

Rupantar : A Multidisciplinary Journal  
 Vol. V : pp 62-74, September, 2021  
 ISSN (Print) : 2091-0061, ISSN (Online) : 2738-9960  
<https://doi.org/10.3126/rupantar.v5i01.39847>  
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## Measuring Metacognitive Awareness of Reading Strategies of Higher Level Learners

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### Abstract

The metacognitive awareness of reading strategies among higher level learners has been widely acknowledged for successful reading comprehension. However, literature shows a little empirical research in this area in Nepalese context. This paper attempts to measure the metacognitive awareness of reading strategies of higher level learners of Nepal. As a quantitative study, cross-sectional survey design was used to obtain the primary data from 142 higher level learners pursuing MPhil degree from different universities of Nepal through questionnaire. The metacognitive awareness of reading strategies of the learners was measured in univariate analysis and difference of their awareness in terms of independent variables was assessed in bivariate analysis using t-test. The study revealed that higher level learners had metacognitive awareness of reading strategies at different levels. Among the three groups of strategies, cognitive strategies were found most frequently used by the learners and supportive strategies were found least frequent to them. The independent variables i.e. sex and subject of specialization did not affect in the learners' metacognitive awareness of reading strategies. The differences were not seen statistically significant. This implies that teacher can use and instruct the learners with similar type of reading strategies irrespective of gender and group of subjects.

**Keywords:** Metacognitive awareness, reading, reading strategies, cross sectional

### Introduction

Reading is the third in its order and receptive skill of language. Simply, it is a process of understanding information from the written text. Grellet (1981) defines "Reading as understanding involves extracting the required information from the text

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as efficiently as possible" (p.1). Similarly, Ur (1996) states, "Reading means reading and understanding" (p. 138). Furthermore, Nuttal (1996) uses the various terms for reading viz. decoding, deciphering, identifying, articulating, speaking, pronouncing, understanding, responding and getting meaning from the text (p. 2). In fact, reading helps to recognize and comprehend the knowledge and information contained in a written text. It involves recognition of printed letters, words, phrases, clauses and sentences with meaning.

Several researchers (Day & Bamford, 1998, 2002; Grabe, 2004), have acknowledged the importance of reading for second language (L2) acquisition and stated that the use of reading strategies is advantageous to successful reading comprehension despite the complex nature of the reading process, which appeals to both the L2 reader's language ability and reading ability (Alderson, 1984; Bernhardt, 2005; Hudson, 2007). Research in L2 reading indicates that reading is an interactive meaning-making process (Alderson, 1984, 2005; Anderson, 1999; Carrell, 1988; Hudson, 1998; Zhang, Gu, & Hu, 2008) in which readers capitalize on various available sources and utilize a multitude of strategies to achieve the goal of comprehension. Therefore, L2 researchers have made attempts at identifying a variety of reading strategies (Anderson, 1991; Block, 1986; Hudson, 2007). It needs to be pointed out, however, that most of the comprehension activities of efficient readers take place at the metacognitive level, as shown by recent research on the reading strategies used by successful and less successful readers (e.g., Carrell, Gajdusek, & Wise, 1998; Hudson, 2007). Researchers have begun to recognize the significant role of metacognitive awareness in reading comprehension. Although a plenty of researches have been carried out in teaching of reading skill in the field of language teaching around the academic world, there is a dearth of researches on readers' metacognitive awareness in reading. Moreover, despite some researches on reading strategies are carried out among lower level of the learners, relatively less number of meaningful studies in this area has been conducted in our context particularly with higher level readers. Therefore, the present study attempted to investigate the metacognitive awareness of reading strategies of higher level readers in Nepalese context. It also examined the difference of learners' metacognitive awareness of reading strategies by sex and their subject of study.

