Exploring the Influence of Content Schemata on L2 Learners' Comprehension of Metaphoric Expressions

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ABSTRACT

This study explores the influence of content schemata on L2 learners' comprehension of metaphoric expressions. This paper discusses the comprehension processes within the scope of content schemata in second language reading. The interest in the influence of content schemata on learners' comprehension of metaphoric expressions among tertiary level students motivated the researchers to begin an exploration on content schemata in second language reading. The main data collection techniques included think aloud protocol and in-depth interview which were conducted on four Part 2 students pursuing Diploma in Science in Universiti Teknologi MARA (Perlis), Malaysia. The participants were asked to verbalize what they were thinking while reading a passage containing metaphoric expressions. In order to triangulate the data collected, in-depth interviews were also conducted. The interview transcripts were analyzed for recurring patterns and were then classified according to categories based on the most recurring patterns found. The think aloud protocol data and the interview patterns were analyzed to determine whether content schemata contributes to learners' understanding of the text containing metaphoric expressions. The study discovered that the learners' content schemata contribute to their comprehension of the metaphoric expressions. It is hoped that this study will raise awareness in making informed pedagogical decisions regarding the selection of suitable reading texts by language instructors and material writers.

Suggested Citation:

1. Introduction

Second language learners depend on their prior knowledge and experience when trying to comprehend a text. This knowledge is referred to as schema or schemata which readers access during reading. Readers make use of their schema when they relate their background knowledge to the facts and ideas appearing in a text. To understand a text in full, learners need to also rely on their background knowledge about the content area of the text which includes cultural knowledge (Carrell, 1988). As reading is an interactive process between the reader's schemata and the text, lacking in schemata on the content area of the text can impede comprehension. Ortony (1980) states that metaphors are used extensively in both the written and oral language and learners are expected, required, or assumed to be able to understand them. Reading texts containing metaphoric expressions are commonly selected to be used in textbooks for ESP courses at tertiary level institutions. Learners who are less proficient usually encounter difficulties to understand metaphoric expressions which appear in texts.

Lacking in schemata or "schema unavailability" (Carrell, 1988, pp. 111) is a huge stumbling block for most tertiary level L2 learners to comprehend reading texts. Nuttall (1982) explains that learners who do not share the relevant schema may face problems understanding the text because they are left with too little information to make sense of the text. The case is either the learners do not have the schema at all or their schema is different from the writer's of the text. Prior knowledge of the text content which involves culture, history and experience are prerequisites in understanding the text. During a reading process, language learners utilize their schemata to relate what they already know about a subject matter, to the facts and ideas in the text. This "schema unavailability" becomes a hindrance to smooth understanding of the reading text. According to Ortony (1980), the world-knowledge deficit hypothesis can explain the inability to understand metaphors in terms of learners having insufficient knowledge about the meaning of the metaphors. It is observed that second language learners struggle to interpret the meaning of metaphors that they come across in reading texts. This phenomenon had prompted the researcher to conduct a case study on the influence of content schemata on learners' comprehension of metaphoric expressions. Referring to the context stated above, it is fundamental to conduct a study on the influence of content schemata on learners' comprehension of metaphoric expressions involving tertiary level students. Therefore, this study aimed at exploring how content schemata could contribute to learners' understanding of a text containing metaphoric expressions.

This study explored the following research questions:

a) How do content schemata on the content area of the text influence learners' understanding of metaphoric expression?

b) What are the connections between the learners' knowledge that they tap on to the content area of the text containing metaphoric expressions?

It is assumed that the findings from this research could create awareness among material writers on the difficulties faced by ESL learners in understanding the texts. Such awareness can assist material writers to select reading texts with content areas which are within the schemata of ESL learners. The selection of reading texts which are within the schema knowledge of the learners may have

immense impact on learners' comprehension.

