that a number of alumni still find difficulties in reading the ESP texts and using the ESP language. This fact is a consequence of the lack of background knowledge, which is usually enhanced through pre-reading and post-reading stage. This problem might come from little effort in activating and building students' schemata in these stages, especially in pre-reading stage which is also a key stage to motivate learners to read and learn these difficult ESP reading texts (Ajideh, 2006; Alemi & Ebadi, 2010). In other words, the difficulties of English majors in reading ESP texts might result from the neglect or misuse or disinterest of pre-reading schema-building activities (Pre-SBAs) in teaching ESP reading comprehension of the ESP teachers. Without enthusiasm to the pre-reading schema-building activities, the students might have no eagerness to learn the ESP reading texts. Consequently, that may lead to their low achievement in the whole ESP learning courses.

Statement of the Problem

Reading is one of the most crucial skills for educational and professional achievement (Alderson & Urquhart, 1984; Hudson, 1982). Various researchers have emphasized the importance of reading and schema-building activities in enhancing reading comprehension (Carrell, 1984; Hudson, 1982; Singer & Donlan, 1982). Yet, numerous teachers of General English, especially English for Specific Purposes (ESP) in Vietnam have not given these activities the place they deserve.

According to some recent studies about teaching English reading in general, due to limited time allowed, in reading sessions, the teachers usually ignore the important role of schema-building activities, especially those in pre-reading stage (Dang T. Nhu, 2012; Nguyen T. Binh, 2009). Some skip the pre-reading stage or go on some introductions without knowing its benefits to readers. Some simply ask haphazard questions, conduct some matching activities, or move directly to the texts without appropriately activating learners' stored knowledge or building background knowledge in advance. Many teachers still use the traditional teaching method. Le T. B. Thuan (2011) stated that "teachers prefer traditional text-based teaching styles to innovate teaching styles because the traditional one is easy and not time-consuming for designing lesson plans and finding available teaching tools". In learning, "the students find it difficult to understand the text because of their limited knowledge of the world and their lack of effective and systematic tools in organizing ideas of a reading text" (Le T. B. Thuan, 2011).

Similarly, in ESP teaching and learning, most of the teachers use grammar translation method to teach ESP subjects (Do T. K. Dung & Cai N. D. Anh, 2010; Ho T. T. Thuy, 2014; Nguyen T. N. Thi, 2010; Pham N. H. Phuong, 2011; Vo T. A. Nguyet, 2010). Communicative language teaching approach is rarely used in the ESP class. Reading skills were focused but the pre-reading, while-reading, post-reading activities were not effective (Dang T. Nhu, 2012; Pham N. H. Phuong, 2011). Furthermore, learners still find the reading boring and difficult due to their insufficient language knowledge and content knowledge (Nguyen T. Binh, 2009). Most of them have poor and different linguistic background of English as well as low motivation in learning ESP (Ho T. T. Thuy, 2014; Pham N. H. Phuong, 2011). Because of these difficulties, the three-stage schematic lesson plan should be applied to improve learners' reading performance (Pham N. H. Phuong, 2011; Tran T. Nhan & Nguyen Q. Yen, 2011).

A review of ESP learning and teaching in FFL- HCMUTE introduces some issues worth further investigation in this research context. As an alumna of Faculty of Foreign Languages of Ho Chi Minh City University of Technology and Education, the researcher had experienced the lack of schema-building attention in teaching method from most of the teachers in pre-reading stage, as well as the ineffectiveness of the ESP courses. Through personal communication with other alumni, many also agreed with the researchers regarding the poor delivery of teaching the ESP modules. Moreover, some previous studies about ESP in the faculty reveal the students' difficulties and the teaching method. Discussing on the English-majored students' difficulties, Nguyen H. Phuc (2012) reported that their background knowledge was not adequate to study the ESP subjects due to the inappropriate course operation; the students' needs were to develop the language skills (reading), build up vocabulary, and achieve proficiency in ESP language use; but "understanding ESP subjects and practicing skills are found difficult". In terms of teaching method, Ly H. Thao (2014) pointed out that their ESP teachers were teaching in a traditional way that made the students passive, bored, and tired. For these reasons, she suggested that the ESP teachers should design more interesting activities and provide students with more background information about the subjects.

Recently, with more effort to improve the learners' achievement, depending on learners' difficulties, schema-building activities have been utilized by some teachers in teaching the ESP subjects for English majors. Particularly, reflecting on previous studies, through personal communication (with the Head of ESP Department and 1 ENEE teacher) as well as preliminary study (of 4 students and 1 ESP teachers of the faculty), the researcher realizes that these activities have been applied in teaching English for Electrical and Electronic Engineering (ENEE) by all ENEE teachers for two years. More important, that subject is considered as one of the top difficult ESP courses by most of the English majors whereas there is no Vietnamese subject providing students with strong background knowledge for Electric and

Electronic Engineering in the curriculum. However, there has been no research on the effects of this application on English majors' ESP reading comprehension.

For all of these reasons, the researchers decided to conduct a research titled "***Using schema-building activities in ESP reading classroom"*** with the focus on pre-reading schema-building stage in ENEE (a representative of ESP) reading comprehension. In this paper, the researchers aim at reviewing the linkages between pre-reading schema-building activities and ESP reading comprehension, analyzing the benefits, finding the research gaps of previous studies, and developing a conceptual framework to investigate the extent to which pre-reading schema-building activities employed in teaching ESP reading comprehension for English majors at HCMUTE.

Literature Review

ESP and Reading Comprehension

Definitions and Characteristics of ESP

Since its emergence in the late 1960's (Hutchinson & Waters, 1987), English for Specific Purpose (ESP) has grown to become one of the most prominent areas of EFL teaching today. Accordingly, the term ESP has been differently defined in several published studies. Hutchinson and Waters (1987) generalized: "ESP is an approach to language teaching in which all decisions as to content and method are based on the learners' reason for learning". Dudley-Evans's definition was influenced by Strevens's (1988) despite his substantial improvement by removing the absolute characteristic that ESP was "in contrast with General English" (Johns & Dudley-Evans, 1991), and revising and increasing the number of variable characteristics. ESP should be seen simply as an approach to teaching, or what Dudley-Evans describes as an attitude of mind.

