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The Schematic Information-Processing (SIP) model of reading comprehension: Theoretical support for the utilization of text-relevant video segments to teach culturally unfamiliar texts in second/foreign language classrooms

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Additional information is available at the end of the article

Abstract: This paper proposes a new theoretical framework for reading instruction in second/foreign language classrooms. The theoretical framework introduced in this paper is called the Schematic Information-Processing (SIP) model of reading comprehension and is a combination of video-based instruction and various reading comprehension theories, models, and strategies. The SIP model supports the positive effects of the utilization of text-relevant video segments in teaching culturally unfamiliar texts in second/foreign language classrooms. According to this model, choosing appropriate text-relevant video segments and playing them in three stages of reading instruction—pre-reading, while-reading, and post-reading—not only can improve second/foreign language readers' reading comprehension of culturally unfamiliar texts but also can lead to a longer retention of the content of culturally unfamiliar texts as well.

Subjects: Teaching & Learning - Education; Multicultural Education; Bilingualism / ESL; Secondary Education; Theories of Learning; Teachers & Teacher Education; Theory of Education; Classroom Practice; Language & Linguistics; Language Teaching & Learning

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Amirreza Karami is a Ph.D. candidate in Curriculum and Instruction, specializing in TESOL, in the Department of Curriculum and Instruction at the University of Arkansas, USA. Amirreza has published several articles in different international, peer-reviewed journals such as *The IUP Journal of English Studies, Australian Journal of Teacher Education, International Journal of Language and Culture*, and *Educational Practice and Theory*. His research interests include vocabulary development and assessment, teacher education, and reading comprehension.

PUBLIC INTEREST STATEMENT

The purpose of this theoretical investigation is to introduce a new reading comprehension model called the Schematic Information-Processing (SIP) model of reading comprehension. This study also provides language teachers with the theoretical support for integrating text-relevant video segments into their reading instruction. The author uses reading comprehension theories and models to support the idea that the utilization of text-relevant video segments in different stages of reading instruction—pre-reading, while-reading, and post-reading—can help readers retrieve their background knowledge and prior experiences easier, cause readers to retain the content longer, and facilitate the process of comprehending culturally unfamiliar texts. The SIP model has very clear guidelines regarding the features of appropriate text-relevant video segments and the ways that they should be integrated into reading instruction.

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Keywords: Theoretical framework; Schematic Information-Processing (SIP) model of reading comprehension; culturally unfamiliar texts second/foreign language classrooms; text-relevant video segments

1. Introduction

The direct and indirect influence of reading comprehension on every aspect of human life cannot be ignored or underestimated (Mancilla-Martinez, 2020). Researchers in the field of language learning and literacy consider reading comprehension as one of the most important areas of research (Habók & Magyar, 2019) and the most important academic language skill (Carrell, 1988a; Grabe & Stoller, 2001). In addition, reading comprehension plays an important role in people's professional and academic achievement (H. Hwang & Duke, 2020), their engagement in civic and social life (Snow, 2002), their education levels and outcomes (Baker & Dalton, 2011; Melby-Lervag & Lervag, 2014; Proctor et al., 2007; Shanahan & Beck, 2006), and school retention (Christenson & Thurlow, 2004; Hernandez, 2011; Vaughn et al., 2015).

Reading comprehension has a vital role to play in people's lives due to its complexity and its strong connection to different domains of learning (Alvermann, 2001a; Diakidoy et al., 2011). For example, Luke et al. (2011, p. 159) mentioned the importance of cognitive and psycholinguistic approaches and stated that these approaches to "comprehension can be brought together with substantial engagement with (a) student cultural and linguistic resources; (b) rich, culturally relevant, and intellectually demanding themes, topics, and field knowledge." The importance, complexity, and multifaceted nature of reading comprehension are some of the most important reasons that teachers and scholars work hard to innovate new theories and models or improve existing ones in order to alleviate the process of reading comprehension.

The utilization of videos in reading instruction is a familiar strategy across the curriculum, but the SIP model is one that can be used by second/foreign language teachers to alleviate the process of reading comprehension of culturally unfamiliar texts. Teachers have also preferred using videos over other supplementary materials in recent years due to the fact that videos are easy to find and significantly effective teaching tools in classrooms (e.g., Allen & Smith, 2012; Hsin & Cigas, 2013; Lloyd & Robertson, 2012; Rackaway, 2012; Stockwell et al., 2015). In fact, videos can be used as a "content-delivery tool" (Brame, 2016, p. 1) in classrooms and can be chosen from various Internet sources such as Khan Academy, TED Talks, and YouTube.

H. Y. Lee and List (2019) identified two gaps in the literature with respect to reading comprehension and videos:

1) Reading comprehension strategies "have been examined in a binary fashion, as being used, or not, during reading, rather than as unfolding dynamically during the course of processing" (p. 268).

2) The compatibility of readers' self-regulating strategies with teachers' teaching strategies in general and to "the extent to which the comprehension strategies that students use during reading also support the comprehension of information presented through other modalities, namely video" (p. 269).

The authors argued that "more work is needed to further establish the consistency of strategic processing across text and video" (H. Y. Lee & List, 2019, p. 269). Therefore, it seems that the utilization of videos in classrooms to teach reading comprehension of culturally unfamiliar texts has been theoretically and methodologically underestimated and requires further investigation even though the utilization of videos in reading instruction has been supported extensively in the literature (karami et al., 2021).

Therefore, the purpose of this study is to propose a new reading comprehension model called the Schematic Information-Processing (SIP) model of reading comprehension. This model—which is a theoretical framework supported by different reading comprehension theories, models, and strategies—provides theoretical support and evidence for the positive effects of using text-relevant video segments to teach culturally unfamiliar texts in second/foreign language classrooms. According to the SIP model, appropriate and well-chosen text-relevant video segments should be played in three stages of reading instruction: pre-reading, while-reading, and post-reading as the text is being read in the classroom. It is important to include text-relevant video segments in all three stages because "the methodology of inserting the supplementary videos is very important for improvement of teaching" (Ljubojevic et al., 2014, p. 287). It should be mentioned that text-relevant video segments are playing a supportive role in this model which means that they should be considered as supplementary tools in teachers' toolbox

2. History of educational practices related to reading comprehension

The history of educational practices goes back to the early notions of educational psychologists (Resnick, 1985) due to the close relationship between psychology and instructional practices (Clifford, 1978; Dole et al., 1991; Glasser, 1982). Early concepts viewed reading comprehension as a skill composed of a set of sub-skills (Smith, 1965). In fact, in the traditional view of reading comprehension, researchers believed that "novice readers acquire a set of hierarchically ordered subskills that sequentially build toward comprehension ability" (Dole et al., 1991, p. 241). According to this view, readers—whose goals are to reproduce the meaning by acquiring a set of skills—have the passive role, and "once the skills have been mastered, readers are viewed as experts who comprehend what they read" (Dole et al., 1991, p. 241).