2. Literature Review

2.1 Proponents of Schema Theory

Rumelhart (1980) explains that a schema theory is a theory about knowledge, about how knowledge is represented and about how that representation facilitates the use of the knowledge in certain ways. He further explains that within the scope of schema theories, all knowledge is packaged into units, i.e. schemata. Information about how this knowledge is to be used is embedded in these packets of knowledge. A schema is "a data structure for representing the generic concepts stored in memory" (Rumelhart, 1980, p. 34).

A schema theory embodies a prototype theory of meaning where a schema underlying a concept stored in memory corresponds to the meaning of that concept, meanings that are encoded in terms of the typical situations or events that instantiate the particular concept (Rumelhart, 1980). Four major characteristics of schemata, as listed by Rumelhart and Ortony (1977), are: schemata have variables, schemata can embed one within another, schemata represent knowledge at all levels of abstraction and schemata represent knowledge rather than definitions. The embedding characteristic of schemata can be explained in the sense that schemata consist of subschemata. Schemata therefore can represent knowledge at all levels. Rumelhart (1980) lists two more general features of schemata: schemata are active processes and schemata are recognition devices whose processing is aimed at the evaluation of their goodness of fit to the data being processed.

Elaborating on Rumelhart's (1980) explanation of schema theory, Anderson and Pearson (1988) state that the elements of schema theory comprise of "nodes," "variables," or "slots". They argued that "When the schema gets activated and is used to interpret some event, the slots are "instantiated" with particular information" (1988, p.42). According to them, there are constrains on the information with which a slot can be instantiated. 'Slot' here refers to a word and that word could be instantiated with another word closely associated to it. Within the reader's schema, the instantiated word will be determined whether it is consistent with the particular slot. Anderson and Pearson (1988) further emphasize that within the model of schema activation, some components of a schema are particularly important, i.e. words mentioning the component have a higher probability of bringing to mind the schema and only that schema. The particular words have great diagnostic value for the reader. Anderson and Pearson (1988: 44) stress that, when two or more components of a schema are mentioned, the aggregate probability of the whole schema being activated is a function of the sum of the probabilities that the individual components will activate the schema. According to them, there are relationships among these components and the relational knowledge is important for L2 learners to make inferences so that the right schema is activated.

2.2 Metaphor and Schema Theory

According to Ortony (1980), in schema theory, an important component of the comprehension process is the selection of a schema or set of schemata that best accounts for the input. The schemata should not only "fit" the input but also where the fit is not good, there should be minimal "violation" to those schemata employed. Although constraints on values of variables in schemata are rarely absolute, there do exist more probable and preferred values. In the

comprehension of metaphor, one might suppose that staying within reasonable limits literally and metaphorically would be one of the major controlling factors.

3. Methodology

3.1 Participants

The participants of this study were 04 Part 2, Diploma of Science students of Universiti Teknologi MARA (Perlis) who were undergoing BEL260 Intermediate English, a language servicing course. They were only female students. They aged between 18 to 19 years. They were selected purposefully. They all were Malaysian nationals.

3.2 Data Collection Methods and Techniques

This study is a qualitative case study. The contextual condition, i.e. the familiarity or unfamiliarity with the content of the texts in relation to the learners' comprehension of metaphoric expressions in the reading text, is the most fundamental to the phenomenon of this study. As the data collection techniques used in this study were Think-Aloud Protocol and In-depth Interviews, the researchers had to basically rely on the verbal protocols of the reading process that the participants had undergone during the think aloud protocol sessions and the views of the participants that were gathered during the in-depth interview sessions.

3.3 Data Collection Procedures

Think aloud protocol sessions were conducted on the four participants in order to explore the contribution of content schemata to learners' understanding of a text containing metaphoric expressions. Someren et. al (1994) explain that the think aloud technique consists of asking the participants to think aloud while solving a problem and analyzing the resulting verbal protocols (as cited in Amizura & Noor Hashima, 2013).