In view of all ESP definitions mentioned so far, three themes have been emerged: the nature of language to be taught and used, the learners, and the settings in which the other two would occur. These three aspects of ESP are closely related. ESP can be inferred as the teaching of specific English (specialized discourse) to learners (adults), who will use it, in a particular setting (business, engineering, medical field, science, etc.) for a specific purpose. This conclusion has highlighted Hutchinson & Waters's (1987) view: "ESP is an approach to language teaching in which all decisions as to content and method are based on the learners' reason for learning".

Definitions of Reading Comprehension

Discussing on the reading concept, a large number of researchers have offered different definitions regarding the aspects they would like to emphasize. Some supported the idea that reading is a passive act (Bumpass, 1975; Urquhart & Weir, 1998; Widdowson, 1979). Some proposed that it is an active or interactive act (Aebersold & Field, 1997; Bush & Mildred, 1970; Goodman, 1967; Harris & Sipay, 1979). While the former definitions consider reading as a decoding process in which reader is a passive receiver of the information, the latters involve interaction between the reader (reader's knowledge, expectation, and assumptions) and language or refer to the interaction between reader's background knowledge and the context of reading situation.

Following the ideas presented above, in a clearer definition, Anthony, Pearson, and Raphael (1989) offered a definition of reading that best suits the current study: "reading is the process of constructing meaning through the dynamic interaction among the reader's existing knowledge, the information suggested by the written language, and the context of the reading situation". Accordingly, "reading comprehension is reconstruction, interpretation, and evaluation of what author of written content means by using knowledge gained from life experience" (Roe, Stood, & Burns; 1987). That is to say, reading

comprehension is an interactive process between the text and the reader's schema (Adams & Collins, 1977; Carrell & Eisterhold, 1983, 1998; Rumelhart, 1980). "If we say that a student is 'good at comprehension', we mean that he can read accurately and efficiently, so as to get the maximum information from a text with the minimum of misunderstanding" (Swan, 1975).

To sum up, from a considerable amount of definitions about reading that have been mentioned above, it can be seen that reading can take a variety of meanings based on the researchers' view of the reading process. Based on the last definition of reading, it can be inferred that reading comprehension is a dynamic construction of meaning: reading comprehension is an interactive process between the text and the reader's existing knowledge. In other words, most accounts of the reading comprehension process focus on three elements: the text being read, the background knowledge possessed by the reader, and the contextual aspects relevant to interpreting the text (Alderson & Urquhart, 1984). A set of approaches to reading process in the following part will be analyzed to clarify this point.

Reading Approaches

Numerous research studies in teaching and learning reading have been conducted for a long time with the evolution of different approaches. These approaches are classified into three main types: bottom-up, top-down, and interactive approaches depending on general perspectives on the reading process (Raynner & Pollatsek, 1989).

In bottom-up approach (traditional view), reading is considered as a passive or simply a decoding process (Alderson, 2000; Carrell & Eisterhold, 1983; Hudson, 2007; Rivers, 1964), so it is sometimes called 'data-driven' processing (Carrell & Eisterhold, 1998; Lieberman, 2004). However, this holistic word-recognition processing is the shortcoming of bottom-up approach (Plaister, 1968; River, 1964) because it does not consider the reader's role as well as reader' s background knowledge (Goodman, 1968; Smith, 1982).

In top-down approach (cognitive view), reading is believed as an active process in which readers' background knowledge and expectations help them reconstruct the meaning of the text (Cohen, 1990; Eskey, 2002; Goodman, 1967; Rumelhart, 1980). This approach or process is also labeled as 'conceptually-driven processing' (Bruder & Henderson, 1986; Lieberman, 2004). However, for many texts, readers may have limited topical knowledge and cannot make guesses (Eskey, 1998; Samuels & Kamil,1988; Stanovich, 1980).

In the interactive approach (metacognitive view), researchers offered a combination of bottom-up and top-down approach. Following this approach, reading is an interactive act and readers are not passive participants in the reading process any more. In reading, they flexibly and simultaneously do top-down (conceptually-driven) and bottom-up (data-driven) analysis to comprehend the texts (Cohen, 1990; Eskey, 2002; McCarthy, 1991). As a result, the difficult levels of a text depend on not only the linguistic features but also the readers' prior knowledge (Clark & Clark, 1977; Silberstein, 1987).

In general, amongst three reading approaches presented above, the interactive approach can be the "most applicable to reading instruction" (Heilman, Blair, & Ruply, 1990) because it directs readers' attention to "both the top-down and bottom-up skills that fluent and accurate reading demands" (Eskey, 1998). It does not only fulfill three criteria: enable the readers to summarize the past, help them to understand the present, and inform their predictions of the future (Samuel & Kamil, 1998) but also emphasize the role of lexical recognition. This approach can also be applicable for teaching ESP reading because the ESP reader most probably has more limited linguistic knowledge and content knowledge than the writer has. Grabe's interactive model of reading indicates that ESP instruction should focus on both bottom-up and top-down processing which Duffy (1988) defined them as "plans for solving problems, encountered in constructing meaning" (as cited Alemi & Ebadi, 2010). Accordingly, this interactive reading approach leads to the employment of schema-building activities in teaching ESP reading comprehension.

Pre-reading Schema-Building Activities in Teaching Reading Comprehension

Definitions and Characteristics of Schema

According to Kant (1781), "new information, new concepts, new ideas can have meaning for an individual only when they can be related to something the individual already knows" (as cited in Carrell, 1984b). That "something the individual already knows" was called schema. The notion of schema (plural: either "schemas" or "schemata") is complex. It has been named and interpreted in different ways by a large number of researchers.

