DEAF FILIPINO LEARNERS' METACOGNITIVE READING STRATEGIES AND ITS ROLE IN THEIR READING MOTIVATION AND PERFORMANCE

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Using Flavell's cognitive monitoring model as framework, this study tested a model that presents three metacognitive reading strategies (global reading, problem solving, and support reading strategies) and its influence on the deaf learner's self-efficacy in reading, value for reading tasks, and reading performance. This study was done to support the assumption that deafness does not automatically lead to cognitive impairment and they have the capacity to learn and use reading strategies as a result of their metacognitive awareness. Data were gathered from 47 Deaf Filipino college learners by answering the Metacognitive Awareness of Reading Strategies Inventory (Mohktari & Reichard, 2002), Inventory of Reading Motivation (Solheim, 2011), teacher-made reading comprehension test, and grades in a reading class. Key results showed that: global reading strategies is a significant predictor of reading self-efficacy, reading comprehension and academic reading performance; and problem solving strategies is a significant predictor of reading task value of Deaf Filipino college students.

Researches have shown that majority of deaf learners struggle in reading and tend to lag behind in their reading achievement (Holcomb & Peyton, 1992). The limited proficiency in comprehension is believed to serve as barrier to learning and academic performance. In the case of deaf learners, their childhood deafness is assumed to hinder the development of language and reading comprehension ability (Mayberry, 2002). However, research has shown that such limitation in access to spoken language does not necessarily causes impairment in their intellectual capacity nor can cause language deficiency (Mayberry, 2002). It is primarily early language exposure, regardless if sign or spoken, that can lead to successful language development (Mayberry, Lock & Kazmi, 2002).

To develop comprehension and reading proficiency, Kelly and colleagues (2001) found it necessary to broaden knowledge and widen one's exposure to language. They also established the importance of using metacognitive strategies to access reading materials and manage one's comprehension. The goal of this paper is to determine the extent to which deaf Filipino learners use metacognitive awareness in reading and identify its role in enhancing reading motivation and reading performance. In particular, attempt to contribute to the understanding that deafness does not automatically lead to impairment of metacognitive processes.

Metacognitive processes in reading and deaf learners

Metacognitive processes in reading involves self-knowledge about one's cognitive strengths and limitations in reading as well as the deliberate and appropriate use of its mechanism to make sense of what one reads (Mokhtari & Reichard, 2002). When students are aware of their own thinking, they are able to use appropriate strategies to make sense of the text when it becomes difficult to comprehend.

Metacognition was founded on the cognitive monitoring model (Flavell, 1979), which proposes that an individual has the capacity to control the variety of cognitive processes. This suggests that if one has limited exposure to metacognitive experience, it can limit their use of cognitive strategies and setting of cognitive goals. This highlights the importance of exposing deaf learners to complex reading materials to help them develop a wider array of independent reading strategies to cope with challenging academic tasks.

Metacognitive awareness is important because it enables one to adjust reading strategies accordingly (National Reading Panel as cited by Banner & Wang, 2009). This skill can be developed over time and through practice (Schraw, 1998). However, researches have shown that deaf learners do not develop higher level independent reading strategies

because their exposure is limited to lower level text-based skills such as word recognition and vocabulary comprehension (Strassman,1997).

In assessing metacognitive awareness, there is a measure specific to reading strategies developed by Mokhtari and Reichard (2002). It is designed to assess metacognitive awareness and how it activates reading strategies. This measure involves 3 strategies namely: (a) global reading, (b), problem-solving, and (c) reading support strategies. This measure can help assess when deaf learners activate their metacognitive awareness as well as determine which reading strategy they commonly use to facilitate understanding of text.

Metacognitive awareness, reading strategies and reading motivation

Researches on metacognition tend to extend its influence on affective and motivational characteristics of learning (Paris and Winogard, 1990). It suggests that reading is not only a cognitive process, but also involves emotions and motivation.

