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Thriving in the New Normal: Metacognitive Strategy Awareness and Reading Comprehension of Teacher Education Students

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Abstract

This study examines the relationship between metacognitive strategy awareness and reading comprehension among College of Teacher Education students at Apayao State College, addressing the problem of varying comprehension levels influenced by strategy usage. The objective was to identify how these strategies impact reading comprehension and to explore correlations with demographic and socio-economic backgrounds. Employing descriptive-correlational methods and stratified random sampling, the research used a reading comprehension test and the Survey of Reading Strategies questionnaire. Results indicated a prevalent use of problem-solving strategies within metacognitive awareness, positively affecting reading comprehension. Significant differences in comprehension levels—literal and interpretative—were observed among students categorized by campus and course. Furthermore, a correlation was established between metacognitive strategy usage, reading habits, and students' backgrounds. Despite access to learning materials, students demonstrated poor reading habits, with problem-solving strategies being most common. Reading comprehension was higher for literal understanding compared to interpretative and applied comprehension. The study advocates for the integration of metacognitive awareness strategies into language curriculums, a review of course syllabi, and the development of a reading improvement program alongside cultural heritage initiatives. It suggests further research across different courses and variables to enhance understanding of college-level reading comprehension. This investigation contributes to educational strategies by highlighting the importance of metacognitive awareness in improving reading comprehension.

Keywords: Metacognitive strategy awareness, Reading comprehension, Problem-solving strategies

INTRODUCTION

The rapid advancement of science has improved education quality (Darling-Hammond et al., 2019). The transition from teacher-centered to student-centered education was made possible by this circumstance (the quality of education), completely altering the way that people typically think about education (Kasim and Aini, 2012). Due to the Covid 19 pandemic, the education sector underwent reform, which strengthened this even more.

Additionally, among the study techniques, where students use their metacognitive awareness, self-regulating techniques, and having motivation, are the essential elements of student-centered education. In the new normal educational environment, there is a great need to explore this research area for self-

regulation. Superior metacognition is required for modular learning.

Some terms related to metacognition include metacognitive awareness, metacognitive experiences, metacognitive knowledge, metacognitive beliefs, metacognitive skills, high-level skills, and higher memory (Veenman et al., 2006; Yes ilyurt, 2013). The purpose of education in the twenty-first century is to provide students with a wealth of information and knowledge, but it is also to prepare them to learn effectively and independently, with the self-control required to succeed in life as well as in school.

Currently, a number of studies, particularly those on reading, focus on the role of metacognition in the field of research. "Metacognition" is an emerging term for a body of theories and studies that addresses students' knowledge and utilization of their cognitive resources. Sen claims that a child's understanding of his or her own mental processes is engaged through an investigation of learning activities like reading, mental processes, awareness of oneself, understanding ways of remembering, and learning characteristics. In addition, thinking about strategies that assist students in integrating new information into their schema and encoding it in their memories constitutes metacognition.

Task knowledge may include identifying information's difficulty. Reading is easier with familiar information. Verbalizing information and using content based on titles improve comprehension and retrieval. Thus, metacognitive awareness involves comprehension and deliberate use of learning strategies. Metacognition involves learning and thinking. Baker and Brown conducted several metacognitive studies on effective reading. This revealed two metacognitive abilities. These are cognition-related knowledge (metacognitive awareness) and regulation, which includes the reader's awareness of their cognitive resources. If a reader knows they must perform well, they will take steps to improve. If the reader doesn't realize how difficult the task is, they won't act, predict, or overcome obstacles. Numerous studies link fluent reading and metacognitive skill use. A good reader needs metacognitive skills like speed-reading, skimming, previewing, monitoring, cognition, self-regulation, planning ahead, and revising strategies. Skilled readers also engage in careful activities that require well-organized thinking, adaptable strategies, and frequent self-monitoring. Studies show better readers use better strategies. In fact, Carrell's research on second language readers' metacognitive awareness of their L1 and L2 reading strategies and the relationship between that awareness and comprehension showed this. The study included 75 native English speakers studying Spanish at various levels and two groups of 45 native Spanish speakers in an intensive ELS program. Focusing on grammar rules, sound-letter associations, meanings of words, and text details are examples of local strategies that have a negative correlation with respondents' L1 performance. Reading in the Spanish as a Second Language group at lesser level of proficiency was more local or from the bottom up, possibly because they depended more on bottom-up decoding abilities, whereas reading in the second-language ESL group at greater proficiency levels was broader (using prior experience, text the main idea, and narrative organization) or top-down. However, Carell stressed the need for more research. More metacognitive techniques are employed by successful readers than by unsuccessful readers. However, better readers have increased metacognitive awareness of their strategies and linked it to advanced reading skills. Many researchers found that skilled readers use context clues, overview before reading, search for important information, pay closer attention, try to connect key points in the text for a comprehensive understanding, activate, and use schema to interpret text. Reevaluate text-content theories. Paraphrasing, repetition, taking notes, and summarizing can help you remember text, infer information, identify main ideas, and check your understanding of unfamiliar words. Understand text elements, text structure, switch reading tactics when comprehension becomes hazy, assess the text's qualities, think about a process in more detail after reading a section, and prepare to apply what you learned

from reading.

The current study will therefore be conducted in light of the aforementioned data and the fact that educators' academic endeavors heavily rely on metacognition. Therefore, in order to provide future educators with high-quality instruction, they must be well-versed in metacognitive techniques and reading comprehension. This investigation must be conducted in order to provide knowledge and awareness, which will then be followed by the development of a concrete level of comprehension. In the Philippine context, there is also a dearth of this kind of research on strategy awareness and reading comprehension.

Conceptual Framework

High order executive skills that are used in the acquisition of languages include metacognitive strategies. They rely on knowledge of cognitive functions and make an attempt to let the learner be in charge of their own education through planning, observing, and assessing. When applied to reading, metacognitive strategies center on both the reading process and its results. They are self-monitoring and self-regulating techniques. The ability to assess the cognitive demands of the reading task, the readers' perception of their comprehension of what they have read, and their understanding of when and how to apply a particular cognitive reading strategy depending on the difficulty of the text, the circumstances, and the reader's own cognitive abilities are among them (Baker & Brown, 1984; Gourgey, 2001; Hamdan, Ghafar, Sihes, & Atan, 2010).