To begin with, some researchers used different terms to refer to *schema* or *schemata* (in plural). Schank & Abelson (1977) named *schemata* (in plural) as *scripts*. They and Lehnert (1977) also sometimes called *schemata* as *plans*. Some other researchers labeled schemata as *frames* (Charniak, 1975; Fillmore, 1976), *scenario* (Sanford & Garrod, 1981), *event chains* (Warren, Nicholas, & Trabasso, 1979), *expectation* (Tannen, 1978), *definition* (Norman, Rumelhart, & LNR, 1975, as cited in Rumelhart & Ortony, 1977), or *critical mass* (Eskey, 1986). These terms only reflect small parts of schemata and "are not all identical" (Carrell, 1983).

On the contrary, most of the researchers considered schema as world knowledge, past experiences, prior knowledge, previously acquired knowledge, background knowledge of the topic, or existing knowledge (Bartlett, 1932; Medin & Ross, 1992; Piaget, as cited in Pritchard & Woollard, 2013). In line with Bartlett, Medin and Ross, Piaget, Rumelhart and Ortony (1977), Rumelhart (1980), Schallert (1980), Widdowson (1983), and Alderson (2000) defined schema in plural form. Rumelhart (1980) viewed schemata as "building blocks of cognition" and "skeleton around which the situation is interpreted". Widdowson (1983) stated: "Schemata can be defined as cognitive constructs which allow for the organization of information in long-term memory and which provide a basis for prediction". Alderson (2000) uttered "Schemata are seen as interlocking mental structures representing readers' knowledge". These definitions all refer schema as existing knowledge or background knowledge.

In brief, although there are a large number of definitions of *schema*, the common idea is that all mentioned about *prior/previous/existing/background knowledge* which may be activated and altered based on the situation to support understanding. In ESL/EFL research, it is also worth noting that the terms schema/schemata (plural form of schema) and background knowledge or prior knowledge could be interchangeably used (Alderson, 2000; Carrell & Eisterhold, 1983; Strangman, Hall, & Meyer, 2003). Accordingly, the working definition of schema throughout this research could be all prior/existing/previous knowledge/background knowledge that readers use to comprehend the text. A schema functions as a bridge to connect the new information with the old information (Perkins & Salomon, 1989), so it is helpful for making prediction (Carrell, 1988; O'Malley and Chamot, 1990; Widdowson, 1983), inference (Pearson, Hansen, & Gordon, 1979; Rumelhart & Ortony, 1977), and comprehension process (Anderson & Pearson, 1984; Brantmeier, 2004; Rumelhart & Ortony, 1977). It helps readers/listeners to achieve high level of comprehension (Peregoy & Boyle, 2000). Schema theory is an explanation of how readers use their prior/previous /existing/background knowledge to comprehend and learn from text (Adams & Collins, 1977; Alderson & Urquhart, 1988; Carrell & Eisterhold, 1983; Eskey, 1998; Rumelhart, 1980; Rumelhart & Ortony, 1977). Further explanation of schema and its classifications will be presented in the following part.

Types of Schemata/Background Knowledge

According to schema-theory research, interactive approach – a combination of top-down and bottom-up processing – is considered as the most efficient processing of text (Carrell & Eisterhold, 1983; Eskey, 1998; Rumelhart, 1980). Reading comprehension is an interactive process between the text and the

reader's schema (Adams & Collins, 1977; Carrell & Eisterhold, 1983; Nunan, 1999; Rumelhart, 1980). Many researchers have attempted to subcategorize the term schema/schemata. Some classified schemata into three types including *linguistic schema/language knowledge, formal schema*, and *content schema* (Carrell, 1988; James, 1987; Omaggio, 1986; Singhal, 1998). Some others proposed other different types of schemata: *abstract/story schema, formal schema,* and *content schema* (Alptekin, 2002, 2003, as cited in Karakaş, 2005; Oller, 1995). However, the most popular categorization is the distinction between two major types of schemata consisting of *formal schema* and *content schema* (Alderson, 2000; Brown, 2001; Carrell & Eisterhold, 1983, Eskey, 1986; Stott, 2001) which are both closely related to the success of reading comprehension (Weaver & Kintsch, 1991). These two types of schemata are also the classifications employed in this study.

The first type of schema is *formal schema* which includes knowledge of different text types/genres and their respective structural organization, language structures, vocabulary, grammar, level of formality/register, etc (Carrell & Eisterhold, 1983; Singhal, 1998). Its use closely associated with bottom-up reading process (Carrell & Eisterhold, 1983). Formal schema is also labeled as *rhetorical schema*, *language knowledge*, or background knowledge of the organizational pattern/rhetorical structure of different types of texts (Brown, 2001; Carrell & Eisterhold, 1983; Eskey, 1986; Stott, 2001), or "knowledge of language and linguistic conventions including knowledge of how texts are organized and what the main features of particular genres are" (Carrell & Eisterhold, 1983). Alderson (2000) stated that *formal schema* included *knowledge of genre/text type*, *metalinguistic knowledge and metacognition*. Based on these points, it can be said that formal schema also includes *abstract/story schema*, *linguistic* or *language schema* which involve vocabulary and grammar as presented by Singhal (1998) and Alptekin (2002, 2003, as cited in Karakaş, 2005). In ESL/EFL context, lack of formal schema may cause difficulties for readers to comprehend the text (Carrell & Eisterhold, 1983), especially vocabulary knowledge (Alderson, 2000, Joshi, 2005; Qian, 2002). Hirsch (2003) also pointed out that "word knowledge speeds up word recognition and thus the process of reading".

The second type of schema is content schema which includes knowledge of subject matter/topic, knowledge of the world, and cultural knowledge (Alderson, 2000; Brown, 2001; Carrell & Eisterhold, 1983; Nassaji, 2007). Its employment results in top-down reading processing (Carrell & Eisterhold, 1983). Content schema is usually called as *background knowledge of the content area of the text* or *content knowledge* (Carrell & Eisterhold, 1983; Eskey, 1986; Fisher & Frey, 2009). It can also be labeled as *knowledge of subject matter, knowledge of topic, subject matter familiarity, prior knowledge of topic, schematic knowledge, domain knowledge, and topic familiarity* (Alderson, 2000; Carrell & Eisterhold, 1983; Nassaji, 2007). Content schema is crucial for comprehension process (Weaver & Kintsch, 1991). "If the topic…is outside students' experience or base of knowledge, they are adrift to an unknown sea" (Aebersold & Field, 1997).