### **Reading Strategies and Metacognitive Awareness**

Generally, learner strategies are the cognitive steps that the learner uses to process second language input. These cognitive procedures include retrieving and storing new input. According to Brown (1994), strategies are the specific 'attacks' that learners employ when faced with a problem. Specifically, reading strategies are

the comprehension processes that readers use in order to make sense of what they read. This process may involve skimming, scanning, guessing, recognizing cognates and word families, reading for meaning, predicting, activating general knowledge, making inferences, following references, and separating main ideas from supporting ideas (Barnett, 1988). Obviously, some strategies may be more useful than others with different types of reading texts and tasks. As Cohen (1990) states, reading strategies are “those mental processes that readers consciously choose to use in accomplishing reading tasks” (p. 83). Moreover, it is an action or a series of actions that reader employs in order to construct meaning in the reading process (Garner, 1987; Hudson, 2007). Hence, using reading strategies indicates how readers conceive a task, what they do to make meaning from texts, and what they do when comprehension breaks down (Block, 1986; Macaro, 2001; Zhang, 2001). In the same way, Garner (1987) states that reading strategies are generally deliberate and planned activities undertaken by active learners, many times to remedy perceived cognitive failure, facilitate reading comprehension and may be teachable. Garner further concurred that reading strategies can and should be learned to the point of automaticity, after which they become skills, and that learners must know not only what strategies to use but also when, where, and how to use them. Thus, readers’ use of reading strategies is informed by their metacognitive awareness of the strategies and how these strategies can be maximized for optimal effects in solving comprehension problems (Carrell, 1998; Cohen, 2007; Hudson, 2007; Zhang, 2008).

The term “metacognitive awareness” or “metacognition” is often defined simply as “cognition about cognition” (Flavell, 1979) in cognitive psychology and in learning theories in the instructional sciences. It is used to refer to one’s understanding of and control over his/her cognitive processes. Applied to reading, metacognitive awareness includes readers’ conscious awareness of strategic reading processes, of the reading-strategy repertoires, and of their actual utilization of the strategies to maximize text comprehension (Carrell, 1998; Sheorey & Mokhtari, 2001; Zhang, 2001). Moreover, such awareness entails readers’ “knowledge of strategies for processing texts, the ability to monitor comprehension, and the ability to adjust strategies as needed” (Auerbach & Paxton, 1997). This concept has offered great insights as to how learners manage their cognitive activities to achieve comprehension before, during, and after reading (Wenden, 1998). Therefore, readers with stronger metacognitive awareness display hints to interpret a reading task based on context requirements. They select reading strategies in relation to reading purposes, task demands, and their own cognitive style. They monitor the process of comprehension, evaluate the effects of the selected strategies, and adjust strategies when needed (Cohen, 1998; Hudson, 2007; Pressley & Afflerbach, 1995; Zhang, 2008).

In specific to reading skills, Sheorey and Mokhtari (2001) have categorized metacognitive awareness of the learners in terms of three types of strategies as metacognitive, cognitive and supportive reading strategies. Metacognitive strategies are those intentional, carefully planned techniques by which learners monitor or manage their reading. These reading strategies are oriented toward a global analysis of text. Such strategies include having a purpose in mind, previewing the text as to its length and organization, or using typographical aids and tables and figures etc. Cognitive strategies are the actions and procedures readers use while working directly with the text. These are localized, focused techniques used when problems develop in understanding textual information. Examples of cognitive strategies include adjusting one's speed of reading when the material becomes difficult or easy, guessing the meaning of unknown words, and re-reading the text for improved comprehension. The third group includes support strategies that are basically support mechanisms intended to aid the reader in comprehending the text such as using a dictionary, taking notes, or underlining or highlighting the text to better comprehend it (Sheorey & Mokhtari, 2001).

