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# Effects of Personal Intelligence Reading Instruction on personal intelligence profiles of Thai university students



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## ABSTRACT

The study investigated the impact of reading instruction using personal intelligence (PI) on Thai university students' PI profiles. Thirty-nine undergraduates majoring in English involved in the study for ten weeks. Their PI profiles were measured twice at the pre- and post-interventions. The mixed methods research design was employed. The results showed that the students developed more personal intelligence in the post-intervention profiles ( $\bar{x} = 2.72$ ,  $SD = 0.80$ ) than in their pre-intervention ones ( $\bar{x} = 2.54$ ,  $SD = 0.82$ ). The students showed a preference for intrapersonal intelligence, in goal setting ( $\bar{x} = 2.85$ ,  $SD = 0.78$ ), monitoring ( $\bar{x} = 2.85$ ,  $SD = 0.74$ ), and evaluation strategy ( $\bar{x} = 3.21$ ,  $SD = 0.77$ ). Their interaction assessed by classroom observation and student worksheets also highlighted the PI profile findings. Personal Intelligence Reading Instruction facilitated the students setting specific and achievable goals, making overt and doable plans for their reading tasks, adjusting strategies helping them understand the text better, and identifying sources of difficulties while reading.

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## Introduction

Thai students are exposed to formal English language learning for many years, but their English reading ability is not satisfactory. One of the main reasons may be due to the traditional teaching reading method Thai teachers use (Chandavimol, 1998). Other factors affecting students' reading comprehension involve the first language reading ability, low level word

decoding skills, lack of cultural knowledge of the materials, lack of opportunities to read, and inadequate exposure to reading materials (Chomchaiya & Dunworth, 2008; Suknantapong, Karnchanathat, & Kannaovakun, 2002). These factors also applied to students in the southernmost provinces of the country due to the acts of terrorist insurgency.

This situation cried out for attention as reading is a fundamental and necessary skill for students learning English

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as a foreign language, especially at the university level. Learners use reading as a tool for studying and acquiring English and to gather information for the professions of medicine, science, technology and law, among others. Moreover, most of the tasks and assignments at the tertiary education level involve reading and researching. Students depend on effective reading to acquire knowledge. Poor reading may interfere with a students' overall achievement.

Reading in a foreign language, in particular, is more challenging because the act of reading is complex and demanding on the brain. It is not just someone learning to read in another language; rather, L2 reading is a case of learning to read with languages (Grabe, 2009). Generally, individuals vary in the way they process information. For example, some students prefer studying in groups and like to discuss information with others whereas others learn better in an independent setting. However, it seems to be impossible for students, as adults, to always work in their preferred mode.

Personality and individual differences are considerably related to Gardner's groundbreaking proposal of Multiple Intelligences (MI theory). It offers a radically different explanation of intelligence and considers learners as different individuals possessing varying types of intelligences and learning dispositions (Gardner, 1993). The MI theory holds that each person possesses nine intelligences and uses them to carry out different kinds of tasks. However, intelligence development depends on personal, environmental, and other factors.

Gardner's (1983) formulation of multiple intelligences includes a pair of intra- and interpersonal intelligences to which he refers together as Personal Intelligences (PIs). They are more prominent among L2 researchers (Akbari & Hosseini, 2008; Behjat, 2012; Mirzaei, Domakani, & Heidari, 2013). Most of these research findings show that intrapersonal and interpersonal intelligences are the good L2 readers' most dominant intelligences, except for linguistic and logical-mathematical intelligences.

Personal Intelligence Reading Instruction (PIRI) might bridge the gap between students' learning styles and reading strategies as mentioned above. Therefore, the present study was conducted to examine the effects of PIRI on the students' PI profiles. Specifically, the objectives of this study were: 1) to examine the effects of PIRI on students' PI profiles; and 2) to explore the types of personal intelligence that students report employing while reading.

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## Literature Review

### *Multiple intelligences*

Gardner (1993, p. 6) conceptualized intelligence as "the ability to solve problems or create products that are of consequence in a particular cultural setting or community". He clarified it into linguistic, logical, musical, kinesthetic, spatial, intrapersonal, interpersonal, natural and existential intelligences (Gardner, 1999).