Generally, both formal schema and content schema are important in ESL/EFL reading comprehension. Although some researchers argued that content schema affected comprehension more than formal schema, successful ESL/EFL readers need to rely on both types of schemata in interactive approach (involved both bottom-up and top-down processing), alternating between them according to the text's difficulties for better comprehension (Carrell & Eisterhold, 1983; Eskey, 1998; Stanovich, 1980). If ESL/EFL readers fail to activate an appropriate schema or simply lack it (for example, lack of vocabulary knowledge, difficulty in using language cues to meanings, and lack of concept knowledge (Steffensen, Joag-Dev, & Anderson, 1979; Yorio, 1971), they will have problems in comprehending the text (Al-Issa, 2006; Carrell & Eisterhold, 1983; Johnson, 1982; Rumelhart, 1980; Rumelhart and Ortony, 1977). At this point, applying some kinds of pre-reading activity is an effective way to activate or build schemata and help ESL/EFL readers understand the texts better (Johnson, 1982; Hudson, 1982).

Pre-reading Schema-Building Activities

Definitions of pre-reading schema-building activities

"Comprehension is based on learners' ability to draw on their existing knowledge" (Long, 1989), so appropriate schemata need to be activated to facilitate efficient comprehension (Brandford, 1979; Carrell & Eisterhold, 1998). In ESL/EFL reading, to overcome the major problems in comprehension, they need to be well-equipped with the activities of recalling and constructing related schemata before reading. These activities are labeled as *pre-reading schema-building activities* (Kirn, Hartmann, Carver, & Sullivan, 2003), *schema-based pre-reading activities* (Ajideh, 2003), *schema theory-based pre-reading activities* (Ajideh, 2003, 2006), *background knowledge activation* (Strangman et al., 2003), *prior knowledge activation* (Alvermann, Smith, & Readence, 1985; Labiod, 2007), or simply as *pre-reading activities* (Carrell, 1988; Chen and Graves, 1995; Karakaş, 2005; Pearson-Casanave, 1984; Ringler and Weber, 1984; Stott, 2001; Taglieber et al., 1988). Sometimes, they are also called simply as *schema-building activities* (Bergendorf, 2006; Prince & Mancus, 1987) because the most significant stage amongst three stages (pre-reading, while-reading, and post-reading (Alyousef, 2006; Ur, 1996; Williams, 1987)) for activating and building schema is pre-reading stage (Al-Issa, 2006; Carrell, 1988; Johnson, 1982; Hudson, 1982; Rokhsari, 2012; Williams, 1987). A considerable amount of literature has proved that pre-reading schema-building activities play an essential role in reading comprehension classes. They affect learners' reading comprehension, feelings, and behavioral intentions/actions.

Benefits of pre-reading schema-building activities on learners

Pre-reading schema-building activities facilitate learners' reading comprehension

Pre-reading schema-building activities contribute to learners' reading comprehension (Carrell, 1984a; Chen & Graves, 1995; Hudson, 1982; Taglieber et al., 1988). Their functions are resulted from by schema's functions as an aid for prediction (Carrell, 1988; O'Malley and Chamot, 1990; Widdowson, 1983), inference (Pearson, Hansen, & Gordon, 1979; Rumelhart & Ortony, 1977), and as the basic for information processing (Anderson & Pearson, 1984; Pearson, Hansen, & Gordon, 1979). In other words, it could be said that Pre-SBAs help learners/readers make prediction and inference as well as process the information received from the reading text to comprehend it.

First, Pre-SBAs help readers make anticipation/prediction (Carrell, 1988; Crilly, 2002; Rivers, 2000; Toprak & Almacıoğlu, 2009; Ur, 1996) and inference (Chen & Graves, 1995; Royer, 2005; Swaffar, Arens, & Byrones, 1991). O' Malley and Chamot (1990) stated that schema guides readers to make predictions. Pre-SBAs "function to get students to predict within a context area what the text will be about" (Carrell, 1988). Rivers (2000) stated: "pre-reading activities help readers predict the content of the text and ask their own questions in order to find answers in the while reading phase". "The more students look forward to reading and anticipate in their minds what the text could hold in store for them, the easier it will be to grasp the main points of the passage" (Grellet, 1981). Furthermore, because the text does not by itself carry meaning (Brown, 2001), the reader needs to make inferences based on her/his world knowledge to understand it (Royer, 2005). Alderson and Urquhart (1984) presented that "schemata provide the basics for filling the gaps in a text". Koda (2005) held the view that schema is crucial for inference generation by "influencing thematic status decisions". As a result, Pre-SBAs help reader comprehend the text easier.

Second, Pre-SBAs help readers in information processing. Pre-SBAs help the readers dig up their knowledge to connect with the reading texts and enlarge their knowledge related to the text (Aylar & Khadijeh, 2016; Dang T. Nhu, 2012; Lazar, 1993; Lindsay & Knight, 2006; Mayer, 1984; Nguyen T. Binh, 2009; Nguyen T. M. Hong, 2008; Stoller, 1994; Thongyon & Chiramanee, 2011; Williams, 1987). "Information processing entails getting an input, linking that input to what exists in one's already schema,

storing that information and calling it once it is needed" (Woolfolk, 2004). Hence, Pre-SBAs can be implemented "to tap students' already existing background knowledge, and/or to provide students with new information that will help them comprehend the passage" (Stoller, 1994). Crilly (2002) stated that the pre-reading stage provides a "scaffold for new concepts and vocabulary". Williams (1987) proposed that pre-reading activities "provide when necessary some language preparation for the text".