The traditional view was unable to provide a thorough description of the reading process. Therefore, researchers shifted their attention from the traditional to the cognitive-based view of reading comprehension stating that reading is a complex process (e.g., Anderson et al., 1984; Dole et al., 1991) and not the acquisition of a set of subskills. In the cognitive-based view, reading is considered to have an interactive nature (e.g., Dole et al., 1991; Rumelhart & Ortony, 1977) and a constructive nature (e.g., Anderson et al., 1977; Dole et al., 1991; E. E. Rumelhart, 1980; Spiro, 1980). The interactive nature is the result of the interaction between readers' background knowledge and reading strategies while readers, both novice and experts, in the constructive nature "use their existing knowledge and a range of cues from the text and the situational context in which the reading occurs to build, or construct, a model of meaning from the text" (Dole et al., 1991, p. 241). Background knowledge is deeply rooted in schema theory and is viewed "as the content area knowledge or topic familiarity learners possess regarding texts" (McNeil, 2011, p. 884). Table 1 provides a summary of the difference between the traditional and the cognitive-based view of reading comprehension (Adapted from Dole et al., 1991).

Kintsch and van Dijk (1978) stepped further and introduced the processing model of text comprehension and argued that "the semantic structure of texts can be described both at the local microlevel and at a more global macrolevel" (p. 363). The authors argued that reading comprehension can be separated into different components and structures such as semantic structures. According to this model, which is for both skilled and less-skilled readers, reading comprehension takes place when three sets of mental operations occur in readers' minds (Kintsch & van Dijk, 1978, p. 363):

- Organizing the discrete elements of meaning into a coherent whole;
- Summarizing the meaning;
- Generating "new texts from the memorial consequences of the comprehension processes."

Scholars (e.g., Kintsch, 1988, 1998; Kintsch & van Dijk, 1978; van Dijk & Kintsch, 1983) agree that reading comprehension is a complex and multilayered cognitive activity which implies that reading

Table 1. The difference between traditional view and cognitive-based view

Reading Comprehension	Reading	Reader	Comprehension Ability	Meaning Construction	Emphasis	Nature
Traditional View	Complex	Passive	The acquisition of a set of subskills	Mastery of subskills and applying them to text	Automatic	Discrete
Cognitive-Based View	Convoluted	Active	Interactive	Integration of background knowledge and reading strategies	Intentional and conscious	Holistic

instruction should cover various aspects in order to help readers achieve more successful reading comprehension. Table 2 shows a select summary of reading comprehension models that focus on cognitive aspects of reading comprehension outlined by Angosto et al. (2013); Reichle (2015); and Shahnazari and Dabaghi (2014) to name a few.

Reichle (2015) also reviewed four computational models—the Dual-Route model of word identification, the Simple Recurrent Network model of sentence processing, the Construction-Integration model of discourse representation, and the E-Z Reader model of eye-movement control in reading developed by Coltheart et al. (2001), Elman (1990), Kintsch (1988), and Reichle et al. (2012), respectively—and argued that these models have been supported extensively by empirical studies in the past. It is beyond the scope of this study to discuss computational models in detail.

3. Definitions of reading comprehension

The main purpose of reading instruction is to enhance the reader's comprehension of passages because some researchers such as Bölükbaş (2013) believe that "reading does not mean anything unless there is comprehension" (p. 2147). Therefore, definitions may vary based on the area of focus—reading ability or comprehension. Accordingly, the definitions of reading—as one of the most valued skills of human development (Stewart et al., 2007)—are intertwined with the definitions of reading comprehension in the literature. For example, Goodman (1967, p. 135) focused on

Table 2. some of reading comprehension models that focus on cognitive aspects of reading comprehension

Models of Reading Comprehension	The Role of the Reader	Required Skills	The Processing of Information	The Role of Background Knowledge and prior experience
Bottom-Up Model	Active decoder of the text	Lower-order reading skills	Mechanical movement from parts (letters) to the whole (meaning making) in a way that is independent from each other	No Role
Top-Down Mode	Active engagement with the text	Higher-order reading skills	Moving from the whole (meaning) to the parts (letters) through making a connection between various sources of knowledge (e.g., the title, syntactic, semantic, etc)	Important role
Interactive Model of Reading (Rumelhart, 1977)	Active connector	Lower-order and higher-order reading skills	Making interaction between the text and the reader	Important role
Interactive Compensatory Model (Stanovich, 1980)	Active compensatory role	Lower-order and higher-order reading skills	Providing alternative compensation for deficiencies	Important role
Construction-Integration Model of Reading (Kintsch, 1988, 1998; Kintsch & van Dijk, 1978; van Dijk & Kintsch, 1983)	Active developer, evaluator, and creator of a network by the help of working memory	Lower-order and higher-order reading skills	The construction, integration, and activation of information in short-term and long-term memory	Important role

the relationship between psychological and linguistic aspects of reading comprehension and defined it as a "psycholinguistic guessing game" while some others (Anderson, R. C. & Pearson, D. P, 1988; McNeil, 2011) described comprehension as a kind of accommodation that takes place in the reader's mind.

Goodman (1973b, p. 164) defined reading comprehension as "a process in which the reader picks and chooses from the available information only enough to select and predict a language structure which is decodable." Grabe and Stoller (2002, p. 9) highlighted the linguistic aspects in reading comprehension and defined it as " … the ability to draw meaning from the printed page and interpret this information appropriately." McNamara and Magliano (2009) argued that reading comprehension is a complex cognitive process with deeper levels of information processing. Nassaji (2011, p. 173) focused on the cognitive aspects and described reading comprehension as "a complex cognitive skill that encompasses subskills, processes, and knowledge sources."

4. Cultural relevance and reading comprehension

Reading comprehension is a complex process that encompasses different types of sources of knowledge (Nassaji, 2002). For example, researchers highlight the importance of readers' world knowledge in successful reading comprehension (e.g., Fletcher, 1994; Hirsch, 2003; Pardo, 2004). Cultural knowledge is a part of the individual's world knowledge required for successful comprehension of culturally unfamiliar texts (e.g., Droop & Verhoeven, 1998; Sabatin, 2013). Carrell and Eisterhold (1983) mentioned the importance of readers' cultural background knowledge and stated that "one of the most obvious reasons why a particular content schema may fail to exist for a reader is that the schema is culturally specific and is not part of a particular reader's cultural background" (p. 80). The findings of previous studies also support the "facilitating effect of cultural familiarity" not only for reading comprehension but also for reading efficiency as well (Droop & Verhoeven, 1998, p. 253). Some researchers took one step further and stated that language and culture are intertwined in which language is "either the matrix or the reflection of culture" and "teaching language means teaching culture" (Dai, 2011, p. 1031).

Some scholars believe that "without the study of culture, teaching L2 is inaccurate and incomplete" (Genc & Bada, 2005, p. 73). Some others also believe that "learning a language means also the study of a different culture" (Kovács, 2017, p. 73). Some researchers (e.g., Chastain, 1971; Cooke, 1970; Gardner & Lambert, 1959, 1965, 1972; Kitao, 1991; Kramsch, 2001; Stainer, 1971) have mentioned some internal and external benefits of teaching culture along with teaching the target language. For example, teaching culture can motivate learners, make them interested in the target language, make language learning more meaningful, improve social relationships between language learners and native speakers, and enhance language learners' general knowledge about the target culture.

"It is important to offer the possibility to language learners to experience and understand how culture and language shape people's world views" (Kovács, 2017, p. 80). Kovács (2017) provides language teachers with some suggestions regarding the introduction of the target culture in language classrooms. Kovács (2017) considers authentic materials as the first and the most important teaching tool. Authentic materials can help language learners experience the target language in the same way that a native speaker does. For example, Markham (2001, p. 331) compared three groups of advanced university-level ESL students in terms of their "comprehension of contrasting, religion-specific video material." The author reported that students' existing background knowledge could lead to more successful comprehension of the "culturally different video material" (Markham, 2001, p. 341).