Christison (2005) claimed that MI theory, specifically, intelligence profiles helped students become aware of their learning preferences and their metacognitive skills would

enhance accordingly. A host of researchers (Armstrong, 2009; Gardner, 1993; Haley, 2004) noted that teachers who designed and organized instruction around students' learning preferences might maximize learning opportunities for the students. One of the most cited and well-designed MI inventories is Gay's (2001) Multiple Intelligences inventory (<http://www.ldrc.ca/projects/miinventory/mitest.html>). It consists of measuring 80 items clearly classified into eight types of intelligences. Therefore, it is easy to identify each item in the inventory as only two intelligences—intrapersonal and interpersonal—that were used in this study.

### *Personal intelligence*

Intrapersonal intelligence is defined as the development of the internal aspects of a person. It has as its core "access to one's feelings about life—one's range of affection and emotion" (Gardner, 1993, p. 239). The second member of the pair, interpersonal intelligence, is intelligence about others. It allows individuals to cooperate in groups and be instinctively sensitive to the feeling of others. This intelligence also contains other skills more classically associated with social intelligence such as manipulating situations and motivating groups (Gardner, 1993, pp. 239–253).

Christison (2005) defines intrapersonal intelligence as the ability to understand oneself as well as one's strengths, weaknesses, moods, desires, and intentions. This includes such skills as understanding how you are similar to or different from others, reminding yourself to do something, knowing about yourself as a language learner, and knowing how to handle your feelings. She also suggests second language teachers should develop intrapersonal intelligence in EFL learners by giving students opportunities to express their own preferences, reflect on how they participated in an activity, set goals for their own learning, and help them evaluate their own styles of learning. Interpersonal intelligence, on the other hand, is defined as the ability to understand another person's moods, feelings, motivations, and intentions.

The interpersonal intelligence can be applied to reading skills in two ways. One is the ability to understand the point of view, directions, and explanations provided by the reading teacher who will facilitate the development of various reading sub-skills and strategies. The other is the capacity to imaginatively place one's self in the role of the author of a text and the perspectives of characters in a story that will enhance semantic understanding and textual comprehension.

Multiple Intelligences have been previously studied with different variables such as language learning strategies and reading comprehension (Akbari & Hosseini, 2008; Behjat, 2012; Hashemi, 2010; Mirzaei et al., 2013). Akbari and Hosseini (2008) found the highest correlation between metacognitive strategy use and almost all the domains of MI. Hashemi's (2010) findings was the pleasant relationship between MI and reading comprehension. Behjat's (2012) study used Gay's MI inventory and Armstrong's MI checklist to investigate inter- and intrapersonal intelligences in the language performance of male and female students. The study suggested that language learners were more successful if they could recognize the type of intelligence that was dominant in them. Mirzaei et al.'s (2013) study also revealed that linguistic, logical-

mathematical, and intrapersonal intelligences were the good L2 readers' most dominant intelligences.

With respect to the impact of personal intelligence on foreign language learning and the lack of sufficient studies done with Thai students, the current study aimed to explore the impact of integrating PI into EFL reading instruction. Thus, there were two research questions guided this study:

- 1) To what extent does PIRI improve students' PI profiles?
- 2) What type of personal intelligence do students report employing while reading?

## Research Methodology

### Participants

The study involved 39 undergraduates majoring in English who enrolled in the Paragraph Reading Strategies class at a public university in the southern part of Thailand. Their average age was 18 and they had continuously studied English for at least 10 years. Most of them were from private Islamic schools providing both religious and non-religious subjects. These students had Melayu, a dialect of Malay language, as their first language because they daily used it to communicate in their family and communities. Therefore, some of them had a low level of proficiency in the Thai language and this could imply that they studied English at school as their third language.

### Personal Intelligence Reading Instruction (PIRI)

The development of Personal Intelligence Reading Instruction (PIRI) for the study involves the exploration of related theories and experts' validation. PIRI can be viewed as a cognitive process that fixes and fosters the teaching and learning of English reading skills in classrooms. Its pedagogy supports the acquisition of metacognitive awareness and strategies among Thai undergraduate students.