Next, Pre-SBAs guide the readers with a specific goal (Celce-Murcia & Olshtain, 2000; Dang T. Nhu, 2012; Grellet, 1981; Nunan, 1991; Williams, 1987). Specifically, they make the readers/learners "aware of what they wish to learn about the topic" (Grellet, 1981). Williams (1987) stated that these activities "motivate students by providing reasons for reading or helping them to specify their own reasons". Furthermore, they help readers/learners practice their critical thinking (Aylar & Khadijeh, 2016; Nunan, 1991; Thongyon & Chiramanee, 2011; Yusuf, 2011). Hansen (1981), Johnson (1982), and Langer (1981) also agreed with this point in the sense that pre-reading activities make the reading text more meaningful by connecting reader's prior knowledge with the new concepts. As a result, this process speeds reading, economize the readers' time and energy, and maximize their understanding (Aylar & Khadijeh, 2016; Dillon, 1982; Johnson, 1982; Hirsch, 2003; Langer, 1981; Lebauer, 1998; Taglieber et al., 1988; Thongyon & Chiramanee, 2011). Triggering and building "word knowledge speeds up word recognition and thus the process of reading" (Hirsch, 2003) as well as make the reading task easier (Hansen, 1981; Johnson, 1982; Langer, 1981; Mayer, 1984). Taglieber et al. (1988) stated that "pre-reading activities, by activating knowledge structures or by building background knowledge that the reader lacks, promote greater comprehension". Lebauer (1998) also emphasized that "pre-reading activities can lighten students' cognitive burden while reading because prior discussions have been incorporated".

All in all, it can be summarized that Pre-SBAs are helpful for learners to make prediction and inference as well as process the information. For the benefits on information process, these activities help learners (in role of readers) link their prior knowledge with the reading texts, enlarge the knowledge related to the text, guide them with specific goal, help them practice their critical thinking, and accordingly, they help the learners read and understand the text faster and better.

Pre-reading schema-building activities positively affect learners' feelings

Pre-reading schema-building activities have been reported to have positive impacts on learners' feelings. They make learners feel more interested and enjoyable in reading as well as help them be enthusiastic, confident, and responsible for completing the tasks.

First, thanks to Pre-SBAs, learners become more interested in reading the text (Afflerbach, 1990; Celce-Murcia, 2001; Dang T. Nhu, 2012; Lazar, 1993; Lindsay & Knight, 2006; Nguyen T. Binh, 2009; Nunan, 1991; Williams, 1987). Particularly, Afflerbach (1990) stated that pre-reading activities make learners' interested in the story by linking the text to their prior experiences and thus enhancing its relevance. According to Lazar (1993), pre-reading activities stimulate learners' interest in the story. If they already have an idea of what the text is going to be about, they will become more interested in reading (Williams, 1984). Second, pre-reading activities make readers feel more enjoyable in the classroom environment (Aylar & Khadijeh, 2016; Sasson, 2007; Thongyon & Chiramanee, 2011). Hansen (1981) and Taglieber et al. (1988) also agreed that pre-reading activities made reading become a more enjoyable task. Third, they are enthusiastic to contribute to the reading activities (Aylar & Khadijeh, 2016; Thongyon & Chiramanee, 2011; Yeeding, 2007). Specifically, learners were highly motivated and enthusiastic to read with the implementation of Pre-SBAs (Yeeding, 2007). Fourth, learners also feel more confident when they are assigned to read and answer while and post-reading questions as well as responsible for their own reading (Aylar & Khadijeh, 2016; Thongyon & Chiramanee, 2011).

Generally, the pre-reading schema-building activities help to break readers' ice and engage them in reading. In other words, these activities invite learners'/readers' wills to read by making them interested, enjoyable, enthusiastic, confident, and responsible for their own reading.

Pre-reading schema-building activities positively affect learners' behavioral intentions/ actions

Pre-reading schema-building activities also affect learners' behavioral intentions or actions. Ur (1996) emphasized that pre-reading activities activate reader in the next stages of the reading process. At this point, it can be inferred that these activities engage learners in while-reading and post-reading stage.

In while-reading stage, Pre-SBAs make the students want to read the text (Chastain, 1988; Crilly, 2002; Dang T. Nhu, 2012; Lindsay & Knight, 2006; Nguyen T. Binh, 2009). Brown (2011) pointed out that "it is just as important to give the students the opportunity to use what they already know – their prior knowledge – to help them do the task". It means that Pre-SBAs involve learners' participation. According to Dutta (1994), the pre-reading activities stimulate learners, create a mood of receptivity, and given them the opportunity to apply acquired knowledge. As a result, pre-reading activities may motivate learners to do more activities in while- and post-reading stage to completely understand and acquire the knowledge from the reading text. Those activities may be rereading, analyzing and synthesizing the text, note-taking as well as summarizing. A good reader may be "able to show his understanding by expressing the content of the text – for instance, by writing sentences or paragraphs in answer to questions, or by summarizing the text" (Swan, 1975). Additionally, Taglieber et al. (1988) presented that pre-reading activities encouraged more extensive reading.

In short, while reading, pre-reading activities might encourage learners to be willing to read the texts, do all the tasks, reread, analyze and synthesize the text as well as take note some important parts. After reading, learners might also be willing to summarize the text and apply what they have learnt from the text to read other materials with the similar topic.

Types of pre-reading schema-building activities in teaching reading comprehension

Previous studies have suggested a variety of activities to activate and build schema in pre-reading stage. They could be classified into four common types of activity: previewing, providing background knowledge, pre-questioning, and brainstorming (Lazar, 1993). However, the activities to provide background knowledge are also in form of previewing, so in this study, the researchers regroup them into three main types of activity: Previewing, pre-questioning, and brainstorming.

Previewing

Previewing has been found to be important (Carrell & Eisterhold, 1983) and efficient for recalling and constructing learners' schema before reading (Aebersold & Field, 1997) as well as helping them predict what they are going to read (Aebersold & Field, 1997; Swaffar et al., 1991), thus improving reading comprehension (Schank & Abelson, 1977). According to Lazar (1993), this activity is appropriate to prepare for difficult texts with unfamiliar concepts. Four common types of previewing activities are visual guide, anticipation guides, text-previewing, vocabulary pre-teaching, and instructional games.