Although some researchers have emphasized the importance of readers' world knowledge (e.g., Fletcher, 1994; Hirsch, 2003; Pardo, 2004), others (e.g., Bernhardt, 2011; Cruz & Escudero, 2012) argued that there are some other factors, such as motivation, that seem to be more important

than world knowledge. Therefore, teachers should use reading comprehension strategies that cover various factors and aspects of reading comprehension.

5. The Theoretical Framework of the Schematic Information-Processing (SIP) Model of Reading Comprehension

Reichle (2015, p. 271) argued that "future models of reading will build upon the success of their predecessors by integrating models from two or more of the aforementioned domains." The SIP model of reading comprehension is a representation of a combined model of schema theory, information processing theory, dual-coding theory, and other reading comprehension models such as the Construction-Integration model. It provides theoretical support for integrating text-relevant video segments in three stages of reading instruction—pre-reading, while-reading, and post-reading—to teach culturally unfamiliar texts.

The Schematic Information-Processing (SIP) model of reading comprehension is an eclectic model that derives ideas from a diverse range of theories and models related to reading comprehension and video-based instruction. The reason for this eclecticism is that some researchers (e.g., Kendeou & O'Brien, 2018; Perfetti & Stafura, 2014) mentioned the complexity of reading comprehension and highlighted the inability of reading comprehension theories and models solely to describe this convoluted process in depth. Therefore, it seems that "the development of multiple theories, each focusing on a separate component of reading" or "the development of a 'good-enough' approximation of a theory of reading comprehension" can provide a better explanation and a detailed analysis of successful reading comprehension (Kendeou & O'Brien, 2018, p. 8).

The review of the literature shows that various reading comprehension models and frameworks have been developed so far in order to reach the "good-enough approximation" mentioned by Kendeou and O'Brien (2018). The review also shows that some areas still remain unexplored in the literature indicating that there is still room for the development of new theoretical frameworks since there remains "room for lots of things to go wrong when comprehension fails" (Perfetti, 1994, p. 885). Olasina (2017, p. 236) also highlighted this idea and argued that "fortunately, there are calls for new models and approaches to teaching and learning in a digital environment." Although one theory can be applied to developing a successful reading instruction, the combination of theories seems to be more productive and successful. Previous findings suggest that new strategies must also be developed for activating the reader's background knowledge (National Reading Panel (U.S.) & National Institute of Child Health and Human Development (U.S.), 2000; Ness, 2009; Pilonieta, 2010; Richardson et al., 1991) in order to provide the necessary support for successful comprehension of texts.

The Schematic Information-Processing (SIP) model of reading comprehension (Figure 5) also approaches the "good-enough approximation" idea through looking at this construct from a new perspective. Thus far, different theories have been developed by researchers to explain reading comprehension, the importance of audio-visual materials, and the effectiveness of using videos in reading instruction, but no study has provided a theoretical framework for the integration of text-relevant video segments to teach culturally unfamiliar texts in second/foreign language classrooms. The findings of previous studies have supported the use of videos in language classrooms (e.g., Chun & Plass, 1996, 1996b; Jones & Plass, 2002; Lin, 2016) through reporting positive effects of video-based instruction on learning different areas of second/foreign language such as reading comprehension. The SIP model offers a bridge to support reading comprehension by integrated text-relevant information in the target language that provides instructors with a schema to guide them through the stages of reading comprehension.

5.1. Pre-reading stage (surface-level processing)

Pre-reading activities, also called warm-up activities, are very important for initiating reading instruction in the classroom. Warm-up activities are also called ice-breakers because they can

promote students' involvement, participation, and engagement in the classroom. Researchers have mentioned benefits of using warm-up activities on more successful comprehension of texts such as attracting students' attention, helping them concentrate on topics, and preparing them for the main activities (Allwright, 1984; Velandia, 2008). Warm-up activities can enhance the focus level of students in classrooms (Velandia, 2008) by helping them focus solely on the main idea rather than jumping from topic to topic and lower students' affective filters by helping them feel more comfortable through talking about their prior knowledge and cultural experiences. Teachers should view students' funds of knowledge (Moll et al., 1992) as an opportunity in their classrooms to indicate their respect, admiration, and support for student engagement and learning. These funds of knowledge can also play a role in planning as a kind of scaffolding into their reading instruction.

According to the research on the Situation Model (Castles et al., 2018; Kintsch, 1998; Zwaan & Radvansky, 1998), activating background knowledge can draw attention to readers' initial impression and establish their primary connection with texts. According to the Situation Model, the reader of a text interacts with the text at the surface level to get a holistic picture of the content of the text. This interaction is like a bridge to "extend and refine the propositional message to integrate it into a situational representation of the text" (Shin et al., 2019, p. 322). This is also called the meaning construction which is a rich "mental representation of the situation being described by the text" (Castles et al., 2018, p. 28). Meaning construction goes beyond reading some printed letters on papers and takes place through the connection of previously acquired knowledge with new information. Readers' background knowledge as a necessary construct is deemed to be important in the Situation Model like other models of reading comprehension.

Viewing text-relevant video segments, as a warm-up activity before reading the text, can also allow viewers to retain new information longer in their working memory. Working memory is a temporary storage for the input and the processing of information which prioritizes attention, restrains irrelevant information from interfering, and works closely with long-term memory to retrieve already constructed information (Baddeley, 2000; Just & Carpenter, 1992). Not only can warm-up activities foster motivation (Velandia, 2008), but they can also prioritize attention in working memory and initiate the processing of information at the surface level. This requires the reader to draw attention in order to fill the capacity of working memory with relevant information (Cowan, 2010).

Playing text-relevant video segments, as a part of the warm-up activity, can help readers focus more on the content of the culturally unfamiliar text and avoid distractions and irrelevant information. Text-relevant video segments will also help readers connect form to meaning from sentence-level to discourse level in order to follow the coherence of the text through referring to cognitive resources and previously constructed information (Alptekin & Ercetin, 2011). Shin et al. (2019, p. 337) reported that "the positive effect of prior knowledge on cognitive performance can be enhanced by high working memory capacity."

In addition to the basic requirements—individual's focused attention, individual's experience, individual's background knowledge, and input—readers need additional resources for initiating their comprehending process. "Understanding text is a complex task that places heavy demands on attention, memory, and high-level language processes" (Castles et al., 2018, p. 21). Perfetti and Stafura (2014) mentioned three important constructs involved in successful reading comprehension in their Reading System Framework:

- different types of knowledge such as linguistic, orthographic, and general;
- strategies for information processing such as decoding and inferencing;
- cognitive systems such as memory.

New information must move from working memory to long-term memory where relevant schemas have already been constructed. A good fit of the input into the existing and predefined

schemas takes the input one level higher to the information-processing stage. If the input does not fit the existing schema, a violation occurs and sampling from the input starts over again. According to Goodman's psycholinguistic model of reading (Goodman, 1967, 1971, 1973a), input processing is "an ongoing, cyclical process of sampling from the input text, predicting, testing and confirming or revising those predictions, and sampling further" (Carrell & Eisterhold, 1983, p. 554).