Nine lessons of PIRI centered on three thematic units, namely, food, health, and technology, and lasted over ten weeks with an emphasis on explicit strategy instruction. The lessons incorporated intrapersonal intelligence, for example, goal-setting, monitoring, and evaluation with interpersonal intelligence practices, for example, sensing others' feeling, collaboration, and exchanging explanations. Every single lesson followed four teaching phases—observe and personalize, search and retrieve, comprehend and integrate, and communicate to others—as pre-reading, while-reading, and post-reading activities. The first phase allowed students to link new materials to their experiences. Then, the students were taught where to look for information or personal questions in the previous phase. During the third phase, they had an opportunity to make connections with the text they were going to read. Finally, the students designed and created a method for sharing the learned information for both their own understanding and their classmates. The theoretical framework formed a foundation for the integration of Personal Intelligence and reading instruction as shown in Figure 1.

### Procedure

Prior to the Personal Intelligence Reading Instruction (PIRI), the personal intelligence inventory (PI inventory) was administered to the students in order to assess undergraduate students' PI profiles. Before participating in the instruction, the students received an overview of the course from the researcher-instructor. The content of the Personal Intelligence Reading lessons and activities during the instruction were briefly explained. Three instructional practices were videotaped in Week 3, 6, and 9 to observe students' performances. The researcher-instructor also observed the class and administered the student worksheets to collect qualitative data. At the end of the instruction, the students were post-tested with the PI inventory to examine the effects of PIRI on their PI profiles. The scores were compared with their pre-test ones to answer the two research questions.

### Data collection and data analysis

The three research instruments consisted of a Thai version of the PI inventory, a classroom observation form and the student worksheets. Descriptive statistics were calculated to explore students' personal intelligence profiles. The qualitative data obtained from the observation form were used to generate more insights for interpersonal intelligence and the worksheets were considered to reflect clearer views of intrapersonal intelligence.

### Personal Intelligence Inventory (PI inventory)

The PI inventory was based on Gay's (2001) Multiple Intelligence inventory. Only two intelligences (intrapersonal and interpersonal intelligence) were adopted, translated into Thai, and adjusted to the PI reading context for this study. The inventory was pilot tested and redesigned for the intervention. The students rated the PI inventory before and after participating in the PIRI. The inventory is not an intelligence test. It produces an intelligence profile giving students a sense of how much they are focusing on a particular intelligence while reading.

The PI inventory consisting of 20 items was a self-report presented in the form of a four-point Likert scale, ranging from 1 = not at all like me to 4 = most like me. The students scored each statement (1–4) according to the extent to which they agreed with it.

### Classroom observation form

The classroom observation form involved related procedures for gathering data during actual PIRI lessons—primarily by watching, listening, and recording. The observation aimed to collect qualitative data to triangulate the quantitative data obtained from the PI inventory in the light of interpersonal intelligence. The form was simply a tool to investigate what happened inside the PIRI classroom relating to the development of students' personal intelligences. An observation scheme involved many different facets of interaction relating to students' interpersonal intelligence. The class was observed in Week 3, 6, and 9. The observation summarized overall