First, visual guides may employ several stimuli such as television shows, video clips, movies, slides, pictures, charts, figures, or tables related to the text (Aebersold & Field, 1997; Carrell, 1988; Dutta, 1994; Grellet, 1981; Stoller, 1994). Visual guides can also be the activities in which students complete the illustrations with simple drawings or words (Goh, 2002; Nunan, 2007), look at the pictures and talk about them, or label a picture (Underwood, 1987). If learners possess some prior knowledge of the upcoming topic, visual guide may help them recall some useful information and some related vocabulary before reading. If learners have misperception or simply lack of that kind of knowledge, it may adjust or build some new and necessary background knowledge for them to comprehend the texts (Grave, Cooke, & Laberge, 1983). In ESP reading comprehension, visual guides are considered as the most effective methods to activate and build learners' schema before reading. They make ESP courses more tangible and understandable (Alemi & Albadi, 2010).

Second, anticipation guides/predication guides (Duffelmeyer, 1994; Herber, 1978) are typically a series of statements related to the upcoming text for readers to agree-disagree, like-dislike, decide true-false, likely-unlikely, or a scrambled list of events to put in order. Anticipation guides help readers to activate prior knowledge, read with specific goals, make prediction before reading, and reconfirm them when they read the text (Barton & Jordan, 2001; Beers, 2003; Duffelmeyer, 1994; Herber, 1978). Anticipation guides can also prompt student discussion both in pre-reading and post-reading stage (Herber, 1978).

Third, text-previewing is also an effective pre-reading activity. It can be started by skimming titles, headings, subheading of the reading text (Aebersold & Field, 1997; Carrell, 1988; Swaffar et al., 1991), reading proverbs or quotations linked to the reading topic (Dutta, 1994; Stoller, 1994), reading a related short text for gist (Stoller, 1994), pre-testing in forms of multiple choice or true or false items (Zhao & Zhu, 2012). By this way, students are encouraged to make guesses and inferences before reading as well as activate their schemata (Aebersold & Field, 1997; Lee & VanPatten, 1995; Swaffar et al., 1991; Zhao & Zhu, 2012).

In addition to three previewing techniques above, vocabulary pre-teaching (Carrell, 1988; Carrell & Eisterhold, 1983; Hudson, 1982; Johnson, 1982; McCormick, 1989) and instructional games (Al-Issa, 2006; Williams, 1987) can be used to activate and build learners' schema. These are kinds of direct instruction to provide learners with some background knowledge before reading as Kitto and West (1984), Carrell (1988), Land (1986) suggested. Vocabulary pre-teaching could be definitions of difficult words, translation of foreign phrases, and explanation of difficult concepts (Hudson, 1982; Carrell, 1988; Johnson, 1982; McCormick, 1989). According to Babbitt (2002), "collecting and defining vocabulary terms from the text will assist students in understanding words that otherwise may interrupt their reading". In ESP teaching context, Tudor (1989) suggested that this is one of the possible ways to activate appropriate content schemata to improve learners' reading comprehension. However, "preteaching of vocabulary was less effective than prequestioning and the presentation of a pictorial context in enhancing comprehension" (Taglieber et al., 1988). That leads to the employment of a more interesting activity called instructional games. Instructional games could be in form of simple words or information-gap games (Goh, 2002; Nunan, 2007) but must have special meaning and relate to each other in special ways (Carrell & Eisterhold, 1983).

Pre-questioning

Pre-questioning is also a common and effective pre-reading activities (Hansen, 1981; Lazar, 1993; Taglieber et al., 1988). Pre-reading questions can be structured questions or unstructured questions asked by teachers (Royer, Bates, & Konold, 1984; Singer, 1978) called guided-questions or self-generated by students (Taglieber et al., 1988). Through pre-questioning in pre-reading stage, students set purposes for reading (Johnson, 1981; Mastropieri & Scruggs, 1997). According to Singer (1978) and Williams (1987), by applying pre-questioning, the teacher ask questions about the reading text, the students work in groups to answer with new questions. At this point, pre-questioning can also be called the interactive discussion activities in which the students discuss similar or related issues based on prompt questions (Dole, Valencia, Greer, & Wardrop, 1991). When students learn to generate reading questions, their overall comprehension improves (Yopp, 1988).

Brainstorming

Besides previewing and questioning, brainstorming is another popular strategy of recalling schema (Wallace, 1992). According to Lee and Vanpatten (1995), brainstorming before reading can bridge the gap between the reader and a text. Hood and Solomon (1985) stated that "brainstorming activities aimed to make use of students' own experience and knowledge and also a way to introduce some of the vocabulary items from the text in a meaningful way". There are various brainstorming activities such as

reflection and recording (Carr & Thompson, 1996; Spires & Donley, 1998; Strangman et al., 2003; Walraven & Reitsma, 1993), concept map/advance organizer/semantic mapping/ mind mapping (Barton & Jordan, 2001; Freedman & Reynolds, 1980; Stoller, 1994; Zimmerman, 1997), K-W-L chart (Carr & Ogle, 1987), and pre-reading plan (Langer, 1981; Roe, Stood-hill, & Burn, 2010).

All in all, there are three main types of pre-reading activities: previewing, questioning, and brainstorming. These activities include various sub-categories. In reading teaching, "the pre-reading activities should be selected according to the experience and interest of students" (Rivers, 2000) as well as should not be too long, irrelevant, and monolog by the teacher (Nuttal, 1982). They should be flexibly applied to successfully activate and build learners' schema before reading. The pre-reading activities should work best when used with varying combinations because different pre-reading activities may be more or less effective with different proficiency level (Carrell, 1984b). Specifically, a combination of previewing and brainstorming is more effective than merely using brainstorming with short stories (Karakaş, 2005).

Summaries of Related Previous Studies

Numerous researchers have conducted a variety of studies on the effectiveness of different pre-reading schema-building activities in enhancing ESL and EFL learners' reading comprehension in both GE and ESP. Amongst them, some examined only one activity (Munsakorn, 2015); some studied two (Madaoui, 2013; Mihara, 2011; Thongyon & Chiramanee, 2011), three (Alemi & Ebadi, 2010; Lee, 2012; Hashemi, Mobini, & Karimkhanlooie, 2016; Maghsoudi, 2012; Nguyen T. Binh, 2009; Nguyen T. Tu, 2005; Yusuf, 2011), or seven types of pre-reading activities (Dang T. Nhu, 2012).