According to Bandura (1993), one's self-belief about competency may be affected by one's own perceived ability. Schraw (1998) pointed out that there are students who when studying tend not to exert effort to achieve set goals. This is because of their belief that their cognitive ability is not enough to fulfil the task thus may just accept that they cannot and no longer exert extra effort.

However, there are few researches involving the self-efficacy beliefs of deaf learners. It is assumed that their use of metacognitive awareness in reading can inform their self-belief about their reading competency thus contribute to their self-efficacy beliefs. It is further assumed that if they use variety of reading strategies, it can result to heightened and sustained effort to persist beyond reading challenges. On the contrary, when a deaf learner has limited awareness of one's cognitive ability as well as limited use of various reading strategies it can result to low self-efficacy in their reading ability.

Aside from the importance of having a sense that one can effectively read, it was also found from research that it is important to assess one's self-belief about value to reading tasks, interest in reading materials as well as usefulness of the task to achieve academic goals (Solheim, 2011). By identifying the value attached to reading, the amount of effort and persistence one will exert in a given reading task can be determined.

Metacognitive awareness and reading performance

Researches from the US revealed that only 8% of deaf learners tend to read above the 4th grade level (Jackson, Paul, & Smith, 1997). Most deaf learners tend to have problems with their reading comprehension (Alvarado, Puente, Jimenez & Jimenez, 2012). Studies with hearing learners have shown that one's capacity for metacognition can improve learning. Veenman and colleagues (2006), using hearing learners as sample, have established the use of metacognitive skills to contribute to one's learning performance. However, there are few studies looking into the metacognition of deaf people (Alvarado et al., 2012). One of the few studies that support the importance of metacognition to deaf learners, Gutterman (2002) found that students provided with metacognitive awareness guidance to reading assessment task tend to perform better in reading.

In another study by Alvarado and colleagues (2012), results showed that through the use of metacognitive strategies, deaf children are enabled to activate their cognitive processes to facilitate the regulation of their learning. When one becomes confident to regulate their actions, the learner tends to become more deliberate and purposeful in learning. Further, it was found that deaf students who manifested poor reading comprehension tend to manifest poor knowledge and use of metacognitive strategies in spite of being integrated with hearing learners, with same curriculum, and expectations. In the case of deaf primary students, they were found to have difficulty in assessing their reading ability. On the other hand, secondary level participants have manifested persistent challenge in their world view of reading context and reading process.

Although little evidence was generated to establish the influence of metacognitive awareness with reading performance, these researches show that metacognitive awareness plays an influential role in deaf students' reading performance.

This study intends to answer the following: (a) extent to which deaf Filipino learners use metacognitive strategies in reading, (b) their level of reading self-efficacy and reading task value, (c) their reading ability, and (d) influence of metacognitive strategies in reading to their reading self-efficacy and reading performance.

METHOD

Participants and Design. Using cross-sectional explanatory research design (Johnson, 2001), this study had 47 deaf Filipino student participants enrolled in a reading course under a bridging program which is a requirement of their college admission. Thirty four percent were female (f=16) and 66% were male (f=31), with age ranging from 16-26 years old ($\bar{X}$=19.94; SD=2.36). Most of their parents are both hearing (95.7%, f=45) and the participants learned sign language from age ranging 1-18 years old ($\bar{X}$=8.89; SD=4.28).

Instruments and procedure. The researcher gathered the students for a one time administration of the instruments that included the metacognitive awareness of reading strategies inventory (Mokhtari & Reichard, 2002). This has 30 items answerable by a five-point scale and is used to measure the strategies employed by students in reading with categories on global reading strategies, problem-solving strategies, and support reading strategies. To measure self-efficacy and reading task value, the adapted 15 item inventory of reading motivation (Solheim, 2011) was used. This is answerable by a four-point scale. Both measures were administered in Filipino sign language together with a teacher-made reading comprehension test. This test included a grade 3 level passage and 20 items measuring notation of details, vocabulary, making inferences and identifying main idea. In addition, their final grade in their reading class was used to measure their academic reading performance. The grade criteria included class performance, examinations, attitude and attendance with passing grade of 70% and above.