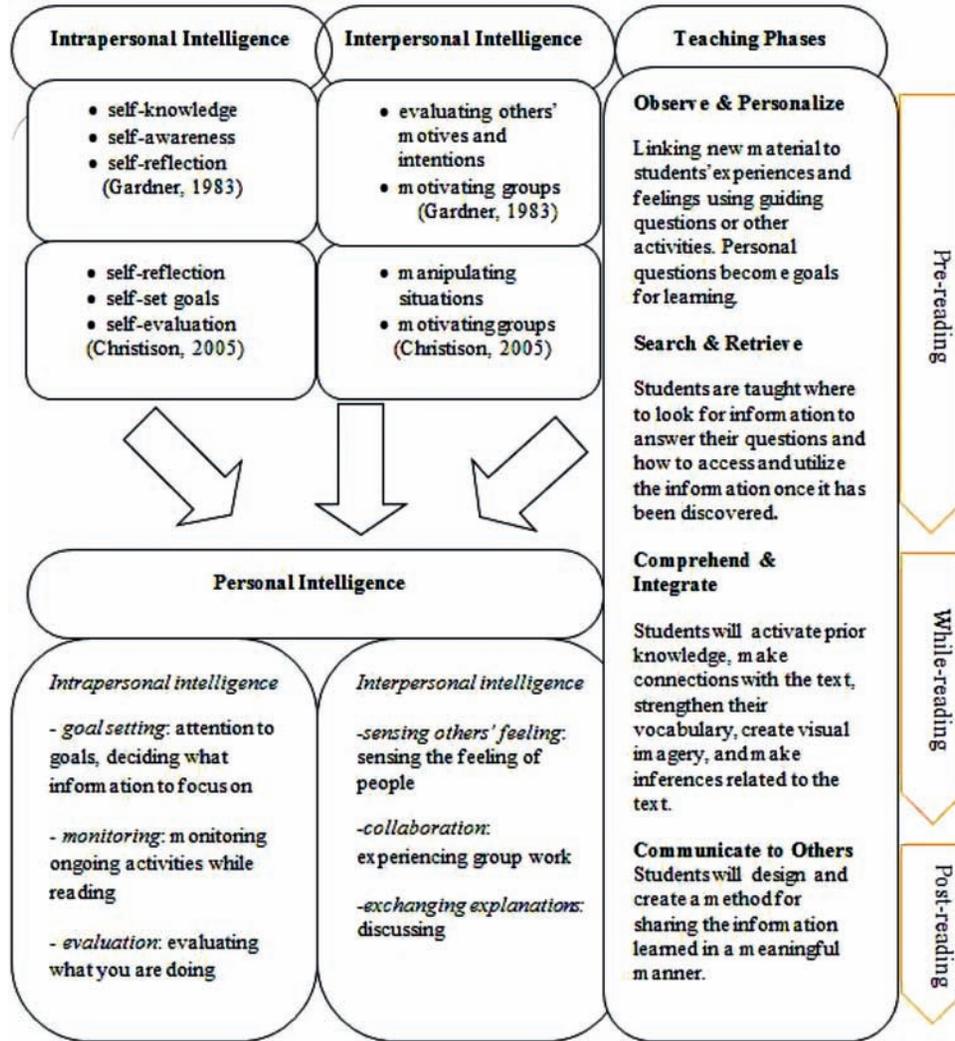


Figure 1 – PIRI framework

evidence of classroom activities and students'/teacher's behaviors that promoted personal intelligence skills.

*Student worksheets*

The student worksheets aimed to collect qualitative data to triangulate the quantitative data obtained from the PI inventory, especially intrapersonal intelligence. The worksheet construction was based on the K-W-L (know, want to know, and learn) chart (Ogle, 2009) and the KWHL chart (Grabe, 2009) that combined before reading, while reading, and after reading activities. Students were asked what they know (K) about the topic of the reading, what they want to know (W) about the topic, and how (H) they will accomplish their goals. Toward the end of the post-reading segment of the lesson, the class revisited the KWHL chart and reported what they learned (L) and which strategies (listed in the H column) were most effective. The students could also connect the newly learned information (listed in the L column) with the already known information (listed in the K column) to consolidate their reading comprehension. The worksheet was administered in Week 3, 6, and 9.

**Results**

*Personal intelligence profiles*

Table 1 indicated that students' overall intra- and interpersonal intelligence strategies were slightly developed as more personal intelligences in the post-intervention profiles ( $\bar{x} = 2.72$ ,  $SD = 0.80$ ) than the ones in their pre-intervention profiles ( $\bar{x} = 2.54$ ,  $SD = 0.82$ ). The students showed a preference for intrapersonal intelligence ( $\bar{x} = 2.81$ ,  $SD = 0.80$ ). Three strategies out of the ten intrapersonal intelligence items, goal setting ( $\bar{x} = 2.85$ ,  $SD = 0.78$ ) and monitoring ( $\bar{x} = 2.85$ ,  $SD = 0.74$ ) were the highest, followed by evaluation strategy. Items 19 (goal setting), 7 (monitoring), and 13 (evaluation) showed higher means scores for each strategy, respectively—(Item 19,  $\bar{x} = 3.36$ ,  $SD = 0.71$ ), “I find that I am strong-willed, independent and don't follow the crowd”, (Item 7,  $\bar{x} = 3.15$ ,  $SD = 0.74$ ), “If I have to memorize something I tend to close my eyes and feel the situation”, (Item 13,  $\bar{x} = 3.21$ ,  $SD = 0.77$ ), “I know what I am good and what I am weak at.”