As a part of the required data collection process, one of the researchers audio-taped the verbal protocols from the participants and transcribed them verbatimly using NVivo 8 software, a qualitative data analysis computer software package produced by QSR International. The analysis of the verbal protocol transcriptions was based on the list of activities in relation to the meta-cognitive character to mental actions (Brown, 1980). The mental actions of the participants that were analyzed are identifying important aspects of a text; allocating attention so that concentration can be focused on the major content area and monitoring ongoing activities to find out whether comprehension is occurring (Brown, 1980).

All the four participants were asked to give verbal reports of their cognitive processes while they were reading the text, i.e. 'Why Tell Stories Today?'. The researcher was able to observe the participants' cognitive processes during the reading process. These observations provided valuable information with regard to the participants' individual processing steps such as spontaneous verbalization that can externalise mental processes, keeping the sequence of processed information to the researcher (Fujita, Nardi & Fagundes, 2003).

In order to triangulate the data collected, in-depth interviews, i.e. one-on-one interviewing, were also conducted with the participants. The researchers had constructed the in-depth interview questions using the framework of schema theory which lays emphasis on the role of background knowledge as a major support in reading comprehension. The researchers constructed open-ended questions to explore the participants' reading experience on the topic of the passage in relation to their comprehension of the metaphoric

expressions in the text. These open-ended questions probed the participants to provide responses on the knowledge of the content area that they had tapped on to assist them in understanding the text. The in-depth interviews, which were conducted immediately after the think aloud protocol sessions, were also audio taped and transcribed verbatimly using NVivo 8 software.

The reading text chosen in this study was 'Why Tell Stories Today?', a reading passage tailored for a reading practice under the sub-topic interpreting writers' point of view, attitudes or intentions in *Stride Ahead: Focus on English*, the text book prescribed for Part 2 diploma level students, BEL260 Intermediate English, a language servicing course at Universiti Teknologi MARA (Perlis) by Ananda Laxmi, Foziah, Noraini, Doreen Azlina and Noor Azhana (2010).

4. Analysis and Discussion of the Findings

4.1 Analysis of the Think Aloud Protocol Transcription

The analysis of the verbal protocol transcriptions was done based on the list of activities in relation to the meta-cognitive character to mental actions (Brown, 1980). The activities involved were identifying important aspects of a message (text); allocating attention so that concentration could be focused on the major content area and monitoring ongoing activities to find out whether comprehension is occurring. While transcribing the verbal protocols, the researchers had used the specific notations adapted from Cavalcanti (1989) as cited in Fujita, Nardi and Fagundes (2003).

Table 1: Specific Notations Adapted from Cavalcanti (1989)

[...]	passage of the text verbalized by the subject at the first reading
Italic	subject's comments showing her comprehension
...	pauses and continuation of reading
< - -	subject returns to previous passages of the text
(~ ~ ~)	subject reading at a slower speed, with attention
((SL))	subject speaks and laughs at the same time

The above notations were used in transcribing the verbal protocols data obtained from the participants. It was observed that during the think aloud protocol sessions, all four participants identified important aspects of the text and focused their attention so that concentration could be given on the major content area. The participants managed to identify all the major metaphoric expressions in the reading passage. Below are samples of the think aloud protocol transcription.

[...Tales are told with love, the energy of the moment, the presence of wisdom and the very weathered hands that pulled the fish ashore...]   (Participant-1)
[....We must learn a tale we love and put it in our own words...Sew it to the fabric of our own heart, season it with our own experiences, and tell it to someone we care...]   (Participant- 3)

Both metaphoric expressions were verbalized by the two participants while reading the passage. The first metaphoric expression refers to the efficient storyteller that can capture the listeners' interest because of his many years of experience and knowledge in storytelling. The second metaphoric expression refers to the importance of parents to become effective and knowledgeable storytellers in order to impart values, traditions and cultures that their children will cherish for many years to come. Both participants were aware that those sentences are metaphoric expressions.