## Methods and Materials

The paper is an outcome of a cross-sectional survey carried out to explore the metacognitive awareness of reading strategies of higher level learners. The population of the study was all higher level learners who are pursuing MPhil degree in different universities of Nepal. Determining the sample size, 142 higher level learners were selected randomly using lottery method. Closed ended questionnaire (Metacognitive Awareness of Reading Strategies Inventory (MARSI) (Sheorey & Mokhtari, 2001) was developed consisting of 28 statements about metacognitive awareness of reading strategies and administered to the selected learners to collect the primary data. Among the total statements, 12 were of metacognitive strategies, 8 cognitive strategies and rest of 8 statements were enlisted for examining students' awareness on support strategies (Sheorey & Mokhtari, 2001). Moreover, the questionnaire was set in Microsoft Form and distributed through facebook messenger, Gmail and Microsoft teams. Then data from the learners' responses were analyzed in univariate analysis: frequency count, percentage and median whereas bivariate analysis (t- test) was calculated to find the difference in the metacognitive awareness of reading strategies (dependent variables) by sex, and subjects of specialization (independent variables). Statistical Package for Social Science (SPSS) was used for both the analysis- univariate and bivariate analysis (t- test). Moreover, to find out the effect of the difference between the independent variables, 'Cohen's d' was calculated manually using the formula as  $d= (\text{Mean for group A} - \text{Mean for group B})/\text{Pooled standard deviation}$ . The pooled standard deviation=  $(\text{standard deviation of group 1} + \text{standard deviation of group 2})/2$ .

## Results and Discussion

Drawing on the objectives of the study, this section, first, presents the major results of the study that have been derived from the univariate and bivariate analysis and secondly, it makes the discussions of the results relating them with prevalent theories and findings of the previous studies.

## Results

### Awareness on Metacognitive Reading Strategies

This section deals with learners' awareness and use of metacognitive strategies in course of reading for their academic materials. Altogether, 12 metacognitive reading strategies with five likert scales were given to the learners to mark according to their awareness that entails their perceived use of those strategies in course of reading materials. The table 1 shows the frequencies and median of the learners' awareness on these strategies.

**Table 1:** Learners Awareness on Metacognitive Reading Strategies

Strategies	Responses											
	Always (5)		Usually (4)		Sometimes (3)		Occasionally (2)		Never (1)		Median	
	No.	%	No.	%	No.	%	No.	%	No.	%		
Setting purpose for reading	49	34.5	75	52.8	17	12	1	0.7	-	-	4.000	
Previewing text before reading	46	32.4	60	42.3	29	20.4	6	4.2	1	0.7	4.000	
Checking how text content fits purpose	50	35.2	61	43.0	26	18.3	5	3.5			4.000	
Noting characteristics	31	21.8	44	31.0	42	29.6	17	12.0	8	5.6	4.000	
Determining what to read	65	45.8	41	28.9	28	19.7	7	4.9	1	0.7	4.000	
Using text features (e.g. tables)	26	18.3	36	25.4	57	40.1	17	12.0	6	4.2	3.000	
Using context clues	51	35.9	58	40.8	23	16.2	9	6.3	1	0.7	4.000	
Using typological aids (e.g. Italics)	40	28.2	55	38.7	37	26.1	7	4.9	3	2.1	4.000	
Analyzing and evaluating text information critically	21	14.8	50	35.2	52	36.6	13	9.2	6	4.2	3.000	
Checking understanding across reading	41	28.9	65	45.8	23	16.2	11	7.7	2	1.4	4.000	
Guessing about materials when reading	46	32.4	49	34.5	29	20.4	13	9.2	5	3.5	4.000	
Confirming the guessing	62	43.7	42	29.6	29	20.4	9	6.3	-	-	4.000	