RESULTS

Majority of the participants reported moderate use of the different metacognitive reading strategies (refer to Table 1). They also reported moderate self-efficacy in their reading ability as well as interest and value for reading task. However, they generated below average reading scores in the reading comprehension test and in their reading performance grades.

Table 1
Descriptive Statistics of age, metacognitive strategies in reading, motivation, reading comprehension and performance

Variables	Mean	SD	Cronbach's alpha
Global reading strategies	3.27	0.44	0.76
Problem-solving strategies	3.34	0.55	0.76
Support reading strategies	3.34	0.56	0.78
Overall reading strategies	3.31	0.46	0.91
Reading self-efficacy	2.69	0.47	0.80
Reading Task Value	2.92	0.47	0.82
Reading Comprehension	9.77	2.72	0.55
Reading Performance	78.71	7.96	

N=47

The highest reported Cronbach's alpha are overall metacognitive reading strategies at 0.91 and reading task value at 0.82, while the lowest is 0.55 for test of reading comprehension.

Table 2 presents the inter-correlation of the variables. Weak but significant correlations were observed in support reading strategies with reading self-efficacy. In addition, reading comprehension showed weak correlation but highly significant relationship with global reading strategies. It also showed the global reading strategies have moderate correlation with reading self-efficacy and task value. On the other hand, moderate and highly significant correlations were found in problem-solving strategies with reading self-efficacy. Strong and highly significant correlation was found between problem solving strategies and reading task value.

Table 2
Intercorrelation of metacognitive strategies in reading, motivation, and reading performance

Variables	1	2	3	4	5	6	7
1. Global Reading Strategies							
2. Problem-solving strategies	.777**						
3. Support reading strategies	.759**	.693**					
4. Reading self-efficacy	.567**	.467**	.290*				
5. Reading task value	.588**	.608**	.485**	.780**			
6. Reading comprehension	.299**	.225	.117	.108	.163		
7. Reading performance	.289*	.286	.122	.345*	.201	.326*	

**p<.01, * p<.05 (two-tailed)

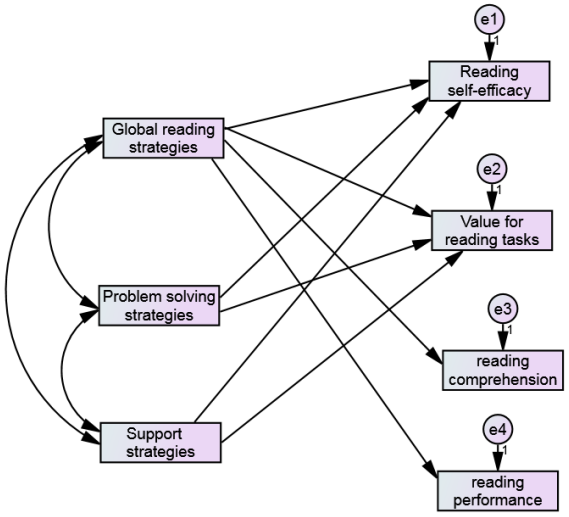

Figure 1.
Proposed Model for the influence of metacognitive awareness in reading with reading motivation and performance

Figure 1 presents the model of proposed influence of metacognitive awareness in reading with reading motivation and performance. Based on the p-values of the regression

weights of the proposed model, the metacognitive awareness in global reading strategies was a significant predictor of reading self-efficacy (beta: 0.721, p=0.000), reading comprehension (beta: 0.299, p=0.034), and academic reading performance (beta: 0.289, p=0.041). Also, the metacognitive awareness in problem-solving strategies was found to be a significant predictor of reading task value (beta: 0.383, p=0.040) while support reading strategy was found to be a significant negative predictor of reading self-efficacy (beta: -0.370, p=0.045).