In the literature on educational psychology, the idea of metacognition (MC) has received considerable attention. Based to a 1990 survey that was published in the American Psychologists and pointed out by Nelson (1992), MC was one of the most prevalent 100 topics in the field of developmental and cognitive psychology. Given that it has been discovered to be essential for promoting and enhancing individual, group, and collaborative learning (White & Frederiksen, 2005) and that the application of Mc techniques distinguishes competent learners from less skilled ones (Pellegrino, Chudowsky, & Glaser, 2001), it is not unusual that much focus is being paid to Mc expertise.

The framework of the current study concentrates on monitoring and evaluating within metacognitive regulation. Setting task goals, breaking down more complex tasks into smaller ones, and projecting task outcomes are all components of metacognitive planning, according to Whitebread et al. (2007) and Shraw and Moshman (1995). Activities and monitoring are inextricably linked. According to Whitebread, et al. (2007) and Ambrose, S.A., et al. (2010), monitoring is being reflective while performing a task, tracking progress, how things are going, and whether chosen strategies are effective. Control is the action taken in response to observations made during reflective monitoring, and it includes modifying goals and strategies. Of course, being aware of a problem does not ensure a solution; rather, it gives you the chance to take control of the situation. After a task (or subtask) is finished, reflection is done through metacognitive evaluation, which includes looking at learning artifacts and how the task was completed. D. Moshman and G. Shraw (1995). Metacognition is not linear or hierarchical. These factors are interconnected, and as the arrows in Figure 1 suggest, reading comprehension in modular learning is influenced by the independent variables that included profiles of the teacher education students as to age, sex, mother tongue, year level, available reading resources at home, religion, parents' monthly income, and exposure to reading materials.

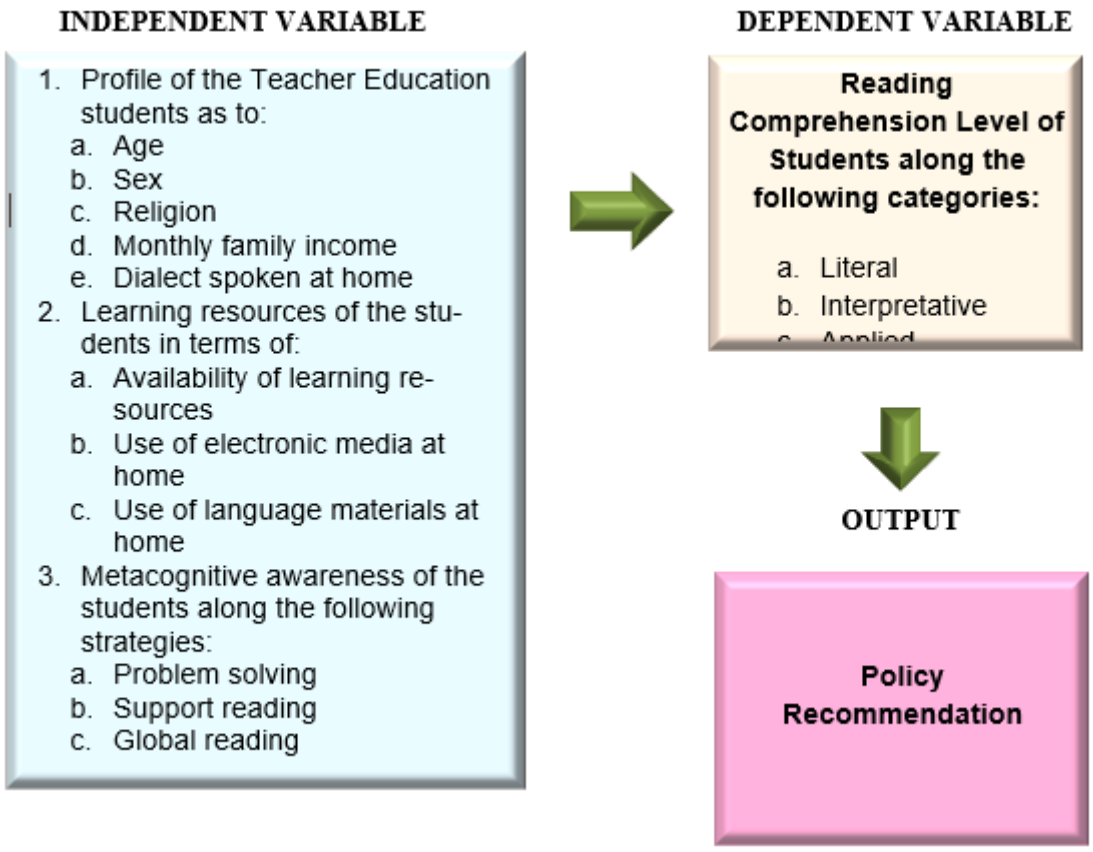

Figure 1: showing the relationship between the independent and dependent variables

Statement of the Problem

The study generally aimed to determine the metacognitive strategy awareness and reading comprehension of the Teacher Education students of Apayao State College for the academic year 2022-2023.

In view of the foregoing, this study attempted to answer the following questions:

1. What is the profile of the students in terms of the following variables?

- Age
- Sex
- Religion
- Monthly family income
- Dialect spoken at home

2. What are the learning resources of the students in terms of the following variables?

- Availability of learning resources
- Use of electronic media at home
- Use of language materials at home

3. What is the metacognitive awareness of the students along the following strategies?

- Problem solving
- Support reading
- Global reading

4. What is the reading comprehension level of the students along the following categories?

- Literal

- Interpretative
- Applied

5. Is there a significant relationship between the following variables?

- Metacognitive strategy awareness and profile of the students
- Reading comprehension level and profile of the students
- Metacognitive strategy awareness and reading comprehension level of the students

6. What policy recommendations can be deduced from this study?

METHODOLOGY

Research Design

This study used a descriptive-correlational research design that combined survey and correlational techniques. Adanza (1989) defined the descriptive method as a type of research with the goal of determining the current status or condition of a group, institution, or individual, specifically by describing what is present or what is occurring at the time.

Locale of the Study

The study was conducted at Apayao State College – Luna & Conner Campus.

One of the six provinces that make up the CAR, or Cordillera Administrative Region, is Apayao. It was established in 1995 as a result of Republic Act No. 7878, which was written by the late Congressman E.K. Bulut and split the former province of Kalinga-Apayao into the Province of Apayao and the Province of Kalinga, each of which is an independent and district province.