For more successful comprehension of the text, the reader should apply some strategies that can modify or even accommodate new information into previously constructed schemas (Kucer, 2001). "Schemas are invisible, intrinsic, and complicated cognitive constructs in human minds. They share similar features and values derived from the individual's experience and background knowledge to facilitate the construction of meaning" (Karami, 2020). Schemas cover three areas: linguistic, content, and formal (Levine & Reves, 1994). According to Levine and Reves (1994, p. 71) and some other researchers (Carrell, 1983, 1984, 1985, 1991; Carrell & Eisterhold, 1983), linguistic schemas are the ability of the reader to decode and process discourse, content schemas are the content knowledge of the reader from the text, and formal schemas are the reader's knowledge of "the rhetorical structure of the text."

Pardo (2004, p. 277) mentioned a variety of strategies such as "monitoring, summarizing, clarifying, questioning, visualizing, predicting, and organizing" that can be applied by readers to support meaning construction. The lack of common features between the reader's background knowledge and the content of the text means extra work on the part of the reader. Therefore, readers should apply these strategies to find commonalities between their background knowledge and the text that they are reading (Pardo, 2004).

Some researchers (Grabe, 2009; Koda, 2005; Pressley, 2006) argued the lack of evidence for Goodman's psycholinguistic model of reading (Goodman, 1967, 1971, 1973a). In fact, some researchers argued that fluent readers might not take samples from the text, or they "do not usually guess upcoming words in a context, and make less use of context for word identification than poor readers" (Shahnazari & Dabaghi, 2014, p. 8). Grabe (2009) argued against them and highlighted the applicability of Goodman's psycholinguistic model of reading (Goodman, 1967, 1971, 1973a) to primary stages in reading comprehension. Some ideas from Goodman's psycholinguistic model of reading (Goodman, 1967, 1971, 1973a) were used in the SIP model to explain the primary stages of reading comprehension of culturally unfamiliar texts supported by viewing text-relevant video segments.

Hannon (2012) described comprehension of a text as an "information laden" process in which the processing speed is important. In other words, the slower the processing of a sentence, the more delay its comprehension. This slow speed can finally "delay overall information processing, which in turn might result in information loss" (Hannon, 2012, p. 128). Text-relevant video segments might be expected to increase the speed of information processing by providing more resources and reducing information laden procedures for readers in the second/foreign language. Playing text-relevant video segments in the pre-reading stage can help readers get an overview of what is going to happen in the text.

The pre-reading stage is what de Koning et al. (2009) calls cueing or what Brame (2016) calls signaling. Cueing or signaling is the highlight of the most important information. de Koning et al. (2007) showed that cueing can direct learners' attention to the most important aspects in such a way that people who received cueing outperformed those who watched animation without cueing in terms of comprehension and question transferring.

Signaling or cueing takes different forms. For example, "increasing the luminance of specific objects in a visual display (e.g., de Koning et al., 2007), changing a word's font style to boldface in a text (e.g., Mautone & Mayer, 2001), flashing to connect related elements (Craig et al., 2002; Jeung et al., 1997), giving related elements the same color (Kalyuga et al., 1999), providing orienting cues

like gestures as guides to related elements (Lusk & Atkinson, 2007), or by adding an outline and headings indicated by underlining and spoken emphasis (Mayer, 2005c)" are some examples of signaling that have been mentioned by Ibrahim et al. (2012). The other form of signaling that is highly preferred in the SIP model is the teacher's intentional verbal signaling. Teachers should pause the video in the pre-reading stage and elaborate on it if necessary. The findings of the previous studies show that providing signals for learners can enhance the recall of information highlighted by the signals (e.g., Lorch & Lorch, 1996).

Therefore, short text-relevant video segments can provide a brief overview of the most important information about the content of the culturally unfamiliar text. Highlighting the key information by playing short text-relevant video segments before reading the text can direct readers' attention and ignite processing of the key information. Highlighting the key information or cueing not only brightens the key aspects or darkens the unnecessary aspects but also "reduces the effects of extraneous cognitive load induced through unnecessary searches" (Ayres & Paas, 2007, p. 813). This activity can also reduce the "extraneous load by helping novice learners with the task of determining which elements within a complex tool are important, and it can also increase germane load by emphasizing the organization of and connections within the information" (Brame, 2016, p. 2). Germane load (GL) conceptualized by Sweller et al. (1998) refers to "the mental resources devoted to acquiring and automating" schemas in long-term memory (Debue & van de Leemput, 2014, p. 2).

The retention of input in short-term memory without transferring it to long-term memory will result in permanent loss of the input (Lin et al., 2011). The limitations of working memory in terms of inferential processing and the construction of models were also mentioned by other researchers (Barreyro et al., 2012). "Working memory is what constantly binds local and global understanding of a text" (Shin et al., 2019, p. 321) and predicts reading comprehension performance (Carretti et al., 2009; Daneman & Carpenter, 1980; Kintsch & van Dijk, 1978; Linck et al., 2014; Nouwens et al., 2017).

Highlighting the key information in video segments in the pre-reading stage, signaling them, and targeting particular elements of the video for processing in the individual's working memory will direct the viewers' attention to the main purpose of the text. This will help readers not only think deeper about the text in advance, but it will also help them guess upcoming words, sentences, or even the content of the text. By the removal of input ambiguities in the confirmation stage and by providing readers with sufficient information via playing text-relevant video segments, teachers can help readers fit the input into their previously constructed schemas. The reader will then be able to move forward to deeper levels of information processing which is the interpretation stage.

Figure 1 shows a summary of the processing of information in the pre-reading stage before reading culturally unfamiliar texts supported by viewing text-relevant video segments.

Playing text-relevant video segment(s), before reading culturally unfamiliar texts, is a required step in the Schematic Information-Processing (SIP) model of reading comprehension because viewing video segment(s) in the pre-reading stage can help readers connect new information to already constructed schemas. Making this connection will ease the further processing of information and will lead to more successful comprehension of culturally unfamiliar texts.

5.2. While-reading stage (deeper-level processing)

The second phase in the Schematic Information-Processing (SIP) model of reading comprehension focuses on deeper levels of information processing. This phase can also be called the interpretation stage or the meaning construction stage since two modes of information processing, bottom-up and top-down, occur simultaneously. Both modes of information processing, bottom-up and top-down, are of little dispute among researchers in second/foreign language reading (McNeil, 2011). To process information, both modes must occur simultaneously (E. E. Rumelhart, 1980). This

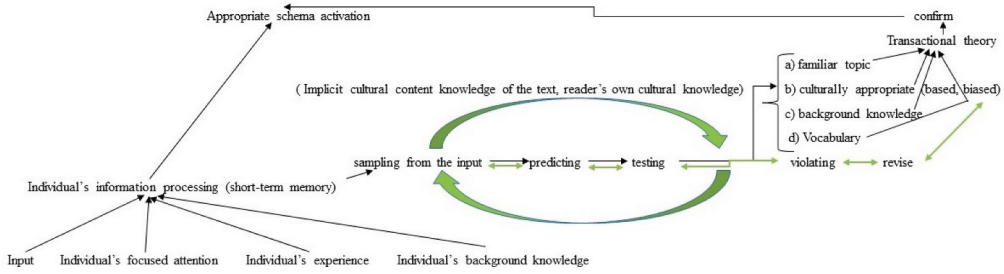

Figure 1. the summary of the processing of information in the pre-reading stage before reading culturally unfamiliar texts supported by viewing text-relevant video segments.

simultaneous processing of information has also been highlighted by McNeil (2011, p. 883) who stated that "within each level of processing, a multitude of factors operate simultaneously to construct meaning."