The researcher observed that during the think aloud protocol session with

Participant 2, she was always aware of her reading process, constantly monitoring ongoing activities to find out whether her comprehension was occurring. To achieve this, the participant returned to the previous part of the text, a few sentences prior to the paragraph containing the metaphoric expressions, while reading the paragraph. The participant confirmed her understanding of the paragraph containing the metaphoric expressions by allocating her attention so that concentration could be focused on the major content area, i.e. the sentences surrounding the sentence containing the metaphor. This was observed from her comments as shown in the sample below.

> < - - [over and over, the news stories stimulate and manipulate our imaginations to construct a world of disaster, fear, and violence...Those emotions sell products] *We watch news...the advertisements...in the end they come up with funny products...like aroma therapy...to release stress...but they don't actually know that stress is being caused by television...*((SL))
>
> [How do we combat such forces that threaten to strip us of our very heritage as human beings - our stories] *When the advertisements just want to make us feel better...soothe the emotion down...*[Sew it to the fabric of our own heart, season it with our own experiences, and tell it to someone we care.] *We need to continue this tradition* [...without shiny shoes that make us feel like heroes or costly cars that give us the illusory mask of a champion.]
>
> (Participant 2)

It was also observed that during the think aloud protocol session with Participant 4, the participant was always aware of her reading process, constantly monitoring ongoing activities to find out whether her comprehension was occurring. It was observed that the participant could not understand a certain phrase in the reading passage as she was reading a certain sentence at a slower speed, with attention. The participant also looked quite confused as she kept repeating the particular phrase. Below is a sample of the think aloud protocol transcription.

> [Even the nightly news is called a story, and the picture painted by these stories again and again is one of a bleak land of fears] **(~ ~ ~)** *a bleak land of fears...a bleak land...must have association with bad news...*   (Participant 4)

4.2 Analysis of the In-depth Interviews

The findings of this study are discussed based on the semi-structured guideline questions. The interview responses were analyzed for themes, which were indicative of the role of content schemata that could facilitate understanding of the metaphoric expressions. Sample quotes to illustrate the points are stated as follows.

Interview Question 1: *How do you describe your reading experience on this particular text?*

The theme that emerged from question one is 'general understanding'. The participants in general understood the content area of the text, even though they seemed to be struggling in interpreting some of the metaphoric expressions. For example, Participant 2 said:

> The text is not interesesting enough because I find it a bit streotype. First it tells about tales and what nots then it gets into advertisments..There should be more elaboration in terms of that...okay...there are adverstisements...not much examples...just statements...not so much examples...this is this...this is this...this is this...may be an example will help us see the idea...some readers...when they read...they need examples...it's a bit difficult...even after the metaphors...then there are no examples...it's difficult to relate.

Interview Question 2: *How do you cope with a text which requires knowledge for you to understand the metaphoric expressions?*

The theme from question two that also emerged is 'relies on background knowledge'. Participant 2 used her background knowledge to interpret the metaphoric expressions in the text with the help of other words in the same paragraph. The participant said:

> For the first one (first metaphor), basically I don't understand it at all...that's the first one. Second one...it looks...okay...we should put in some love and what nots... it's a bit...hmm...I don't know...It didn't clearly explain. For the first one [the fish] might be the children...which actually need to be, you know...[pull the fish ashore]...clearing the things up for the kids...I interpreted it that way...with the help of the words [wisdom, weathered hand]...clarifying things to the children...the storyteller...the elder...it needs a bit more thought and thinking.

Interview Question 3: *You interpreted 'the fish' as children and then you associated 'the very weathered hand' with the elders. What makes you interpret the metaphoric expression in such a way? How do you connect the metaphoric expressions in the text with your background knowledge?*

Another emerging theme is 'forming associations'. Participant 2 had formed associations with her background knowledge to understand the metaphoric expression as illustrated below. Participant 2 said:

> Tales are told with love, the energy of the moment, the presence of wisdom and the very weathered hands that pulled the fish ashore. Well...May be my elders...in that sense...like the parents...elders are normally they are good with wisdom...and 'weathered hand'...for me...what it signifies

basically would be comforting...like the 'hands' would be guidance. Because of the earlier words like...okay...story tellers and tales and with loves and what nots.