One of the State Universities and Colleges (SUCs) in the Cordillera with the fastest growth is Apayao State College (ASC). It was chosen by an independent accrediting organization in February 2015 as one of the TOP 11 programs to receive level 1 accreditation status.

Respondents and Sampling Procedure

The participants in this study were second, third, and fourth-year students at Apayao State College's Luna and Conner Campus' College of Teacher Education. The study's respondents were chosen using stratified random sampling. Using the Lynch formula, the number of samples was determined, and a significance level of 0.05 was used. Six hundred and twenty-nine (629) students in the College of Teacher Education at ASC's two campuses were chosen, making 242 total.

Data Gathering Instrument

A 30-item reading comprehension test (RCT) created by the researcher was one of the tools used in the study to gauge the students' level of comprehension.

The instrument used was the Survey of Reading Strategies (SORS) standard questionnaire (Mokhtari & Sheorey, 2002; Mokhtari, Sheorey, & Reichard, 2008).

The three major subcategories of strategies covered by the SORS are as follows:

1) Global Reading Strategies (GLOB), which can be thought of as generalized, intentional reading strategies aimed at setting the stage for the reading act (e.g., evaluating what to read or ignore, noting text characteristics, guessing what the material is about, etc.), contains13 items, #1, #3, #4, #6, #8, #12, #15, #17, #20, #21, #23, #24 and #27.

2) Problem-Solving Strategies (PROB), which are localized, focused problem-solving or repair strategies used when problems develop in understanding textual information (e.g., re-reading for better nderstanding, going back when losing concentration, pausing and thinking about reading, etc.), contains

8 items, #7, #9, #11, #14, #16, #19, #25 and #28.

3) Support Reading Strategies (SUP), which provide the support mechanism aimed at sustaining responses to reading (e.g., underlining or circling information, paraphrasing for better understanding, going back and forth in the text, contains 9 items, #2, #5, #10, #13, #18, #22, #26, #29 and #30.

Analysis of Data

Frequencies, percentages, ranks, means, and standard deviations were used for the study's descriptive portion. These were analyzed to determine how the students were distributed in terms of their profiles, the learning resources they had at home, the predominate metacognitive awareness techniques, and reading comprehension levels.

The following descriptive values were used to evaluate the use of electronic devices and home language learning resources using a five-point rating scale and weighted means:

Scale	Statistical Limit	Descriptive Value
5	4.20 – 5.00	Always
4	3.40 – 4.19	Often
3	2.60 – 3.39	Sometimes
2	1.80 – 2.59	Seldom
1	1.00 – 1.79	Never

The statistical analysis for the students' metacognitive awareness techniques was taken directly from its source. The weighted means of the five-point rating scale's problem-solving strategy items are 7, 9, 11, 14, 16, 19, 25, and 28, while the support reading strategy items are 2, 5, 10, 13, 18, 22, 26, and 29, and the global reading strategy items are 1, 3, 4, 6, 8, 12, 15, 17, 20, 21, 23, and 24. It was decoded using the same aforementioned descriptors. The highest weighted mean among the three strategies is used to identify a student's dominant metacognitive awareness strategy.

The reading comprehension levels of the students were measured by their test-takers' scores on the reading comprehension section. A correct response earned 1 point for each of the 20 multiple-choice questions falling under the literal and interpretative categories. For the five supply-related items that fell under the applied category, 2 points were awarded for appropriate and convincing responses, 1 point for appropriate but unconvincing responses, and 0 points for no responses. Following is a classification of the total scores for each reading comprehension category:

Score Bracket	Descriptive Value
9 to 10	High
6 to 8	Moderate
3 to 5	Low
0 to 2	Very low

Using one-way analysis of variance, it was possible to compare the reading comprehension levels of students who were grouped by campus and course. For the test of correlations, a bivariate correlation analysis utilizing the Pearson Product Moment Correlation formula (r) was used. Each hypothesis was examined at a significance level of 0.05

Results and Discussions

Table 1 shows the profile of students in terms of age, sex, religion, monthly family income, and dialect spoken at home. Apparent in the table, majority of the students belong to the age range of 19 – 21 with a frequency of 142 or 58.7 percent while 23 or 9.5 percent of the students belong to age range of 28 and above. The mean age of the students is 22.67 with a standard deviation of 4.34 which means that the students enter tertiary education at the right age.

Female outnumbered the population of this study as evident by the frequency of 180 or 74.4 percent which means there are more female students than male student. This finding is attributed from the fact that education is a female dominated course.

Majority of the students are catholic by religion with a frequency of 124 or 51.2 percent while 118 or 48.8 percent are non – catholic students.

One thirty-eight or 57 percent of the students have monthly family income ranging from 3,000 to 8,999 while six or 2.5 percent have 21,000 and above monthly family income. The mean family monthly income is 7,276.37 with a standard deviation of 4975.90 which implies that the students' monthly family income is relatively low to cater the monthly needs of the family.

Yloco ranks one as the diaclects spoken at home with a frequency of 184 followed by isnag with a frequency of 45 while there are two students with agta dialect spoken at home. This finding means that majority of the students speak yloco dialect at home.

Table 1. Profile of the students

Variables	**Frequency (n=242)**	**Percentage**
Age (in years)		
28 or above	23	9.5
25 to 27	27	11.2
22 to 24	50	20.7
19 to 21	142	58.7
	Mean = 22.67 y/o	**SD = 4.34**
Sex		
Female	180	74.4
Male	62	25.6
Religion		
Catholic	124	51.2
Non-Catholic	118	48.8
Monthly family income (in pesos)		
21,000 or above	6	2.5
15,000 to 20,999	14	5.8
9,000 to 14,999	36	14.9
3,000 to 8,999	138	57.0
2,999 or below	48	19.8
	Mean = Php7,276.37	**SD = 4975.90**
Dialect spoken at home	(multiple response)	Rank
Yloco	184	1
Isnag	45	2

Tagalog	38	3
Malaueg	8	4
Ybanag	7	5
Igorot	5	6
Kankannaey	3	7
Agta	2	8

Learning Resources of the Students

Availability of learning materials

Table 2 presents the learning resources of the students in terms of printed materials, technology devices, and audio materials. The top available printed materials of the students at home are dictionaries with a frequency of 124; followed by books with a frequency of 82 while there 33 students have magazines at home.