Each mode of information processing, bottom-up or top-down, focuses on the processing of one type of information. For example, novel concepts—concepts that do not fit into the reader's previously constructed schemas—are processed in bottom-up processing while top-down processing resolves ambiguous concepts or chooses alternative interpretations for them. Bottom-up processing takes the smallest units from the text to make predictions. On the other hand, "top-down processing starts with general to confirm these predictions" (An, 2013, p. 130). To sum up, bottom-up processing fills out the schemas or instantiates them while top-down processing facilitates "their assimilation if they are anticipated by or consistent with the listener/reader's conceptual expectations" (Carrell & Eisterhold, 1983, p. 557). The co-occurrence of both types of information processing, bottom-up and top-down, moves the input further to the next level of information processing.

5.2.1. Reader's interest and reading comprehension

Some internal and external factors must be present for further processing of information in the while-reading phase. Internal factors include the reader's interest level and intrinsic motivation. External factors include extrinsic motivation which can vary from the teaching strategy to getting a good grade in the exam. Intrinsic motivation was defined as the extent to which the individual is eager and works hard to learn the language "because of a desire to do so and the satisfaction experienced in this activity" (Gardner, 1985, p. 10). On the other hand, extrinsic motivation depends on external factors "when learning is done for the sake of rewards such as grades or praise" (Ng & Ng, 2015, p. 98). Without being sufficiently motivated, "individuals with the most remarkable abilities cannot accomplish long-term goals" (Ng & Ng, 2015, p. 98).

Kuhn et al. (2006) mentioned the motivational aspects of reading comprehension and stated that challenging texts might demotivate readers. For example, Marshall (2002) reported the effectiveness of watching text-relevant video segments on the comprehension of a text in terms of readers' motivation and interest. In another study, Canning-Wilson (2000) reported the results of a large-scale survey and argued that language learners like to learn a new language through video-based instruction. In another study conducted by Ljubojevic et al. (2014), the authors investigated the effects of integrating short educational videos with teaching strategies to investigate students' motivation and efficiency of learning. The results of the study showed that after integrating the educational videos into teaching strategies, students' motivation and efficiency of learning increased. The authors also argued that "better efficiency is achieved if the educational content is congruent with the lecture that has been displayed" (Ljubojevic et al., 2014, p. 287). Ljubojevic et al. (2014) also reported that the integration of the video into the middle of a lecture is extremely helpful. Viewing relevant video segments not only promotes readers' interest, but they can also have positive effects on their motivation (Kusumaraysdyati, 2004; Luo, 2004).

Marshall (2002) pointed out that Arousal theory, Interest Stimulation theory, and Short-Term Gratification theory are among theories of motivation that explain the comprehension process supported by video segments. According to these theories, a well-chosen video is able "to engage the learner, activate emotional states, initiate interest in a topic, and allow for absorption and processing of information" (Marshall, 2002, p. 7).

Arousal theory deals with the reader's level of interest and explains how this level can be elevated inside the individual's mind. It "deals with how communication messages evoke varying degrees of generalized emotional arousal and how concomitant behavior can be affected while a person is in this state" (Cruse, 2007, p. 7). Short-Term Gratification theory is concerned with the individual's motivation and its components such as concentration, enthusiasm, and perseverance. Short-Term Gratification theory is different from the Interest Stimulation theory in such a way that the former is concerned with motivation and its components while the latter states that the learning level of the individual will be improved by watching videos, promoting interest, and enhancing the imagination level of the individual (Cruse, 2007).

Figure 2 shows a summary of the processing of information in the while-reading stage while reading culturally unfamiliar texts supported by viewing text-relevant video segments.

It is important to play text-relevant video segments during the second stage of reading instruction for two reasons. The first reason is that the reading of a culturally unfamiliar text might be a cumbersome task for readers that could demotivate or even prevent them from following the text. Teachers need to keep readers motivated, engaged, and encouraged. The second reason is that text-relevant video segments can help deeper processing of information, facilitate the process of comprehending, and improve reading comprehension of culturally unfamiliar texts. Text-relevant video segments help readers transform information from their working to long-term memory even though the input is still controlled and needs further processing of information to be automated.

5.3. Post-reading stage (comprehension-level processing)

When the input is transferred from short-term memory to long-term memory through meeting the requirements of the controlled processing, the "stepping stones" for automatic processing is shaped. McLaughlin et al. (1983) highlighted the transformation process and stated that some skills, such as second language acquisition, involve "the gradual integration of lower-level skills and their accumulation as automatic processes in long-term storage" (p. 152).

According to Schneider and Shiffrin (1977), human memory is a passive collection of nodes that becomes activated through learning. "Each node is a grouping or set of information elements" (McLaughlin et al., 1983, p. 139) that can be activated in two different ways: controlled processing and automatic processing (Schneider & Shiffrin, 1977). For a response to be automated, a movement of the input from controlled to automatic status is required. Controlled processing is not based on learning. In fact, it is "a temporary activation of nodes in a sequence" and has been described as a "tightly capacity-limited" process that can be easily set up, changed, and applied to new situations. (McLaughlin et al., 1983, p. 139).

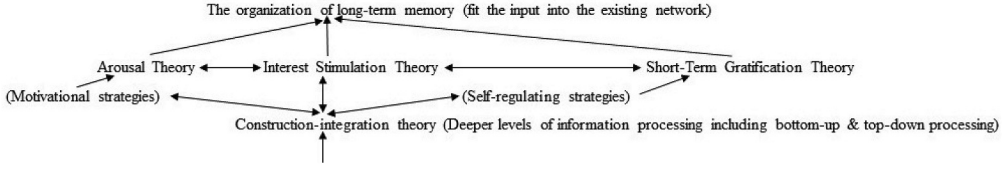

Figure 2. The summary of the processing of information in the while-reading stage while reading culturally unfamiliar texts supported by viewing text-relevant video segments.

While the input is still in the controlled status, it has not been internalized yet and requires more time and attention in order to be automated. Extra repetition, sufficient attention, and more practice in real-life situations are required to move the input further in order to be internalized and transferred to the next status which is automatic status. According to the SIP model, video segments should be replayed at this stage since the processing of syntax imposes high cognitive demands on the reader's mind, so the reader may not be able to process other types of text-related information related to the culture of the target language (Herron et al., 2000). The failure of the processing of information due to imposing high cognitive demands has been mentioned in the capacity theory of text comprehension developed by Just and Carpenter (1992).

The absence of appropriate and relevant cultural schemas not only leads to the violation of the input and hinders the process of transforming information into the individual's long-term memory but also leads to the misinterpretation of the input. For example, Steffensen et al. (1979, p. 11) focused on the difference between native and foreign language learners in terms of their cultural schemas and reported that second language learners who have constructed their schemas based on their foreign culture will comprehend a cultural text in the target language "quite differently from a native" speaker of that language "and probably will make what a native would classify as mistakes." In other words, second/foreign language readers "are adrift on an unknown sea" which means that if the topic and the content of the text is beyond their knowledge and experience (Aebersold & Field, 1997, p. 41), they might fail to successfully comprehend culturally unfamiliar texts.