The data shows that higher level learners were found aware of the metacognitive reading strategies. Out of total respondents 52.8 % (n=75) responded that they usually set the purpose in mind before start reading. The median (4.) also indicates that higher level learners usually employ this strategy in course of reading. In response to the second strategy, 42.3% (n=60) respondents were found usually using this strategy and its median (4.) also infers that higher level readers usually preview the text before they read it. Likewise, 43.0% (n=61) respondents replied that they usually read the text by checking whether the text's content fits with the purpose they set in mind earlier. The median (4) also shows that majority of the respondents were found usually employing this reading strategy. Similarly, majority of the respondents 31.0% (n= 44) stated that they usually read by noting the key characteristics of the reading text. The median of this strategies pointed out that this strategy was usually used by the higher level readers. Notably, 45.8% respondents stated that they always read the reading materials by determining what they are going to read however, the median fell at (4) which indicated that this strategy is usually employed by the higher level readers. Moreover, 40.1% of the respondents responded that they sometimes read the by using text features like tables figures etc. As its median (3) indicated that this strategy was used by the readers in some cases. Regarding another strategy, 40.8% respondents were found usually reading by using context clues and guidelines. The median indicated the same result to this strategy. Similarly, majority of the respondents (38.7%) replied that they usually read by using the typological aids like bold faced and italics etc in the reading text. Its median value (4) also indicated that the respondents usually used this strategy while reading. In addition, 36.6% of the higher level readers were found reading the materials with the analysis and evaluation of the text information critically. The median (3) pointed out that the readers sometimes used this strategy in the time reading. Furthermore, 45.8% (n=65) of the respondents were of the opinion that they usually read by checking their understanding during reading. In this regard the median (4) also correlated with the frequency. Likewise, 34.5% of the respondents stated that they usually guessed about related reading materials during reading. The median fell at (4) which signified that this strategy is usually employed by the readers at higher level. Moreover, 43.7 % of the total respondents were found that they always read by confirming their guessing activities however its median (4) entailed that this strategy was usually used by the higher level readers in their reading activities.

### **Awareness on Cognitive Reading Strategies**

This sub-heading presents and analyses the data on learners' awareness of cognitive reading strategies that they used in the time of reading course related and academic reading texts. In this section, 8 statements indicating cognitive reading strategies were given to the learners to respond as per their familiarity and usage in

their academic reading endeavors. The table 2 presents the univariate analysis of the responses of the learners on cognitive strategies.

**Table 2:** Learners Awareness on Cognitive Reading Strategies

Strategies	Responses											
	Always (5)		Usually (4)		Sometimes (3)		Occasionally (2)		Never (1)		Median	
	No.	%	No.	%	No.	%	No.	%	No.	%		
Guessing the meaning of words/phrases	68	47.9	45	31.7	22	15.5	5	3.5	2	1.4	4.0000	
Reading slowly and carefully	65	45.8	55	38.7	17	12.0	5	3.5	-	-	4.0000	
Trying to stay focused in reading	74	52.1	49	34.5	17	12.0	1	1.4	-	-	5.0000	
Adjusting reading speed rate	83	58.5	40	28.2	16	11.3	2	1.4	1	0.7	5.0000	
Paying close attention to reading	84	59.2	43	30.3	15	10.6	-	-	-	-	5.0000	
Pausing and thinking about reading	10	7	45	31.7	61	43.0	19	13.4	7	4.9	3.0000	
Visualizing information while reading	29	20.4	36	25.4	50	35.2	19	13.4	8	5.6	3.0000	
Re-reading text for better understanding	73	51.4	40	28.2	23	16.2	6	4.2	-	-	5.0000	

Table 2 shows that nearly half of the respondents (47.9%) always read with guessing the meaning of words/phrases contained in the reading text and 31.7% of them usually used this reading strategy. The median (4) indicated that the respondents usually used this strategy during their reading practices. Likewise, 45.8% of the respondents always read slowly and carefully and 38.7 % of them usually read with such strategies. As in the previous strategy, the median value is (4) that is majority of them usually used this reading strategy. Similarly, 52.1% of the respondents stated that they always stay focused and concentrated in the time of reading and nearly, 35% of them usually employed this strategy. The median (5) indicated that majority of the respondents always used this reading strategy. According to 58.5% (n=83) respondents, they always read the materials by adjusting reading speed rate and its median (5) also stayed on the response of 'always' that it is more frequent cognitive reading strategy to them. Similarly, 59.2% of them marked that they always read paying close attention to the text information. The median value of the responses (5) indicated that they always involved in reading paying close attention to the reading text and contents. Moreover, 43.0% of the respondents stated that they sometimes used the strategy of pausing and thinking about reading. The median (3) signaled that

this strategy is less frequent to the higher level readers in comparison to the previous 3 strategies. In response to visualizing information in reading, majority of respondents 35.2% sated that they sometimes used this strategy. As its median (3) implied that it is not much frequently used by the higher level readers. In addition, 51.4% of the respondents were found always using re-reading the text for their better understanding of information.