With the three listed available technology devices at home, majority of the students have cellular phones as ascribed by the frequency of 194; followed by 117 students with laptop computer while 13 students have desktop computer at home.

Radio is the top audio materials available at home by the students as revealed by the frequency of 67 while 2 students have tape recorder audio materials at home.

This finding means that the students have enough printed materials, technology devices, and audio materials at home that they can use as their learning resources which can help them in improving their performance in school.

Table 2. Learning materials available for the students at their home

Learning Materials	**Frequency**	**Rank**
Printed materials		
Dictionaries	124	1
Books	82	2
Pocketbooks	58	3
Journals	37	4.5
Newspaper	37	4.5
Encyclopedia	35	6
Magazines	33	7
Technology Devices		
Cellular phone	194	1
Laptop computer	117	2
Desktop computer	13	3
Audio materials		
Radio	67	1
CD/DVD player	52	2
Karaoke	37	3
MP3/MP4	35	4
Tape recorder	2	5

Use of electronic media at home

Table 3 reveals that students often use cellphone (4.02) as an electronic media at home while they sometimes use their television (2.99). However, students never use radio (1.64), tablet (1.51), video player and audiobooks/podcasts (1.48), netbook (1.47), desktop (1.40), video game player (1.20) and iPad (1.17) at home. This finding means that the students seldom use electronic media at home as manifested by the computed overall weighted mean of 1.88 which implies that the students do not own mostly of the mentioned electronic media at home.

Table 3. Students' use of electronic media at home

Electronic Media	Weighted Mean	Descriptive Value
1. Cellphone	4.02	Often
2. Television	2.99	Sometimes
3. Laptop	2.33	Seldom
4. Radio	1.64	Never
5. Tablet	1.51	Never
6. Video player	1.48	Never
7. Audiobooks/podcasts	1.48	Never
8. Netbook	1.47	Never
9. Desktop	1.40	Never
10. Video game player	1.20	Never
11. iPad	1.17	Never
Overall weighted mean	**1.88**	**Seldom**
Legend: 4.20-5.00 >> Always 3.40-4.19 >> Often 2.60-3.39 >> Sometimes 1.80-2.59 >> Seldom 1.00-1.79 >> Never		

Use of language materials at home

Table 4 displays the use of language materials at home. As sees in the table students "sometimes" used bible (3.09), books (2.99) and reading materials (2.95) as language materials at home while they "seldom" used crossword puzzles (1.93), encyclopedia (1.92) and newspapers (1.84). However, students "never" use magazines (1.67), reader's digest (1.67) and pocketbooks (1.63) as language materials available at home. This finding means that students seldom use language materials at home as supported the overall weighted mean of 2.19 which implies that the limited use of language material at home is a result of unavailability of language material resources.

Table 4. Students' use of language materials at home

Language Materials	Weighted Mean	Descriptive Value
1. Bible	3.09	Sometimes
2. Books	2.99	Sometimes
3. Reading materials	2.95	Sometimes
4. Crossword puzzles	1.93	Seldom
5. Encyclopedia	1.92	Seldom
6. Newspapers	1.84	Seldom

7. Magazines	1.67	Never
8. Reader's digest	1.67	Never
9. Pocket books	1.63	Never
Overall weighted mean	**2.19**	**Seldom**
Legend: 4.20-5.00 >> Always 3.40-4.19 >> Often 2.60-3.39 >> Sometimes 1.80-2.59 >> Seldom 1.00-1.79 >> Never		

Metacognitive Awareness Strategies of the Students

Problem solving strategies

Apparent in table 5 the metacognitive awareness strategies of the students with respect to problem solving strategies. When text becomes difficult, students often pay closer attention to what they are reading (3.90) and reread the text to increase understanding (3.90). Students also often read slowly and carefully to make sure they understand what they are reading (3.85); try to get back on track they lose concentration (3.77), adjust reading speed according to what they are reading (3.74); try to picture or visualize information to help remember what they read (3.72); stop from time to time to think about what they are reading (3.41) and guess the meaning of unknown words or phrases (3.41). Overall, the students often use problem solving strategies when reading as suggested by the computed weighted mean of 3.71 which means that the students used localized, focused techniques when problems are being developed in understanding textual information.

Table 5. Metacognitive awareness strategies of the students with respect to problem solving strategies

Statements	**Weighted Mean**	**Descriptive Value**
1. I read slowly and carefully to make sure I understand what I am reading	3.85	Often
2. I try to get back on track when I lose concentration	3.77	Often
3. I adjust my reading speed according to what I am reading	3.74	Often
4. When text becomes difficult, I pay closer attention to what I am reading	3.90	Often
5. I stop from time to time to think about what I am reading	3.41	Often
6. I try to picture or visualize information to help remember what I read	3.72	Often
7. When text becomes difficult, I reread it to increase my understanding	3.90	Often
8. When I read, I guess the meaning of unknown words or phrases	3.41	Often
Overall weighted mean	**3.71**	**Often**

Legend:		
4.20-5.00 >> Always	1.80-2.59 >> Seldom	
3.40-4.19 >> Often	1.00-1.79 >> Never	
2.60-3.39 >> Sometimes		

Support reading strategies

Table 6 reveals the metacognitive awareness strategies of the students with respect to support reading strategies. Result shows that "sometimes" students take notes while reading to help them understand what they read (3.39). However, students "often" use reference materials like dictionary to help them understand what they read (3.79); think about information in both English and mother tongue (3.78); translate from English into their native language (3.76); underline or circle information in the text to help them remember it, paraphrase to better understand what they read (3.62); ask questions to have answered in the text (3.61); go back and forth in the text to find relationship among ideas in it (3.59); and read aloud to help them understand what they read (3.48). This finding means that students often used their support reading strategies when reading in order to understand it well as evident by the overall weighted mean of 3.64. This finding implies that students' support reading strategies are their basic support mechanisms intended to aid reader in comprehending the text such as using a dictionary, taking notes, underlining, or highlighting textual information.