**Table 1 – Students' profiles of personal intelligence**

Personal intelligence aspect	Statement	Pre-intervention		Level		Post-intervention		Level
		$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	
<b>Intrapersonal</b>								
Goal setting	1. I like to work alone without anyone bothering me. 10. For a group presentation I like to contribute something that is uniquely mine, often based on how I feel. 19. I find that I am strong-willed, independent and don't follow the crowd. 20. I like myself (most of the time).	2.87 2.15 2.72	0.95 0.78 0.72	Somewhat like me Somewhat like me Somewhat like me	2.87 2.33 3.36	0.92 0.87 0.71	Somewhat like me Somewhat like me More like me	
<b>Total</b>								
Monitoring	2. I like to keep a diary. 4. In an argument, I will usually walk away until I calm down. 7. If I have to memorize something I tend to close my eyes and feel the situation. 8. I don't like crowds.	2.41 2.54 2.38 2.62 2.56	0.94 0.85 0.71 0.91 0.85	Somewhat like me Somewhat like me Somewhat like me Somewhat like me Somewhat like me	2.85 2.85 2.41 2.21 3.15	0.84 0.84 0.82 0.83 0.74	Somewhat like me Somewhat like me Somewhat like me Somewhat like me More like me	
<b>Total</b>								
Evaluation	9. If something breaks and won't work, I wonder if it's worth fixing up. 13. I know what I am good at and what I am weak at.	3.15 2.68 2.36 2.67 2.52 2.59	1.09 0.89 0.81 0.77 0.79 0.85	More like me Somewhat like me Somewhat like me Somewhat like me Somewhat like me Somewhat like me	3.62 2.85 2.10 3.21 2.66 2.81	0.71 0.78 0.75 0.77 0.76 0.80	More like me Somewhat like me Somewhat like me More like me Somewhat like me Somewhat like me	
<b>Total</b>								
<b>Intrapersonal Intelligence Total</b>								
<b>Interpersonal</b>								
Sensing others' feeling	5. I have several close friends. 12. I'm quick to sense in others' reading difficulties.	2.87 2.28	0.77 0.72	Somewhat like me Somewhat like me	3.00 2.51	0.65 0.85	More like me Somewhat like me	
<b>Total</b>								
Collaboration	3. I get along well with others. 11. For a group presentation I like to help organize the group's efforts. 15. I like working with others in groups. 16. Friends ask my advice because I seem to be a natural reader who understands the writer's message.	2.44 2.28 2.44 2.03	0.82 0.69 0.75 0.81	Somewhat like me Somewhat like me Somewhat like me Somewhat like me	2.49 2.67 2.59 2.00	1.05 0.66 0.79 0.56	Somewhat like me Somewhat like me Somewhat like me Somewhat like me	
<b>Total</b>								
Exchanging explanations	6. If something breaks and won't work I try to find someone who can help me. 14. I like helping teach other students. 17. If I have to memorize something I ask someone to quiz me to see if I know it. 18. In an argument I tend to ask a friend or some person in authority for help.	2.30 3.03 2.49 2.38 2.64	0.77 0.74 0.82 0.88 0.84	Somewhat like me More like me Somewhat like me Somewhat like me Somewhat like me	2.44 2.90 2.95 2.54 2.72	0.77 0.94 0.72 0.97 0.89	Somewhat like me Somewhat like me Somewhat like me Somewhat like me Somewhat like me	
<b>Total</b>								
<b>Interpersonal Intelligence Total</b>								
<b>Total</b>								
Interpersonal Intelligence Total		2.49	0.78	Somewhat like me	2.64	0.81	Somewhat like me	
<b>Total</b>		2.54	0.82	Somewhat like me	2.72	0.80	Somewhat like me	

The results from interpersonal intelligence indicated frequent use of exchanging explanations, sensing others' feeling, and collaboration, respectively. In the category of sensing others' feeling, the students rated Item 5, "I have several close friends", the most ( $\bar{x} = 3.00$ ,  $SD = 0.65$ ). This meant the students were able to distinguish the writer's tone of voice or point of view. Also, they had the capacity to imaginatively place themselves in the role of the author of a text. Nevertheless, Item 6, "If something breaks and won't work I try to find someone who can help me", in the category of exchanging explanations was lower after the students experienced PIRI ( $\bar{x} = 2.90$ ,  $SD = 0.94$ ).