### **Awareness on Supportive Reading Strategies**

This is another sub-heading in which learner's responses to the awareness of supportive reading strategies are analyzed and interpreted by frequency and median. There were 8 statements were given to respond to the respondents as per their perceived use of each strategy while reading academic text materials. The table 3 presents the univariate analysis of supportive reading strategies

**Table 3:** Awareness on Support Reading Strategies

Statements	Responses											
	Always (5)		Usually (4)		Sometimes (3)		Occasionally (2)		Never (1)		Median	
	No.	%	No.	%	No.	%	No.	%	No.	%		
Taking notes while reading	45	31.7	53	37.3	32	22.5	9	6.3	3	2.1	4.0000	
Reading aloud when text becomes hard	6	4.2	10	7.0	50	35.2	38	26.8	38	26.8	2.0000	
Summarizing the text with reflection	10	7.0	66	46.5	45	31.7	20	14.1	1	0.7	4.0000	
Discussing with other to check	-	-	18	12.7	89	62.7	35	24.6	-	-	3.0000	
Underlining the information in text	66	46.5	54	38.0	14	9.9	8	5.6	-	-	4.0000	
Using reference materials	38	26.8	51	35.9	48	33.8	5	3.5	-	-	4.0000	
Going back and forth in text	15	10.6	67	47.2	47	33.1	13	9.2	-	-	4.0000	
Asking questions ownself while reading	-	-	38	26.8	79	55.6	25	17.6	-	-	3.0000	

As shown in the table 3, 37.3 were found usually reading the texts by taking notes in the time of reading. The median (4) indicated the same results to this strategy. Regarding the second strategy, 35.2% respondents sometimes used loud reading when they felt the text difficult to understand and 26.8% of them occasionally used this strategy. The median (2) indicated that this strategy is not frequently used by

the higher level readers. They just used it occasionally. Moreover, majority of the respondents 46.5% (n=66) were found reading with the strategy of summarizing the text with own reflection and 31.7% of them sometimes used this strategy in their reading. The median (4) also correlated with the frequency. Likewise, discussion with other readers during reading strategy was found less frequently used, (62.7%) sometimes and (24.6%) occasionally, by the higher level readers. The median (3) indicated that this strategy is sometimes used by the readers. Similarly, 46.5% of the respondents responded that they always read by underlining the key information in the text and 38% of them usually used this supportive strategy in reading practices. According to the median value (4 =usually), this strategy is frequently used by the higher level readers. Furthermore, 35.9% of the total respondents were found usually, 33.8% sometimes and 26.8 % always reading the text by using reference materials. It's median (4=usually) indicated that this supportive reading strategy is frequent among the higher level readers. In the same way, 47.2% of the respondents were found usually reading the text by going back and forth in the text. As its median (4=usually) entailed that it is frequently employed by the readers. Regarding the next supportive strategy, 55.6% (n=79) respondents stated that they sometimes read by asking some questions own self about the information of the texts being read. The median (3=sometimes) signaled that this strategy is not much frequently employed by the higher level readers.

### **Differences in the Metacognitive Awareness of Reading Strategies by Gender and Subjects**

As per the objectives of the study, this section deals with the analysis of the differences in the metacognitive awareness of reading strategies among the readers by gender and their subject of specialization. The table 4 presents the values of the t-test.

**Table 4:** Comparison of Reading Strategy Awareness by Sex and Subject of Specialization

Variables		N	Mean	Std. Deviation	t	df	Sig. (2 tailed)	d
Sex of the respondents	Male	86	107.10	7.34	0.83	140	0.40*	0.14#
	Female	56	106.05	7.39				
Subject of specialization	English	83	106.49	6.62	-0.37	140	0.70*	0.06#
	Others (non-English)	59	106.96	8.32				

(Here, \* indicates no statistically significant, # indicates weak effect)

In the table 4, we see that out of total 142 sample population, male learners (n=86) were found more aware of the reading strategies than that of female (n=56)

as their mean values indicate 107.10 and 106.05 respectively. The standard deviation is computed as 7.34 for male learners and 7.39 for female ones. The t-value is 0.83, degree of freedom (df) is 140 and significance level is 0.40 which is ( $p > 0.05$ ). It accepts the null hypothesis that there is no statistically significant difference between the metacognitive awareness of reading strategy between male learners and female learners ( $t=0.83, df=140, p>0.05$ ). Moreover, the calculated value of Cohen's d, is 0.14 which signifies the weak effect in the difference. Here, it can be concluded that the difference of the reading strategy awareness between the male and female learners is found weak.