Table 6. Metacognitive awareness strategies of the students with respect to support reading strategies

Statements	**Weighted Mean**	**Descriptive Value**
1. I take notes while reading to help me understand what I read	3.39	Sometimes
2. When texts become difficult, I read aloud to help me understand what I read	3.48	Often
3. I underline or circle information in the text to help me remember it	3.75	Often
4. I use reference materials like dictionary to help me understand what I read	3.79	Often
5. I paraphrase (restate ideas in my own words) to better understand what I read	3.62	Often
6. I go back and forth in the text to find relationships among ideas in it	3.59	Often
7. I ask myself questions I like to have answered in the text	3.61	Often
8. When reading I translate from English into my native language	3.76	Often
9. When reading, I think about information in both English and my mother tongue	3.78	Often
Overall weighted mean	**3.64**	**Often**
Legend: 4.20-5.00 >> Always 1.80-2.59 >> Seldom		

3.40-4.19 >> Often 2.60-3.39 >> Sometimes	1.00-1.79 >> Never	

Global reading strategies

The metacognitive awareness strategies of the students with respect to global reading strategies is presented in table 7. As seen in the table that, students "sometimes" use typographical features like bold face and italics to identify key information (3.31) and use tables, figures, and pictures in text to increase their understanding (3.19). But when students read, they "often" think about what they know to help them understand what they read (3.75); have a purpose in mind (3.70); check their understanding when they across new information(3.66); check to see if their guesses about the texts are right or wrong (3.60); take an overall view of the text to see what it is about before reading it (3.59); critically analyze and evaluate the information presented in the text (3.57); try to guess what the content of the text about (3.55); use context clues to help them better understand (3.53); think about whether the content of the text fits their reading purpose (3.52); review the text first by noting its characteristics like length and organization (3.44) and decide what to read closely and what to ignore. Overall, students often used global reading strategies as indicated by the weighted mean of 3.53 which means that the students carefully planned techniques in which they can monitor and manage their reading, such as having a purpose in mind, previewing the text as to its length and organization, or using typographical aids and tables and figures.

Table 7. Metacognitive awareness strategies of the students with respect to global reading strategies

Statements	Weighted Mean	Descriptive Value
1. I have a purpose in mind when I read	3.70	Often
2. I think about what I know to help me understand what I read	3.75	Often
3. I take an overall view of the text to see what it is about before reading it	3.59	Often
4. I think about whether the content of the text fits my reading purpose	3.52	Often
5. I review the text first by noting its characteristics like length and organization	3.44	Often
6. When reading, I decide what to read closely and what to ignore.	3.43	Often
7. I use tables, figures and pictures in text to increase my understanding	3.19	Sometimes
8. I use context clues to help me better understand what I am reading	3.53	Often
9. I use typographical features like bold face and italics to identify key information	3.31	Sometimes
10. I critically analyze and evaluate the information presented in the text	3.57	Often
11. I check my understanding when I come across new information	3.66	Often

12. I try to guess what the content of the text is about when I read	3.55	Often
13. I check to see if my guesses about the texts are right or wrong	3.60	Often
Overall weighted mean	**3.53**	**Often**
Legend: 4.20-5.00 >> Always 3.40-4.19 >> Often 2.60-3.39 >> Sometimes 1.80-2.59 >> Seldom 1.00-1.79 >> Never		

Dominant metacognitive strategy of the students

Revealed in table 8, the distribution of the students in terms of dominant metacognitive awareness strategies of the students. It was found out the 101 or 41.7 percent of the students preferred problem solving strategies while there 15 or 6.2 percent of the students combines the three strategies. It is also good to note that there are seven or 2.9 percent have problem solving with support reading strategies while two or less than one percent have global and support problem solving strategies. This finding means that the majority of the students use the problem-solving strategies as their dominant metacognitive strategies when it comes to reading.

Table 8. Distribution of the students in terms of dominant metacognitive awareness strategies

Dominant	Frequency (n=242)	Rank
Problem solving strategies	101	1
Support reading strategies	82	2
Global reading strategies	35	3
Problem solving with support reading strategies	7	5
Global and support reading strategies	2	6
Combines the three strategies	15	4

Level of Reading Comprehension of the Students

Literal

The reading comprehension level of the students along literal category is displayed in table 9. Apparent in the table that 199 or 82.2 percent of the students have high level of literal reading comprehension level while five or 2.1 percent of the students are at low level. This finding means that the majority of the students have high level of reading comprehension along literal category as suggested by the mean of 9.14 with a standard deviation of 1.06 which implies that the students exhibit an extreme literal knowledge of what they read.

Table 9. Reading comprehension level of the students along literal category

Reading comprehension level along literal category	Frequency (n=242)	Percentage
High (9 to 10)	199	82.2
Moderate (6 to 8)	38	15.7
Low (3 to 5)	5	2.1

Very low (0 to 2)	0	0.0
Mean = 9.14 (High)	**SD = 1.06**	

Interpretative

Revealed in table 10, the reading comprehension level of the students along interpretative category. It was found that 145 or 59.9 percent of the students belong to moderate reading comprehension level along interpretative category while five or 2.1 percent belong to very low level. This finding indicates that most of the students fall on the moderate interpretative reading comprehension level as evident by the mean of 6.06 with a standard deviation of 1.64 which implies that students need to improve more in terms of interpretative part of reading comprehension.

Table 10. Reading comprehension level of the students along interpretative category

Reading comprehension level along interpretative category	**Frequency (n=242)**	**Percentage**
High (9 to 10)	13	5.4
Moderate (6 to 8)	145	59.9
Low (3 to 5)	79	32.6
Very low (0 to 2)	5	2.1
Mean = 6.06 (Moderate)	**SD = 1.64**	

Applied

Table 11 displays the reading comprehension level of the students along applied category. Result shows that 134 or 55.4 percent of the students falls on the high level of reading comprehension along applied category while 13 or 5.4 falls on the very low level. The mean of 7.98 with a standard deviation of 2.36 suggests that the students applied reading comprehension falls on the moderate level which means that students should strive more in the applied category when it comes to reading comprehension.

Table 11. Reading comprehension level of the students along applied category

Reading comprehension level along applied category	**Frequency (n=242)**	**Percentage**
High (9 to 10)	134	55.4
Moderate (6 to 8)	75	31.0
Low (3 to 5)	20	8.3
Very low (0 to 2)	13	5.4
Mean = 7.98 (Moderate)	**SD = 2.36**	

Comparison of the Reading Comprehension Level of the Students

By campus

Table 12 shows the comparison between the reading comprehension level of the students when grouped according to campus. It was found out that the literal and interpretative reading comprehension level of the students differs for one campus to another campus as suggested by the computed t value of 2.492 and 2.438 with a probability of 0.013 and 0.15, respectively. This finding means that the reading

comprehension level of the students from Luna campus and Conner campus varies in terms of literal and interpretative reading comprehension level.