Since not all language learners have access to native speakers and since they are all different in terms of their characteristics—e.g., reading skills, world knowledge, experience, culture, motivation, interest, and purpose—they will interpret, evaluate, and understand the text in different ways (Pardo, 2004). Text-relevant video segments can provide this opportunity for language learners to be exposed to the real use of words and sentences in the target language produced by native speakers in different situations. This will improve learners' knowledge of the target language and will also help them be more flexible not only in their word choices and grammar but also in other aspects such as pragmatics. This flexibility can improve reading comprehension in such a way that "flexible knowledge allows a learner to integrate the meaning of a word into a novel context so that the learner can make sense of the context as a whole" (McKeown et al., 2018, p. 576).

The stability and longevity of information will be enhanced once it has been stored and retained in the form of schema in long-term memory. "Processing the ability to seek, select, and synthesize information, generate well-organized and carefully associated memory structures, and utilize these memories are the hallmarks of effective reading comprehension and learning" (Wijekumar et al., 2018, p. 6). Thus, the topic and content of the text need to be familiar to the reader in terms of culture and background knowledge (Carrell & Eisterhold, 1983).

"Automatic Processing involves the activation of certain nodes in memory every time the appropriate inputs are present" (McLaughlin et al., 1983, p. 139). The activation process is the reader's learning-based response. In fact, the reader's learning-based response "is consistent mapping of the same input to the same pattern of activation over many trials" (McLaughlin et al., 1983, p. 139). Young et al. (2015, p. 68) stated that "when readers automatically recognize words, cognition is allocated for higher level processes, such as reading comprehension." In automatic processing, readers are given an opportunity to practice independently without being supported by the teacher (Young et al., 2015). When the transformation of information from controlled to automatic processing is completed, the comprehension of the text occurs.

Text-relevant video segments serve this purpose by providing readers of culturally unfamiliar texts with some familiarity towards the content. By viewing text-relevant video-segments, the reader of the text would be able to retrieve and recall the necessary information from his/her

previously constructed schemas which is the result of integration, synthesis, analysis, and the adaptation of previously acquired knowledge.

Figure 3 shows a summary of the processing of information in the post-reading stage after reading culturally unfamiliar texts supported by viewing text-relevant video segments.

The Schematic Information-Processing (SIP) model of reading comprehension (Figure 4) moves from the basic requirements of reading comprehension to comprehension-level processing. This model emphasizes the idea of the complexity of reading comprehension and argues that for successful comprehension of culturally unfamiliar texts, various intentional and unintentional processes must occur inside and outside of the individual's mind simultaneously.

The exposure of second/foreign language readers to text-relevant video segments in three stages of pre-reading, while-reading, and post-reading will help them understand the content and the structure of culturally unfamiliar texts better by providing a "bridge for the selection of important ideas and integrating these ideas with prior knowledge and forming a strategically associated memory structure about the content" (Wijekumar et al., 2018, p. 6).

Erten and Razi (2009, p. 61) argued that text-relevant video segments can "bring relevant background knowledge to the reading process" through the allocation of "more attentional space for textual analysis and interpretation" of passages. In fact, providing the individual with relevant information not only signals "the reader to focus on specific information in the text" (Sinatra & Broughton, 2011, p. 385), but it also helps them pay more attention to the content of the text.

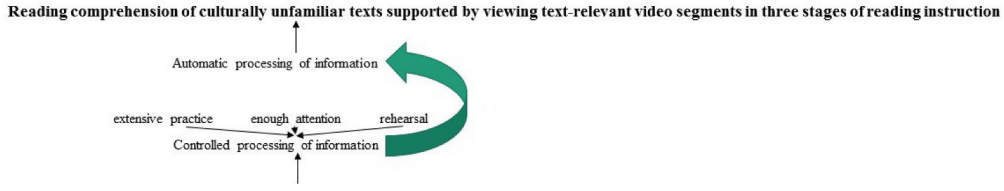

Figure 3. The summary of the processing of information in the post-reading stage after reading culturally unfamiliar texts supported by viewing text-relevant video segments.

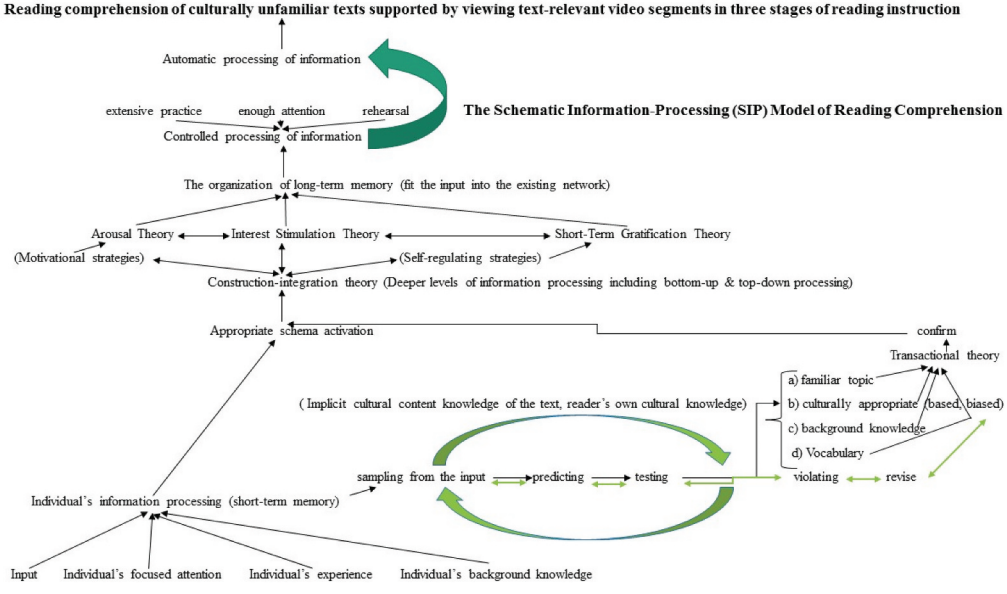

Figure 4. The schematic information-processing (SIP) model of reading comprehension.

Figure 5 illustrates the process of comprehending culturally unfamiliar texts using text-relevant video segments supported by the Schematic Information-Processing (SIP) model of reading comprehension.

6. Features of Text-Relevant Video Segments in the Schematic Information-Processing (SIP) Model of Reading Comprehension

Teachers should choose the most appropriate types of videos for their instruction based on several factors such as the subject matter and its difficulty level, classroom settings, and their students in terms of their cultural and linguistic values. The Schematic Information-Processing (SIP) model of