### Interpersonal intelligence

Based on the data from the third sessions of classroom observation, limited evidence showed that the students shared some ideas with their peer group while reading, helped one another interpret the text, and also received help from their peers. In the following responses of observation notes, the students demonstrated certain perspectives that confirmed their use of interpersonal strategies while they read.

#### Exchanging explanation

Most students reported that peers were beneficial in the reading class. Working with peers contributed much to their reading. They were able to ask questions freely and discuss their answers with peers, as shown by the following:

**Student # 6:** *I don't like reading alone. I love working in a group and share my ideas with friends. If we don't understand a sentence or a word, we can ask each other.*

**Student # 4:** *I prefer working with close friends of mine because they always talk together. I think it would be much easier to ask friends than the teacher.*

#### Sensing others' feeling

Some students presented how they felt toward the writer's tone of voice in a reading passage and the survey of the effects of pictorial warnings, as they reflected.

**Student # 7:** *The author strongly supports pictorial warnings on tobacco and alcohol packages. He shows many advantages of warning labels in his article.*

**Student # 8:** *I think the pictorial warnings on tobacco package would work because of the disgusting pictures printed on the package.*

**Student # 2:** *Student B said she would use more disgusting pictures on the label because it would work better.*

#### Collaboration

PIRI allowed the students to perform their reading tasks with a partner or team members by reading together and questioning each other. Group members brought their understanding of the passage, according to the following excerpts.

**Student # 9:** *Questioning each other helped learn more from the text. We kept asking each other until we got a very clear answer.*

**Student # 10:** *I think the group members co-operate very well to accomplish the given task and I learn more from friends during the discussion.*

### Intrapersonal intelligence

The above data were triangulated with those obtained from the student worksheets. The students developed their intrapersonal intelligences by employing goal-setting, monitoring, and evaluation strategies. According to their worksheet reports, they used those strategies more frequently after being exposed to PIRI. They were able to identify their strengths and weaknesses in reading as well as to read with confidence. Although the three types of reading strategies were taught explicitly in class, the worksheets of Week 9, the last unit of the reading lessons, showed that there was little evidence indicating the use of a variety of reading strategies occurring in Week 3 and 6. Using dictionaries during reading, which was not one of the strategies taught in class, was the strategy that almost all of the students relied on.

One of the highly developed intrapersonal learners was their capacity to set realistic goals for themselves. According to the following excerpts, Student # 1 reported that she set a specific goal by reading one chapter per day to help her practice reading skill.

#### Goal-setting strategy

**Student # 1:** *I will read a chapter per day in order to practice reading skill. I think I will understand the story well when the teacher talks about it in class.*

**Student # 2:** *I want to know the disadvantages of Facebook for education. Does Facebook really lower my grade?*

Meanwhile, in some students' response samples, the students described how they monitored their understanding of the story by identifying what the difficulty was and by asking themselves while they read to deal with the trouble.

#### Monitoring strategy

**Student # 3:** *I don't understand what the author means when she says, 'hook on technology'.*

**Student # 2:** *Mostly, I use my background knowledge to help understand what the story is about. For example, I'm interested in technology. Therefore, I make the most of my prior knowledge to help comprehend the text when I read "Is Facebook an Addiction?"*

**Student # 4:** *I highlight information about five important words: what, who, when, where, why.*

**Student # 5:** *I didn't know how important the title was before. Now, I look at the title and pictures and think what the article is about first.*

According to the students' responses, they showed awareness of the metacognitive strategies taught and they also used them while reading. Background knowledge came to play a role in order to help them understand the story. Meanwhile, highlighting important information of what, who, when, where, and why helped the students read with confident and finally achieved reading goals. In addition, some degree of students' interest in the evaluation strategy was also perceivable as shown in their worksheets.