Table 12. Comparison of the reading comprehension level of the students by campus

Groups	Mean	SD	t-value	Prob.	Statistical Inference
Literal					
Campus A	9.25	0.95	2.492	0.013	Significant
Campus B	8.90	1.17			
Interpretative					
Campus A	6.21	1.58	2.438	0.015	Significant
Campus B	5.66	1.75			
Applied					
Campus A	8.07	2.09	0.456	0.649	Not significant
Campus B	7.92	2.69			

*tested at 0.05 level of significance using t-test for independent samples

By course

Table 13 presents the comparison results of the reading comprehension level of the students when grouped according to course. Result reveals that there is a significant difference existed in the literal reading comprehension level of the students when grouped according to their respective courses as evident by the computed f- ratio of 2.639 with a probability of 0.024. Post hoc analysis using LSD implies that BSED English students have higher literal reading comprehension level than BTVTED, BEED, and BSED – Filipino.

Table 13. ANOVA table for the comparison of the reading comprehension level of the students by course

	Sum of Squares	df	Mean Square	F-ratio	Prob.	Statistical Inference
Literal						
Between Groups	13.685	5	2.737	2.639	0.024	Significant
Within Groups	244.815	236	1.037			
Total	258.500	241				

Post-hoc analysis using LSD

			Mean Differences				
Stakeholders	**Mean**	**SD**	Eng	SocSci	Math	TVTEd	BEEd
BSEd-English (Eng)	9.50	0.98	-				
BSEd-Social Science (SocSci)	9.23	0.78	0.272	-			
BSEd-Mathematics (Math)	9.19	0.62	0.315	0.043	-		
BTVTEd	8.94	0.91	**0.557***	0.285	0.242	-	

BEEd	8.88	1.32	**0.617***	0.345	0.302	0.060	-
BSEd-Filipino	8.82	1.47	**0.682***	0.410	0.367	0.125	0.065

***significant at α=0.05**

Interpretative

Between Groups	18.211	5	3.642	1.346	0.246	Not significant
Within Groups	638.454	236	2.705			
Total	656.665	241				

Post-hoc analysis not necessary

Applied

Between Groups	34.272	5	6.854	1.310	0.260	Not significant
Within Groups	1234.624	236	5.231			
Total	1268.897	241				

Post-hoc analysis not necessary

*tested at 0.05 level of significance using one-way ANOVA

Relationship between the Profile of the Students and the other Variables

Metacognitive Strategy Awareness

Table 14 presents the correlation analysis results between the profile and metacognitive strategy awareness of the students. Year level, sex, available learning resources at home, use of electronic devices and language materials at home are significantly related to problem solving strategy. Students in the higher year level have higher tendency to apply problem solving strategy as suggested by the computed r value of 0.253 with a probability of 0.000. This finding means that as the students get into the higher year level there is a higher chance of using problem solving strategy.

Male (coded as 1) students have greater possibility of problem-solving strategy application as compared to the female students. This finding is supported by the correlation coefficient of -0.132 with a probability of 0.041 which means that male students have higher metacognitive strategy awareness along problem solving than female students.

A correlation coefficient of 0.186 with a probability of 0.004 is reckoned for the available learning materials at home. This means that students with more available learning resources at home have bigger tendency of applying problem solving strategy.

More frequent use of electronic devices and language materials at home tend to have higher application of problem-solving strategy as evident by the computed r value of 0.265 and 0.306 with a probability of 0.000 and 0.000, respectively. This finding means that students have better metacognitive strategy awareness along problem solving when they often use their electronic devices and language materials available at home.

As disclosed in the same table, the correlation analysis results between the profile and metacognitive strategy awareness of the students along support reading strategy. Year level, available learning resources at home, use of electronic devices and language materials at home are significantly related to support reading strategy.

Students in the higher level with more available learning materials at home have greater possibility to apply support reading strategy as manifested by the computed r value of 0.206 and 0.187 with a probability of 0.001 and 0.003, respectively. This finding means that students in the higher have a higher likelihood of applying support reading strategy which implies that they already built their own reading strategy as they go into higher year. Moreover, additional learning materials at home is an advantage for the students to develop and enhance more their support reading strategy.

Direct relationships existed between the use of electronic devices and language materials, and the metacognitive strategy awareness of the students along support reading. Correlation coefficients of 0.256 and 0.251 with a probability of 0.000 and 0.000, respectively, indicate the significant relationship between the students who frequently use their electronic devices and language materials at home, and their support reading strategy. This finding means that their electronic devices and language materials are used to attain better support reading strategy.

Results shows that year level, available reading materials, use of electronic devices and language materials at home are significantly correlated to the metacognitive strategy awareness of the students along global reading. Year level reckoned a correlation coefficient of 0.216 with a probability of 0.001 which means that students in the higher level have higher tendency of applying global reading strategy which implies that students expand and develop their global reading strategy as they proceed into higher year level.

Availability of learning materials at home is significantly associated with student's metacognitive strategy awareness along global reading as evident by the computed r value of 0.158 with a probability of 0.014 which means that students with more learning materials at home have greater probability of applying global reading strategy which implies that the available learning materials, they have at home support their advancement in using global reading strategy.

Students who often use electronic devices and language materials at home have higher tendency of applying global reading strategy. This finding is supported by the correlation coefficients of 0.240 and 0.273 with a probability of 0.000 and 0.000 which means that students who maximize the use of their global reading strategy are those of frequently use electronic devices and language materials at home.