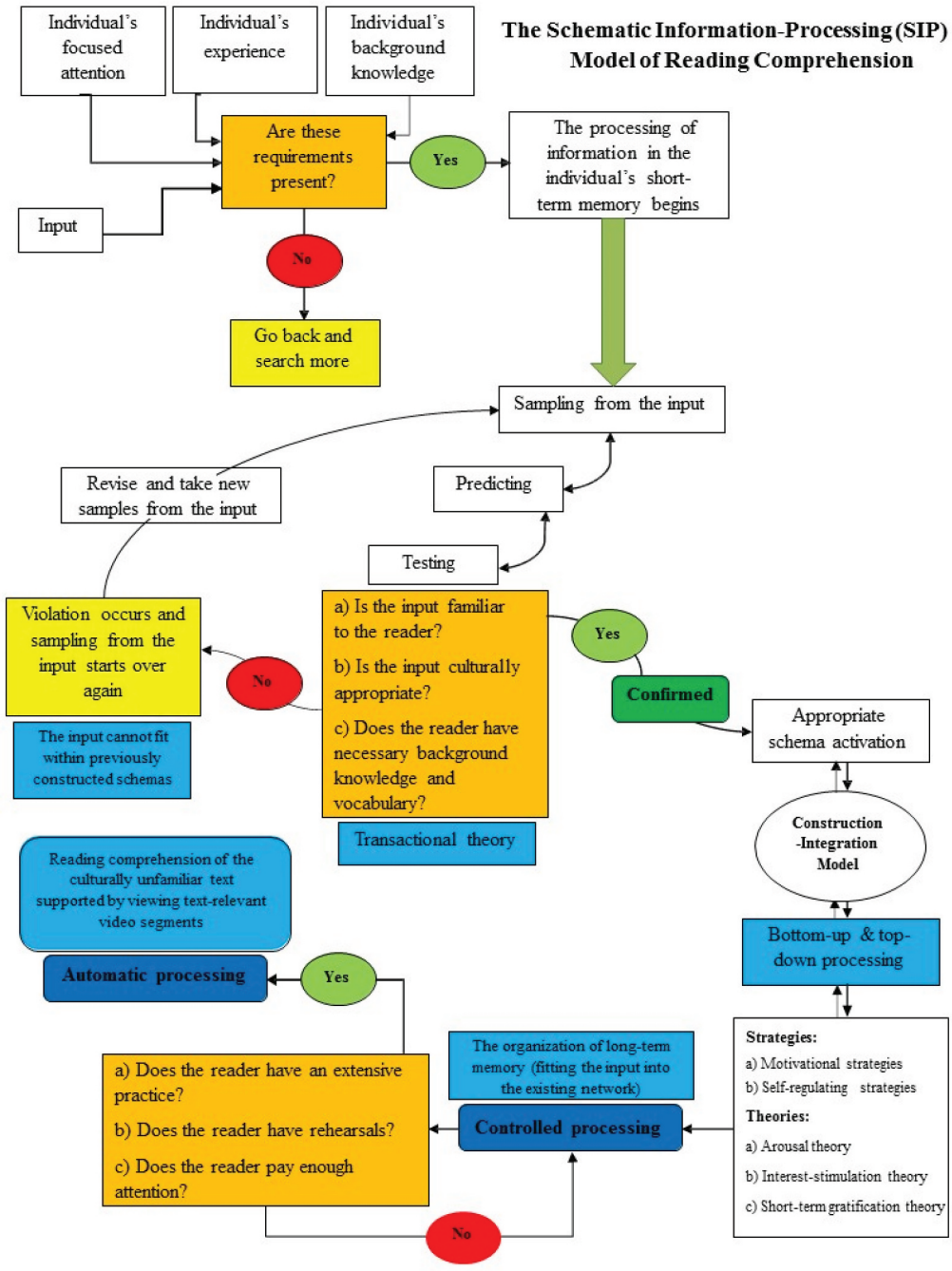

Figure 5. The schematic information-processing(SIP) model of reading comprehension.

reading comprehension provides teachers with guidelines for choosing text-relevant video segments as well. For example, authenticity of videos, the position of the video in the lesson plan, the duration of the video, the repetition of viewing, and videos with or without subtitles or captions are some of the most important factors that have been mentioned in previous studies. The SIP model requires teachers to select text-relevant video segments that meet the following criteria:

6.1. Uncaptioned and unsubtitled

Since video segments in this model must be related to the content of culturally unfamiliar texts, videos without captions or subtitles are preferred. Although some studies showed positive effects of watching captioned videos on reading comprehension (e.g., BavaHarji et al., 2014; Koolstra et al., 1997; Kruger & Steyn, 2013; Markham, 2001), some other studies (P. Hwang & Huang, 2011; Metruk, 2018) reported insignificant differences. The reason for this inconsistency is that some of these studies were conducted in different settings with different purposes and varying degrees of linguistic, cultural, and background knowledge of participants.

According to the SIP model, readers read the text and watch the related video segments in three phases which means that they do not need to read the same content on the screen once more. Readers are expected to watch video segments and dedicate their attention to one activity at a time. In other words, "presenting printed text and graphics can cause split attention in the visual channel" (H. Lee & Mayer, 2018, p. 649). A group of researchers (Delgado et al., 2018) conducted a meta-analysis and compared paper-based reading with digital reading to see which one leads to more successful reading comprehension. The results of the study showed that "providing students with printed texts despite the appeal of computerized study environments might be an effective direction for improving comprehension outcomes" (Delgado et al., 2018, pp. 33–34). Therefore, reading a paper-based text and watching relevant video segments without captions or subtitles are preferred in the Schematic Information-Processing (SIP) model of reading comprehension.

In addition to the distraction to viewers, captioned or subtitled videos may overload the cognitive capacity of working memory. According to the cognitive theory of multimedia learning (Mayer, 2009; Mayer & Pilegard, 2014), overloading the visual channel with printed forms of the words (captions/subtitles) may hinder deeper processing of information which will finally lead to unsuccessful comprehension process in the individual's mind. Viewers can benefit more by converging both channels toward the text-relevant video segment rather than focusing on the subtitles or captions.

Playing text-relevant video segments in three different stages of reading instruction also has the purpose of activating readers' background knowledge and prior experience. If videos are captioned or subtitled, viewers may ignore focusing on video segments which means that they will start reading captions or subtitles. Captioned or subtitled videos may distract viewers and divert them from achieving the purpose of watching text-relevant video segments supported by the SIP model.

6.2. Authenticity

Language teachers need to implement teaching strategies that not only resemble authentic learning situations but also provide language learners with culturally and pragmatically correct sentences. "In order for the real-world language to emerge, there is a need to create authentic learning situations" (Nikitina, 2011, p. 34). Authentic teaching materials are required in order to provide learners with an authentic use of the target language. Since native speakers are not always available and since creating a native-like context to resemble the context of the text is not always possible, authentic video sements can be of great help.

Authentic teaching materials are described as teaching materials that do not have the purpose of teaching the target language (Taylor, 1994). "Television shows, news broadcasts, films, the use of different websites or printed materials such as travel brochures, photographs, newspapers, magazines, restaurant menus" are some examples of authentic materials (Kovács, 2017, p. 82). TVs, DVDs/

CDs, and computers are just some examples of the authentic sources that can be used in language classrooms as well (e.g., Bahrani et al., 2014; Mackenzie, 1997). Jewitt (2012) also mentioned some ways of using videos in classrooms and social science research. For example, one way of using videos is the use of existing videos as they are (Jewitt, 2012). This means taking already available videos such as home-made videos or videos on YouTube. (Jewitt, 2012).

Bal-Gezegin (2014) argued that the idea of authenticity is important for learners. The author stated that watching videos could make the context like a real-life setting. This feature could help learners "be more integrated in the target culture and learn more about the people using the target language" (Bal-Gezegin, 2014, p. 455). The participants also preferred videos over audios and the author found that the videos are "quite enjoyable, helpful and interesting" (Bal-Gezegin, 2014, p. 455). Text-relevant video segments will also help language learners learn the sociocultural knowledge used in the target language because they are authentic materials and include the correct and appropriate form of the target language. Nassaji (2002) believes that the appropriate sociocultural background knowledge and the ability to use the correct form of this knowledge can improve the individual's reading comprehension as well.