With the results, some iterations were done in the proposed model by deleting all assumed relationships that are not significant and do not contribute to the model. In the final model (refer to Figure 2), it was found that global reading strategies is a significant predictor of reading self-efficacy (beta: 0.567, p=0.000), reading comprehension (beta: 0.299, p=0.034) and academic reading performance (beta: 0.289, p=0.041). While problem-solving strategies was found to be significant predictor of reading task value (beta: 0.314, p=0.000). The final revised model was found to have good fit based on the following: CFI=.991, TLI=.984, IFI=.991, NFI=.923, GFI=.943 and RMSEA=.051.

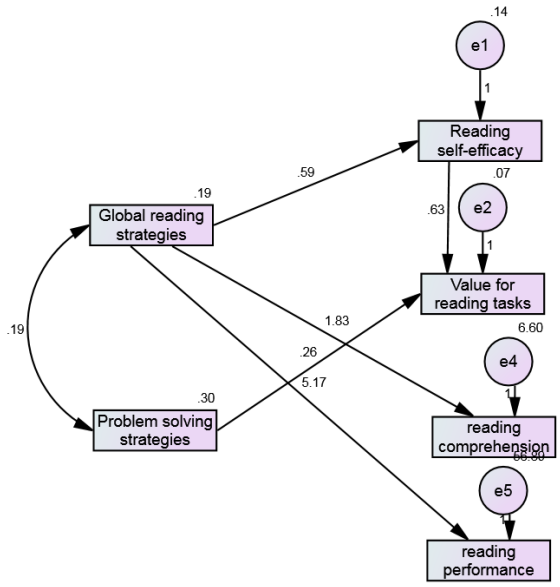

Figure 2.
Final Model for the influence of metacognitive awareness in reading with reading motivation and performance

DISCUSSIONS

The results supported the assumption that deaf learners employ metacognitive awareness reading strategies which can influence their reading motivation and academic comprehension. In particular, deaf tend to use global reading strategies (e.g., using context clues, previewing text for content) which help improve their reading self-efficacy, comprehension ability and academic reading performance. Global reading strategies as described by Mokhtari and Reichard (2002) are generalized yet intentional actions directed to set the environment for the student and their reading tasks. According to Covington (2004), it is important to enable students to find meaning and inspiration so they give their best and become motivated to learn. In relation to this finding, global reading strategies may be helping students reflect and clarify their goals in a particular reading task. By doing that, it can enable deaf learners to better prepare themselves for the tasks and have favorable self-beliefs in their reading competency. Another feature of this reading strategy is it enables learners to enhance their background knowledge about the reading material. Background knowledge is crucial in improving one's reading comprehension (Klauda and Guthrie, 2008).

Another finding is that problem solving strategies are found to be strong predictor of reading task value. This suggests that when deaf learners use more detailed and focused repair strategies to understand difficult reading materials, it allows them to find enjoyment and value in what they read. This strategy is used when there is difficulty in a reading task (Mokhtari & Reichard, 2002). This strategy is more localized and specific in unlocking words in the reading task to enable comprehension of information presented. This is done by relating with the reading materials or tasks, it allow the learners to identify its connection with their own goals and values.

Another major finding is that support reading strategies have no significant influence on the reading motivation and reading performance of deaf learners. This strategy involves practical approaches external to the reading task such as taking notes (Mokhtari & Reichard, 2002). This deliberate action may not be enough to facilitate one's reading motivation, interest and performance. In addition, this strategy is only accessed to aid reading performance and not primarily to address any conflict specific to the reading task. It is more focused on facilitating a sustained reading performance but not in augmenting gaps like in problem solving strategies.

In conclusion, deaf learners have manifested use of metacognitive reading strategies and these help in facilitating reading self-efficacy, reading task value, reading comprehension and reading performance. However, deaf learners continue to manifest below average reading performance. It is possible that they are accessing these reading strategies but not consistently and automatically. This suggests the need to further expose them to learning opportunities in reading where they can frequently access these reading strategies, allow for self-reflection that can help them discern when and how to best use it accordingly.

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