Table 14. Correlation analysis results between the profile and metacognitive strategy awareness of the students

Variables	Problem Solving			Support Reading			Global Reading		
	Correl.	**Prob.**	**S. I.**	**Correl.**	**Prob.**	**S. I.**	**Correl.**	**Prob.**	**S. I.**
Age	0.075	0.248	NS	0.073	0.260	NS	0.057	0.374	NS
Year	0.253	0.000	**Sig.**	0.206	0.001	**Sig.**	0.216	0.001	**Sig.**
Sex	-0.132	0.041	**Sig.**	-0.084	0.194	NS	-0.037	0.569	NS
Religion	0.000	0.997	NS	-0.036	0.581	NS	0.003	0.962	NS
Monthly family income	0.023	0.745	NS	0.017	0.804	NS	-0.035	0.621	NS
Dialect spoken at home	-0.025	0.694	NS	-0.093	0.150	NS	-0.067	0.300	NS
Available learning resources at home	0.186	0.004	**Sig.**	0.187	0.003	**Sig.**	0.158	0.014	**Sig.**
Use of electronic devices at home	0.265	0.000	**Sig.**	0.256	0.000	**Sig.**	0.240	0.000	**Sig.**
Use of language materials at home	0.306	0.000	**Sig.**	0.251	0.000	**Sig.**	0.273	0.000	**Sig.**

***tested at 0.05 level of significance**

Reading Comprehension Level

Revealed in table 15 the correlation analysis results between the profile and reading comprehension level of the students. Available learning materials at home and the use of language materials at home are significantly correlated to the literal reading comprehension of the students.

Students have higher literal reading comprehension level when they have more available learning materials at home and use language materials at home more frequently as suggested by the correlation coefficients of 0.137 and 0.267 with a probability of 0.033 and 0.000, respectively. This finding means that the availability of more learning materials and the often use of language materials at home helps the students to improve better their literal reading comprehension.

Female (coded as 2) students have better interpretative reading comprehension as compared to male students. This finding is manifested by the computed r value of 0.138 with a probability of 0.032 which means that female students excel better in interpretative reading. This finding is attributed to the fact the female students performed better in English language as compared to male students who are more inclined to mathematics.

A correlation coefficient of -0.168 with a probability of 0.009 is reckoned for religion of the students. This means that non – catholic (coded as 1) students have higher level of interpretative reading comprehension.

Presented also in table 15, the correlation analysis results between the profile and reading comprehension level of the students. Monthly family income, dialect spoken at home and the use of language materials at home are significantly associated with the applied reading comprehension of the students. Students with higher monthly family income have better applied reading comprehension level as supported by the correlation coefficient of 0.172 with a probability of 0.007. This finding means that students with higher monthly family income tends to have higher level of applied reading comprehension which implies that they have the means to fund whatever necessary materials needed to improve their applied reading comprehension.

Flexibility to speak more dialects at home and use of language materials at home more frequently are significantly correlated to applied reading comprehension. This finding is suggested by the computed r value of 0.147 and 0.174 with a probability of 0.0023 and 0.007, respectively, which means that students with higher applied reading comprehension level are those who are flexible to speak more dialects and use language materials more frequently at home.

Table 15. Correlation analysis results between the profile and reading comprehension level of the students

Variables	Literal			Interpretative			Applied		
	Correl.	Prob.	S. I.	Correl.	Prob.	S. I.	Correl.	Prob.	S. I.
Age	0.074	0.252	NS	0.047	0.467	NS	0.000	0.996	NS
Year	0.007	0.911	NS	0.093	0.147	NS	-0.059	0.365	NS
Sex	0.108	0.095	NS	0.138	0.032	**Sig.**	-0.055	0.392	NS
Religion	-0.078	0.226	NS	-0.168	0.009	**Sig.**	0.049	0.452	NS
Monthly family income	-0.027	0.704	NS	0.116	0.097	NS	0.172	0.007	**Sig.**
Dialect spoken at home	-0.023	0.716	NS	0.074	0.252	NS	0.147	0.023	**Sig.**

Available learning resources at home	0.137	0.033	**Sig.**	0.059	0.359	NS	0.079	0.221	NS
Use of electronic devices at home	0.000	0.994	NS	0.070	0.278	NS	0.009	0.885	NS
Use of language materials at home	0.267	0.000	**Sig.**	0.027	0.681	NS	0.174	0.007	**Sig.**

***tested at 0.05 level of significance**

Relationship between the Metacognitive Strategy Awareness and Reading Comprehension Levels of the Students

Apparent in table 16, the relationship between the metacognitive strategy awareness and reading comprehension levels of the students. Finding shows that Interpretative comprehension and applied comprehension are significantly correlated to problem solving strategy as supported by the computed r value of 0.139 and 0.131 with a probability of 0.031 and 0.042, respectively. This means that students who are more used to problem solving strategies tend to have higher interpretative and applied reading comprehension level.

A correlation coefficient of 0.136 with a probability of 0.034 is calculated for the significant association between the literal reading comprehension of the students and their support reading strategies. This means that the use of support reading metacognition strategies results to higher literal reading comprehension level of the students.

The use of global reading metacognitive strategies is significantly correlated to applied reading comprehension level as suggested by the computed correlation coefficient of 0.210 with a probability of 0.001 which means that students who use of global reading metacognitive strategies better tend to have higher applied reading comprehension level.

Table 16. Correlation analysis results between the metacognitive strategy awareness and reading comprehension level of the students

Variables	**Problem Solving**			**Support Reading**			**Global Reading**		
	Correl.	**Prob.**	**S. I.**	**Correl.**	**Prob.**	**S. I.**	**Correl.**	**Prob.**	**S. I.**
Literal comprehension	0.050	0.442	NS	0.136	0.034	**Sig.**	0.079	0.222	NS
Interpretative comprehension	0.139	0.031	**Sig.**	0.078	0.225	NS	0.093	0.148	NS
Applied comprehension	0.131	0.042	**Sig.**	0.030	0.638	NS	0.210	0.001	**Sig.**

***tested at 0.05 level of significance**

Policy Recommendations

The ultimatum in thinking about thinking is assessed on the teacher education students' ability to carry out success in their test taking abilities. This study therefore posits implications for possible policy concepts in the teacher Education.

a. Metacognitive Stratagem inclusion in Teachers Designed Learning Scenario

Combining metacognition with common classroom activities helps students become more well-rounded communicators, thinkers, and learners. Students will take risks, have a positive outlook, and have better relationships with others and with themselves (Nuhfer & Wirth, 2014). The qualities mentioned above

will all assist students in becoming successful lifelong learners. These abilities and thought processes will remain with students long after they leave the classroom. Students will benefit from these skills as they pursue higher education or careers in the future. The reading comprehension process emphasizes familiarity with metacognitive reading strategies, which has been identified as a crucial component of reading comprehension while reading. Therefore, extensive use of metacognitive techniques would guarantee reading success. Teachers are thus encouraged to introduce students to a range of metacognitive techniques.