#### *Evaluation strategy*

**Student # 3:** *I usually paused at a quarter of a page to tell myself if I understood the story. It's like a very short summary, so that I wouldn't get confused. If I couldn't understand well, I would reread the part.*

**Student# 1:** *I couldn't get the gist of this story. I already tried to read it over and over again. I should find the main idea of each paragraph then.*

To summarize, the insightful data from the observation and the student worksheets triangulated with those obtained from the Personal Intelligence inventory. The students reported a satisfactory view towards the personal intelligence strategies. They found the reading passages more interesting to read if they could read in groups. PIRI facilitated the students to set specific goals, make plans for their reading tasks, and adjust strategies. These helped them understand the text better and identifying sources of difficulties they encountered while reading.

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## **Discussion and Conclusion**

This study investigated first-year students' use of personal intelligence which was measured through their responses to the PI inventory. The first research question addresses improvement of the students' PI profile after practicing personal intelligence reading strategies. However, the levels of the profiles before and after the intervention are at the same level of "somewhat like me". The results are consistent with the general tenor of previous studies on reading strategies that low-proficiency students seem to use less metacognitive strategies than high-proficiency ones. Mokhtari, Sheorey, and Reichard (2008) and Sheorey and Mokhtari (2008) examined metacognitive awareness and the use of reading strategies based upon students' English proficiency. The findings confirm that more proficient readers—both native English speakers and EFL students—were aware of and employed metacognitive reading strategies while less advanced readers in both groups appeared not to be aware of or to use the different reading strategies.

Wichadee (2011) also investigated the effectiveness of explicit instruction of metacognitive strategies among 40 EFL first-year students in a private university in Thailand. The research results were correlated with the previous research that low proficiency students still questioned strategy instruction.

In addition, Saengpakdeejit (2014) studied the differences in the reported use of reading strategies of 549 Thai third-year students studying at Khon Kaen University. The findings showed that the respondents on the whole did not use reading strategies very frequently while reading.

The second research question addresses types of personal intelligence students report employing while reading. The results show that goal setting, monitoring, and evaluation strategies were highly used by the students after experiencing PIRI. This implies that the students possess the ability of planning for reading, monitoring, their comprehension, and checking how text content fits purpose or reading goals. In fact, the main emphasis in CORI often overlapped with pedagogical priorities in EFL reading instruction; for instance, teaching students how to become strategic readers, facilitating student motivation, and incorporating extensive reading in class (Grabe & Stoller, 2014). Grabe and Stoller (2014) made a clear connection between CORI and EFL content-based instruction, pointing out that empirical research on CORI provided support for successful content and language integration in EFL settings. Evidence from reading research has empirically demonstrated the effectiveness of content-based instruction (Guthrie et al., 2004). Schunk and Zimmerman (2006) and Armstrong (2009) found that reading instruction enabled students' learning to set realistic goals during reading and to evaluate their progress increases self-efficacy and achievement in reading tasks.

The findings from the observation notes and the PI profiles confirm that the students favor reading in groups. This collaborative opportunity enhances their listening and being heard by peers in talking about what they have read, adding to each other's interpretations, raising clarify questions, and attempting to synthesize their own brainstorming.

Some studies focusing on discussion still confirm the importance of student discussions as a primary means for building reading comprehension skills. In particular, McKeown and Beck (2004) carried out a mix-method study with six teachers over seven months. They trained the teachers to use Questioning the Author, an approach that emphasized students' construction of meaning from text by encouraging students to collaboratively grapple with and reflect on what an author was trying to say. The results revealed that sense-making and reading comprehension were promoted by the Questioning the Author approach. However, as stated in many studies, the students are rarely oriented to discussing information-focused books with peers (Guthrie & Coddington, 2009; Wigfield, Cambria, & Ho, 2012).

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## **Conflict of interest**

No conflict of interest.