On the other hand, Participant 1 and 3 had associated the metaphoric expressions with the surrounding words in the paragraph. Participant 1 said:

> If there is no dictionary with me, I will look at the sentence next to it...they must have connections with the word 'hand'...I looked at the sentence again...from beginning until full stop...then I tried to understand...at first I translated it to Malay...I read back what I had translated...to see whether there is a connection...if it looks weird, I just guess the meaning of that metaphor.

Participant 3 said:

> The phrase 'bleak land of fear'...I don't understand the meaning...bombastic word...bleak land of fear...I tried to understand the meaning...frighten...it means...I looked at the words in front of it...to look for the meaning."

Interview Question 4: *Does your background knowledge become the basis of inference on the metaphoric expressions? Do you think the information on media is important for you to understand the metaphors? Why?*

Another theme that emerged from question four is 'importance of content area knowledge'. Participant 1 stated that her background knowledge on media in general has helped her to understand the metaphoric expressions. She said:

> It is important because the current media is a lot better...colourful...my knowledge on media...I related it to the metaphors...the knowledge helps me to understand because it relates to the metaphors.

Participant 3 said:

> Because we know about advertisements just want to catch our attention...did things to catch our attention...there's a

connection...So it helps us to understand the metaphors.

Interview Question 5: *Were there any factors that stop you from activating your background knowledge?*

Another theme emerged from question five is 'various sources formed interpretations'. Participant 1 mentioned two factors that hindered her from activating her previous knowledge. She said:

> The first factor would be vocabulary in the metaphors...because I translated it to Malay...Second...hmm...I imagined...and when we translated, we imagined it...sometimes there are so much interpretations...when we think...it came back to our mind...may be we have talked about it...that can affect what we are thinking...may be the lecturer had mentioned about it in class...That can make us confuse...because too many sources....and the images came back so fast.

4.3 Discussion

The findings obtained revealed that L2 learners without any background knowledge or experience with a particular topic will face difficulties to comprehend what is being read. Content schemata therefore are essential as they play a vital role in reading comprehension. It was observed that during the think aloud protocol sessions, all four participants identified important aspects of the text, by focusing their attention on the major content area and they were always aware of their reading process, constantly monitoring ongoing activities to find out whether their comprehension was occurring (Brown, 1980). All four participants acknowledged that background knowledge on the content area of the text is crucial for them to understand the metaphors, i.e. knowledge on contemporary media. The participants had also formed associations with the metaphors in order to interpret them. They admitted connecting the metaphors in the text with their background knowledge. This is further strengthened by Goodman (1975) who suggested that proficient readers minimize dependence on visual details by making use of background knowledge in making predictions and checking these against the reading passage (as cited in Amizura & Noor Hashima, 2013). Ortony (1980) also states that in schema theory, an important component of the comprehension process is the selection of a schema or set of schemata that best accounts for the input. In the comprehension of metaphoric expressions, staying within reasonable limits, literally and metaphorically, would be one of the main controlling factors.

5. Conclusion

This study aimed at exploring how content schemata contribute to L2 learners' understanding of the metaphoric expressions in a reading text. The two data collection techniques had provided insights into the learners' cognitive processes that are involved in reading texts which contain metaphoric expressions. It can be inferred from the analysis of the think aloud protocols and the in-depth interview responses that content schemata contribute to the learners' understanding of metaphoric expressions as content schemata facilitate comprehension. To sum up, this study can contribute to the body of knowledge on the role of content schemata in L2 reading. Researchers interested in the area of content schemata can have a better understanding of the schema theory concepts and framework in relation to second language reading.

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