Regarding another independent variable (i.e. subject of specialization of the respondents), the learners with non-English major ( $n=59$ ) were found more frequently using the reading strategies than that of the learners with English major ( $n=83$ ) with the mean 106.96 for non English and 106.49 for English major. The calculated values of standard deviation were 8.32 and 6.62 respectively. For this, the t-value is -0.37, degree of freedom (df) is 140 and significance level is 0.70 which is ( $p > 0.05$ ). Here too, the null hypothesis is accepted that there is no statistically significant difference between the reading strategy awareness between higher level learners in terms of their subjects of specialization ( $t= -0.37, df = 140, p>0.05$ ). Moreover, the calculated value of Cohen's d, is 0.06 which signifies the weak effect in the difference. Here, it can be concluded that the difference of the reading strategy awareness and usage between learners by subject of specialization (English and other than English) is found weak.

## Discussion of Results

The study aimed to examine the awareness of metacognitive reading strategies of higher level learners and to compare the metacognitive reading strategy awareness of the learners in terms of sex and subject of specialization. The results of the univariate analysis indicated that learners were found aware of metacognitive, cognitive and supportive reading strategies and using them at various level of frequency. On the basis of frequency and median value of individual strategy of each category, it could be explained that learners were found more aware of the cognitive reading strategies in comparison to other two groups. It indicated that cognitive reading strategies were likely to be found more frequently used by the higher level readers in comparison to others. This finding correlated with the findings of Sheorey and Mokhtari (2001)'s findings who concluded that ESL learners had more awareness on cognitive strategies than other two metacognitive and supportive strategies. The bivariate analysis of the study showed that the independent variables sex and subject of specialization of the readers had no significant effect on the awareness and use of reading strategies at higher level. The differences in the awareness and perceived use of strategies in terms

of sex (male and female readers) and subject of specialization (English and others) were not statistically significant. This result indicated that higher level readers have same level of awareness on the reading strategies irrespective of being male or female and learner of English or non-English. This finding is matched with Brantmeier (2000)'s study that found no significant gender differences in the overall number of global and local strategies that subjects used to process the texts in the study. This study provided evidence that gender differences do not account for difference in strategy use when reading a second language. It is also similar to Young and Oxford (1997)'s study that there were no differences by men and women in their strategy use. A possible explanation could be that the use of reading strategies among the higher level readers does not vary in terms of their sex. The study also pointed out that the awareness and use of reading strategies are not different among the learners by the subject of specialization. It implied that all the higher level readers irrespective of their disciplines and subject of study perceived and used reading strategies in a similar pattern. For this, no specific and separate treatment and instruction are required to the higher level readers in case of sex and subject of specialization.

## Conclusion

The findings of this study indicated that higher level learners had metacognitive awareness of reading strategies at various level of frequency. Among the three types of reading strategies, cognitive reading strategies were found more frequently used by them, metacognitive strategies fell on the second and supportive strategies were less frequently used by the higher level learners while reading academic materials. The study also revealed that metacognitive awareness of reading strategies of the higher level learners is not varied by sex and subject of specialization. Therefore, the study implies that all the higher level learners irrespective of their sex and subjects of study are to be treated and instructed with similar type of instructional techniques and strategies in teaching and learning of reading skill. Learners should not be treated separately in terms of their sex and other criteria while teaching and testing metacognitive awareness.

## Acknowledgements

*I extend my sincere gratitude to Professor Ramesh Adhikari, PhD for providing me constructive suggestions and constant feedback to bring this paper in this form.*

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