In the modular learning designed, teachers therefore should consider inclusion of reflective writing, unit wrappers, and retrospective questions.

b. Policy on assessments, tests and evaluations

While in reading comprehension, students were found to be high in literal dimension. Questions with answers explicitly lifted from the text are easy among students. It is in this regard that assessments, especially objective ones should be crafted in a way that students' comprehension to dig between and beyond the text stimulating their higher order thinking skills be highly considered. A Licensure Exam Patterned test should therefore be adopted in the teacher education bunking on higher comprehension dimensions to improve their decoding cognitions at the same time prepare them for actual Licensure Examination Board type exposure.

c. QUEST (Questions, Updates, Evidences and Standards for pre-service Teachers): A Recommendation for Teacher Education Student-Training

A. Rationale

Effective learning is achieved when instructors involve students in the process, motivating them to transition from passive recipients of knowledge to active participants in their own education. One critical tool to facilitate this transformation is metacognition, the awareness and understanding of one's own thought processes. By teaching students to exercise metacognitive control, we can guide them towards better utilization of their cognitive resources.

The study reinforces this understanding, showing that students frequently utilize metacognitive awareness strategies, particularly problem-solving, which emerged as the most dominant strategy. These findings highlight the potential of integrating metacognitive strategies within teaching practices to foster more efficient learning.

Moreover, the study found a high reading comprehension level among students in the literal phase and moderate comprehension for interpretative and applied phases. It suggests that a more balanced approach might be needed to improve comprehension across all phases. Remarkably, the study found significant differences in the literal and interpretative reading comprehension levels based on campus and courses, indicating the need for a more targeted approach in different environments.

The study also revealed correlations between students' use of reading strategies and their demographics and resources. Higher use of problem-solving strategies was found among students in advanced years, males, and those with access to more learning materials and frequent use of electronic devices. The presence of more learning materials at home and frequent use of language materials correlated with higher literal reading comprehension levels. Gender and religious affiliation also appeared to influence interpretative reading comprehension levels.

The relationships between the usage of different metacognitive strategies and reading comprehension levels suggest that customizing teaching approaches based on these factors could yield improved results. Students using problem-solving strategies more frequently showed higher interpretative and applied

reading comprehension levels, indicating the effectiveness of these strategies for deeper comprehension. Hence, Language Training Program, an online training lodged in the Field Study courses may be initiated by the Teacher Education department of the College to expose students and teachers on metacognition reflective of Outcomes Based Education.

B. Objectives

To promote metacognition further, the training aims to:

a) introduce metacognitive strategies for students that they may adopt in heuristic learning with their modules;

b) outline the advantages of metacognitive strategies in successful reading comprehension; and

c) equip the pre-service teachers with the pedagogical knowledge and approaches in teaching metacognitive strategies.

C. Training Matrix

Schedule of Activities	Seminar-Workshop Activities
Day 1	
7:00-8:00	Registration of Participants
8:00-10:00	Opening Program
	Invocation
	Filipinism
	Welcome Remarks
	Introduction of Participants
	Rationale of the Activity, Clarification of Objectives and Expectation Setting
	Introduction of Resource Speakers
10:00 – 12:00	Seminar Proper
10:00 – 11:00	Topic 1: Metacognitive Strategies in the 21st Century
11:00 – 12:00	Topic 2: Metacognitive Strategies and Reading Comprehension: The Overlap
12:00 – 1:00	Lunchbreak
1:00 – 2: 00	Topic 3: Integrating Metacognitive Strategies in reading Comprehension Activities
2:00 – 2:30	Health Break
2:30 – 5:00	Workshop 1: Lesson Planning: Integrating Metacognitive Strategies in Language Instruction
Day 2	
7:00-8:00	Registration of Participants
8:00 – 8:30	Wellness Activity
8:30 – 12:00	Workshop 2: Demonstration Teaching
12:00 – 1:00	Lunchbreak
1:00 – 3:00	Workshop 3: Post Conference
3:00 – 4:30	Awarding of Certificates

4:30 – 5:00	**Closing Remarks and Photo Documentation**

Conclusions

Based on the foregoing findings of this study, the following conclusions were drawn:

1. The College of Teacher Education students of Apayao State College came from various age, gender, religion, socio-economic and linguistic backgrounds. Despite the availability of reading materials at their homes, the students portray poor reading habits as reflected from their usage of electronic media and language materials.
2. The most prevalently used metacognitive strategies among them are problem solving strategies. Support reading and global reading strategies were also used.
3. High level of literal reading comprehension is observed among them, but they have slight difficulty in comprehending through interpretations and applications. BTVTEd, BEEd and BSEd-Filipino have lower literal reading comprehension level as compared to other Teacher Education courses.
4. The metacognitive strategies of the students' progress with their year level. Good reading habits improve and hone also the metacognitive strategies.
5. Literal reading comprehension can be improved by good reading habits and by improving the learners' support reading metacognitive strategies. Women and non-Catholic students are more into interpretative reading comprehensions and can be improved by problem solving metacognitive strategies. While multilingualism and frequent reading of language materials have impacts on the applied reading comprehension and can be improved by problem solving and global reading metacognitive strategies.

Recommendations

In the light of the findings and conclusions of this study, the following are highly recommended:

1. Students must be encouraged to develop good reading habits.
2. Language teachers must integrate in their lessons various methods to develop effective reading habits among their students.
3. Metacognitive awareness strategies must form part of the language curriculum. Learning activities that tap the problem solving, support reading and global reading strategies of the students must be integrated in language instruction.
4. Conduct a comprehensive review of the course syllabi in purposive communication to incorporate metacognitive skills and comprehension strategies. The integration of these skills and strategies within the course syllabi will enhance students' metacognitive awareness and reading comprehension abilities.
5. The Apayao State College must conceptualize a program that gears towards the improvement of the reading comprehension of its Teacher Education students. This program must be equitable, accessible and implemented to all its campuses and courses to narrow, or even eliminate, the gap in the reading comprehension levels of its students. It must also fit with the needs of the students given that they possess difference demographic, cultural and socio-economic backgrounds.
6. To protect the cultural heritage of Apayao along language and dialects, programs aimed at preserving and equipping these among the students must be carried out. It would also help in the development and improvement of reading comprehension skills among students.
7. Future similar and parallel researches must be conducted along reading comprehension of college

students considering other courses and relevant variables.

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