Examining the positive impacts of self-generated questions on ESP reading performance, Munsakorn (2015) carried out a within-group experimental research on 40 engineering freshmen at Bangkok University, Thailand. The research instruments were the pretest and posttest of reading comprehension and a self-reported questionnaire. Using descriptive statistics and a dependent t-test measure, the researcher found that students significantly performed better in the posttest.

Thongyon and Chiramanee (2011), Mihara (2011), and Madaoui (2013) compared the effects of two separated pre-reading activities. Thongyon and Chiramanee (2011) studied the effects of guessing reading content from pictures and asking pre-reading questions on reading comprehension ability. The participants composed of 60 grade-9 students studying at Muslim Witaya Phuket of Thailand who were selected and assigned into two experimental groups of 30 based on the score from a pretest of reading comprehension ability. These two groups, then, were treated with two different pre-reading activities, guessing reading content from pictures and asking pre-reading questions. The experiment lasted 11 weeks of totaling 22 periods. The research instruments included 22 lesson plans, a reading comprehension test (used as pre- and post-tests), and an attitudinal questionnaire about the implementation of two pre-reading activities. By analyzing statistically to identify means, standard deviation, and t-value, the researchers revealed that all participants performed better in the post-test. However, it was worth noticing that the group receiving guessing reading content from pictures outperformed the group treated with pre-reading questions.

In a Japanese university context, Mihara (2011) conducted a research on the effects of two separated Pre-SBAs including vocabulary pre-teaching and pre-questioning on Japanese engineering freshmen's reading comprehension. The findings revealed that although EFL students feel satisfied if they were taught vocabulary before reading a passage, vocabulary pre-teaching was less effective for Japanese students than they expected. In addition, students with higher English proficiency had superior reading performance over lower-level students regardless of the pre-reading activities used.

In Morocco, Madaoui (2013) explored the effects of two separated pre-reading activities (pre-questioning and vocabulary pre-teaching) on Moroccan freshmen's reading comprehension. The most obvious finding to emerge from this study was that the two experimental groups significantly achieved higher comprehension scores than the control group. However, the group with pre-reading vocabulary

activity underperformed the group with pre-questioning activity. These findings proved that pre-reading activities could be useful techniques to facilitate EFL learners' reading comprehension. They were also interpreted by schema-theoretic view of the reading process and offer some implications for EFL reading instruction.

Yusuf (2011), Hashemi et al. (2016), Lee (2012), Maghsoudi (2012), Alemi and Ebadi (2010), Nguyen T. Binh (2009), and Nguyen T. Tu (2005) investigated the effect of 3 pre-reading activities. Amongst them, Yusuf (2011) advocated the effects of text-previewing activities, pre-questioning, and reflection and recording on ESL students' performance in reading comprehension. The participants were 50 students from two senior secondary schools in Kaduna (Nigeria) including both male and female. This study's findings revealed that pre-reading activities had a considerable contribution to reading performance. It implied that pre-reading activities offered a useful tool to facilitate students' reading comprehension. Pre-reading activities such as text-previewing, pre-questioning, and reflection and recording should be designed to make reading comprehension lessons more purposeful and meaningful.

Similarly, in another high school, Hashemi et al. (2016) examined the impacts of three separated content-based pre-reading activities (reflection and recording, KWL chart (What I Know, Want To Know, Learned), and pre-questioning techniques) on Iranian high school EFL learners' reading comprehension. Their findings revealed that three experimental groups significantly outperformed the control group in reading comprehension. In addition, it was worth noticing that the KWL group performed better than the other two groups.

In another high school context, Lee (2012) also investigated the effects of three separated pre-reading activities (pre-questioning, visual guides, vocabulary pre-teaching) on Korean students' second language (L2) reading comprehension. The findings indicated that the utilization of pre-questioning and visual materials significantly influenced English reading comprehension. Nevertheless, pre-teaching vocabulary did not contribute to L2 reading comprehension. Moreover, these pre-reading activities had a stronger impact on low level students than on the intermediate or advanced students. Based on these findings, the researcher suggested that teachers needed to apply pre-reading activities in the classroom to improve lower-level learners' reading comprehension.

In Iran, Maghsoudi (2012) also discussed if schema activation via the application of three pre-reading activities (text-previewing, pictorial context, and the pre-teaching of vocabulary) has any effect on English-majored sophomore's reading comprehension of culturally-loaded texts. After analyzing the data, the researcher emphasized that the pre-reading activities employed would enhance students' reading comprehension. The results of the t-test demonstrated a significant difference between the mean scores of pre-test and post-test of the experimental group. Moreover, correlation analysis proved that when students received more background knowledge, their comprehension of cultural texts was improved.

In their study of undergraduate students' ESP reading comprehension in Razi University-Iran, Alemi and Ebadi (2010) highlighted the effects of three pre-reading activities (pictorial context, vocabulary pre-teaching, and pre-questioning) on learners' ESP reading comprehension. The participants were 40 undergraduate engineering students in the fourth and the fifth terms, so they were assumed to have enough linguistic knowledge and had passed general English I. The findings indicated that these pre-reading activities had had a significant positive association with students' ESP reading comprehension performance.

In Vietnamese context, Nguyen T. Binh (2009) investigated the effectiveness of using 3 pre-reading "schema-buildings" activities (mini-texts to introduce topic, pre-questioning, anticipation guides) in enhancing students' reading skills. The study was designed to identify the difficulties of second-year students when they studied English for Specific Purposes (ESP) at the University of Law, Ho Chi Minh City and consider if schema-building can help students improve their reading skills as well as deal with the difficulties of the incoming ESP texts. To achieve these aims, 255 students in 4 experimental groups and 4 control groups had been delivered a pre- and post-questionnaire to collect data. 8 teachers teaching these classes also involved in the study. One of the more significant findings to emerge from this study was that the learners found ESP reading difficult due to their poor specialized vocabulary and insufficient

background knowledge related to the ESP texts. The second major finding was that the necessity of applying schema building in teaching and learning ESP was highlighted.