Authentic videos produced for native speakers are one of the best resources for teachers to provide language learners with an example of the authentic use of the target language. In other words, authentic videos can help language learners "realize the passion and the rationale behind the words and sentences" (Karami, 2019, p. 64) which leads to learning "the target culture and its related aspects such as pragmatics" (Karami, 2019, p. 65). Reading instruction embedded in a meaningful context can provide readers with more meaningful input rather than simply introducing it. Nikitina (2011, p. 33) reported that providing learners with authentic teaching materials like videos can create "an authentic learning situation where the real world becomes a part of the educational experience and necessitates the use of an authentic language by the learners."

6.3. Length

Mayer (2001) argued that the representation of the content knowledge through video can increase the cognitive load in working memory and finally might lead to unsuccessful delivery of the message. Thus, text-relevant video segments must be selected carefully to avoid imposing a high cognitive load on readers. One way to minimize the negative effects of high cognitive load would be the use of short video segments.

Short video segments are better types of videos when using the SIP model to teach culturally unfamiliar texts because they can provide viewers with small pieces of information related to the text The segmentation of a video can control what information viewers receive. By viewing short video segments, viewers can manage their intrinsic cognitive load and increase their germane cognitive load (Brame, 2016). "Intrinsic cognitive load relates to inherent characteristics of the content to be learned" (de Jong, 2010, p. 106).

Segmentation is used to cut videos and adjust them to control and achieve balanced cognitive loads. Segmentation allows learning materials to be divided into several units and helps learners process units of information one by one (Ibrahim et al., 2012). Segmentation can reduce extraneous cognitive load as well. The extraneous load is referred to as "the load that is caused by the instructional material used to present the content" (de Jong, 2010, p. 106). This is in line with the findings of a study conducted by Hasler et al. (2007) about instructional animations. Hasler et al. (2007) compared two learner-paced instructional animations with system-paced. Learner-paced versions were either "pre-defined segments or allowed the learner to divide the animation into segments by providing 'stop' and 'play' buttons" while system-paced versions were "either a continuous animation, or a continuously presented narration-only version neither of which allowed any form of learner control" (Hasler et al., 2007, p. 717). The authors reported that shorter pieces of animation (learner-paced) were more effective than longer pieces (system-paced). Ayres and

Paas (2007, p. 812) also argued that "continuous animations create extraneous cognitive load, due to their transitory nature, and inhibit learning as a consequence."

Weeding, which is "the elimination of interesting but extraneous information that does not contribute to the learning goal" (Brame, 2016, p. 2), can also prevent working memory from being overloaded through the representation of the key information. Weeding removes unnecessary information from the video and allows viewers "to engage in processing only the essential content" (Ibrahim et al., 2012, p. 222). The findings of previous studies also show that the longer the length of the video, the less the student engagement. For example, the results of a study showed that short videos (6 minutes) increase viewers' engagement up to 100%, 9–12-minute videos decrease it to about 50%, and 12–40-minute videos reduce it to almost 20% (Guo et al., 2014).

Brame (2016) highlighted the importance of viewers and argued that viewers must be taken into consideration when weeding the video because some groups may benefit from the extraneous information while some others may not. For example, Spanjers et al. (2010) found a significant interaction between video segmentation and prior knowledge. The authors found that learners with higher levels of prior knowledge benefit more from non-segmented videos while learners with lower levels of prior knowledge benefit more from segmented videos. Ayres and Paas (2007) provided some guidelines to minimize the cognitive load while watching animations. They argued that using smaller chunks rather than longer chunks, cueing or signaling the key information, and letting learners control the video can minimize the cognitive load and improve comprehension. In the SIP model, text-relevant video segments are short video segments (less than 6 minutes) that provide readers with an overview of culturally unfamiliar texts from different perspectives.

7. Discussion and conclusion

Some readers are slower than others in terms of retrieving information from their background knowledge. Hannon (2012) distinguished the "adult skilled readers" from the "less skilled adult readers" in terms of their reading comprehension level by comparing characteristics of skilled readers from lesser skilled readers. Adults with a higher proficiency level in reading comprehension can bridge the gap easier between extracted and integrated information of the text by relating them to their background knowledge (Singer & Ritchot, 1996). On the other hand, adults with a low proficiency level in reading comprehension are not able to do so easily (Singer & Ritchot, 1996). In fact, adults with higher reading proficiency level retrieve information from their long-term memory easier than adults with lower reading proficiency level (Hannon & Daneman, 2001). Less skilled adult readers also use less space of working memory in comparison to the adult skilled readers. Text-relevant video segments can help less skilled adult readers cope with this difficulty by allowing them to have access to the supply of information needed for reading comprehension. Amount of information taken by an individual from the text and its integration with the reader's prior knowledge can be one of the major differences in individuals in terms of their reading comprehension.

Therefore, language teachers and educators need to design different types of activities to help less skilled readers in order to improve their comprehension of culturally unfamiliar texts. In fact, teachers" reading instructions should not only remove the potential barriers of the target language but also should facilitate and improve the process of comprehending culturally unfamiliar texts. The Schematic Information-Processing (SIP) model of reading comprehension can help teachers take various aspects and factors of reading comprehension into consideration.

Teachers need to utilize text-relevant video segments appropriately while they are teaching culturally unfamiliar passages. For example, teachers should play text-relevant video segments in the pre-reading stage to give an overall picture of the passage and to provide students with a summary of the content of the culturally unfamiliar text by the help of video segments. This activity familiarizes the students with the topic and activates their previously constructed

schemas. Then teachers can ask warm-up questions and refer to the video(s), if necessary, to help students retrieve their background knowledge and prior experience. In fact, the pre-reading stage prepares students to move to the next stage which is the while-reading stage.

Text-related video segments should be cut and prepared for the second stage which is the while-reading stage. After reading each paragraph or after reading some sentences from each paragraph, depending on the difficulty level of the content or students' language proficiency level, teachers should play and pause relevant video segment(s) several times to let students make connections between the content of the text and video segments. Watching text-relevant video segments should be a supplementary activity and teachers should do other reading comprehension activities as well if necessary.

The third stage is the post-reading stage and teachers are expected to wrap up the content and to help students maximize their comprehension. Replaying text-relevant video segments in this stage can provide extra practice and help students see a summary and the visual form of the content once more. Some activities like summarizing the text, classroom discussion, group work, and pair work are also required in order to improve readers' comprehension and let the input move further in the individual's mind from controlled to automatic processing (See Karami (2020) for an expanded discussion)

As discussed earlier, several linguistic and cognitive processes are involved in successful reading comprehension in such a way that they accompany the metacognitive knowledge of the reader. In other words, the deeper the processing of information in the reader's mind, the more successful the comprehension of new information. Watching text-relevant video segments in three stages of reading instruction can alleviate the process of moving away from the cultural barriers of the target language through connecting new information to previously constructed schemas in readers' minds. In fact, text-relevant video segments produced by native speakers can visualize the text to readers, let them understand the content better, and relate the content to their background knowledge and prior experiences.

The SIP model is a new theoretical framework that clarifies features of appropriate video segments and describes the ways that text-relevant video segments should be integrated into reading instruction. Teachers need to follow the guidelines of the SIP model in detail if they want to use text-relevant video segments to teach culturally unfamiliar texts in their second/foreign language classrooms.

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