In another Vietnamese context, Nguyen T. Tu (2005) carried on an experimental study to examine the effects of 3 separated pre-reading activities (pictorial context, vocabulary pre-teaching, pre-questioning) and the combination of them in pre-reading stage at the Practical School- University of Pedagogy in Ho Chi Minh City. Using pretest and posttest and a questionnaire for 91 students of 2 classes, she figured out that the combining pre-reading activities (pictorial context, vocabulary pre-teaching, pre-questioning) and vocabulary pre-teaching seemed to be more effective than pictorial contexts and pre-questioning alone.

Finally, Dang T. Nhu (2012) also drew our attention to the effects of seven types of pre-reading activities (reflection and recording, text-previewing, pre-questioning, semantic mapping, vocabulary activity, pictorial contexts, and anticipation guides) on students reading comprehension of grade 11 at Cho Lach A high school in Ben Tre province. In this study, pre and post-questionnaire, pre and posttest, and teaching journal (notes of the effectiveness of pre-reading activities in every class as perceived by the researcher who conducted these activities in class) were used to collect data. These additional pre-reading activities provided students with more information about the readings seemed to be helpful in improving the students' test scores.

Briefly, according to all empirical studies presented above, Pre-SBAs have been proved to positively contribute to learners' reading comprehension. Amongst them, nine studies (both in high school and university) are conducted in various ESL/EFL countries and three studies (two for GE in high school and one for ESP in university) are conducted in Vietnam. The subjects of most of these studies are non-English majors (except for one study on GE for English majors) at low levels of proficiency (elementary or pre-intermediate). Regarding the activities, they mainly focus on the separated effects or combining effects of some Pre-SBAs on reading comprehension (1-7 types of pre-reading activities) such as pre-questioning, vocabulary pre-teaching, visual guides, text previewing, reflection and recording; few studies have examined the effects of anticipation guides, semantic mapping/mind mapping, K-W-L chart, instructional games, pre-reading plan, or the combination of more than three activities or all of these activities. Accordingly, it can be seen that very few reliable studies have recently investigated impacts of Pre-SBAs on ESP reading comprehension.

Conclusion

In brief, numerous previous researchers have proved that schema-building activities in pre-reading stage have positively resulted in learners' reading comprehension. Most of the empirical studies in the world and Vietnam have been undertaken with positive findings on the impacts of Pre-SBAs on ESL/EFL reading comprehension. However, two following main groups of research gaps have been revealed: (1) These research studies have mainly focused on some common activities such as pre-questioning, vocabulary pre-teaching, visual guides, text-previewing, and reflection and recording. Such expositions are unsatisfactory because they tend to separately examine the effects of each activity, ignore the combining various activities in one class, and less focus on the frequency of implementation. Besides, little attention has been paid to other activities such as anticipation guides, instructional games, semantic mapping/mind mapping, and pre-reading plan as well as the combination of various activity. (2) Based on these research gaps, it's nescesary address the extent to which Pre-SBAs are employed in ESP reading comprehension teaching for English-majored students at HCMUTE. The conceptual framework for future study can be presented as below:

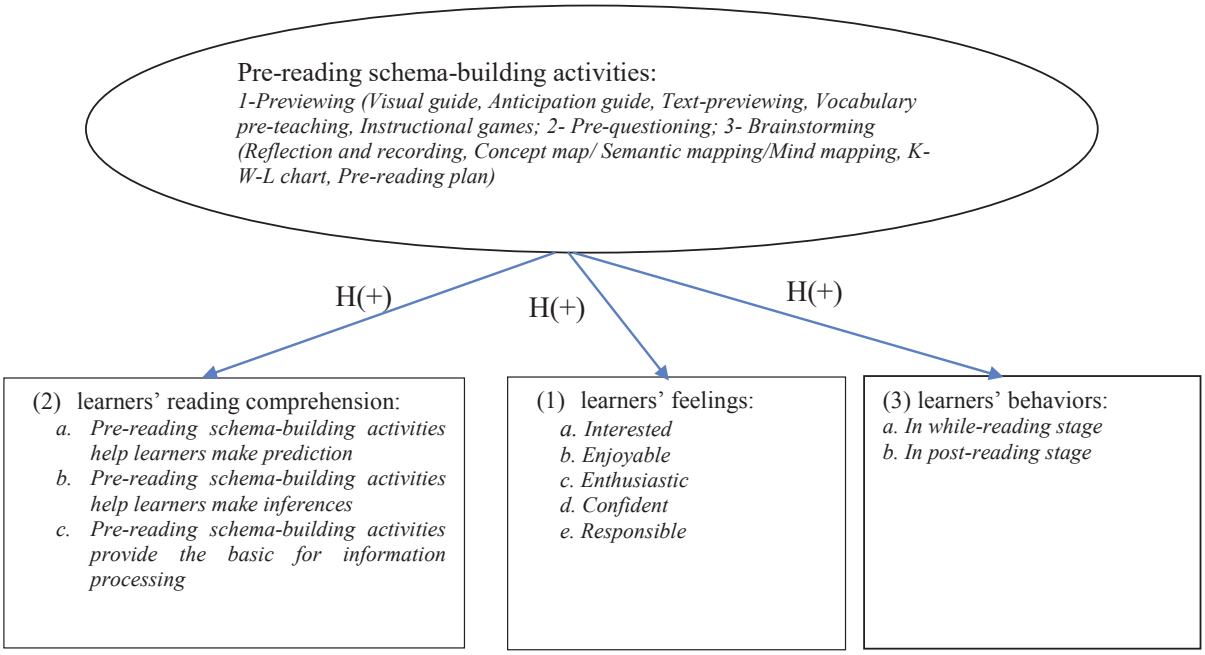

Figure 1. Conceptual framework for future study

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