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#### REFERENCES

- Akbari, R., & Hosseini, K. (2008). Multiple intelligences and language learning strategies: Investigating possible relations. *System*, 36(2), 141–155.
- Armstrong, T. (2009). *Multiple intelligences in the classroom* (3rd ed.). Alexandria, VA: ASCD.
- Behjat, F. (2012). Interpersonal and intrapersonal intelligences: Do they really work in foreign-language learning? *Procedia-Social and Behavioral Sciences*, 32, 351–355.
- Chandavimol, M. (1998). Reading comprehension: An active engagement or a passive experiences? *PASAA*, 28(December), 31–42.
- Chomchaiya, C., & Dunworth, K. (2008). Identification of learning barriers affecting English reading comprehension instruction, as perceived by ESL undergraduates in Thailand. In *Proceedings of the EDU-COM International Conference. Sustainability in higher education: Directions for change* (pp. 96–104). Perth, WA, Australia: Edith Cowan University.
- Christison, M. A. (2005). *Multiple intelligences and language learning: A guide to theory, activities, inventories, and resources*. San Francisco, CA: Alta Book Center Publishers.
- Gardner, H. (1983). *Frames of mind: The theory of multiple intelligences*. New York, NY: Basic Books.
- Gardner, H. (1993). *Multiple intelligences: The theory in practice*. New York, NY: Basic Books.
- Gardner, H. (1999). *Intelligence reframed. Multiple intelligences for the 21<sup>st</sup> century*. New York, NY: Basic Books.
- Gay, G. (2001). *Multiple intelligences inventory*. Available from <http://www.ldrc.ca/projects/miinventory/miinventory.php>.
- Grabe, W. (2009). *Reading in a second language: Moving from theory to practice*. Cambridge, UK: Cambridge University Press.
- Grabe, W., & Stoller, F. L. (2014). Teaching reading for academic purposes. In M. Celce-Murcia, D. M. Brinton, & M. A. Snow (Eds.), *Teaching English as a second or foreign Language* (4th ed., pp. 189–205). Boston, MA: National Geographic Learning/Cengage Learning.
- Guthrie, J. T., & Coddington, C. S. (2009). Reading motivation. In K. R. Wentzel, & A. Wigfield (Eds.), *Handbook of motivation at school* (pp. 503–525). New York, NY: Routledge.
- Guthrie, J. T., et al. (2004). Increasing reading comprehension and engagement through concept-oriented reading instruction. *Journal of Educational Psychology*, 96(3), 403–423.
- Haley, M. H. (2004). Learner-centered instruction and the theory of multiple intelligences with second language learners. *Teacher College Record*, 106, 163–180.
- Hashemi, A. (2010). *On the relationship between multiple intelligences and reading comprehension tasks: An authentic MI theory-based assessment*. Available from <http://faculty.ksu.edu.sa/aljarf/Documents/.../Akram%20Hashemi.pdf>.
- McKeown, M. G., & Beck, I. L. (2004). Transforming knowledge into professional development resources: Six teachers implement a model of teaching for understanding text. *The Elementary School Journal*, 104, 391–408.
- Mirzaei, A., Domakani, M. R., & Heidari, N. (2013). Exploring the relationship between reading strategy use and multiple intelligences among successful L2 readers. *Educational Psychology*, 34(2), 208–230. Retrieved from <http://dx.doi.org/10.1080/01443410.2013.785053>.
- Mokhtari, K., Sheorey, R., & Reichard, C. (2008). Measuring the reading strategies of first-and second-language readers. In K. Mokhtari, & R. Sheorey (Eds.), *Reading strategies of first-and second-language learners: See how they read* (pp. 43–55). Norwood, MA: Christopher-Gordon Publisher.
- Ogle, D. M. (2009). Creating contexts for inquiry: From KWL to PRC2. *Knowledge Quest*, 38(1), 56–61.
- Saengpakdeejit, R. (2014). Thai third-year undergraduate students' frequent use of reading strategies with a focus on reading proficiency and gender. *Kasetsart Journal: Social Sciences*, 35, 103–112.
- Schunk, D. H., & Zimmerman, B. J. (2006). Competence and control beliefs: Distinguishing the means and ends. In P. A. Alexander, & P. H. Winne (Eds.), *Handbook of educational psychology* (2nd ed., pp. 349–367). Mahwah, NJ: Lawrence Erlbaum Associates.
- Sheorey, R., & Mokhtari, K. (2008). Differing perceptions of reading strategy use between native and non-native college students. In K. Mokhtari, & R. Sheorey (Eds.), *Reading strategies of first-and second-language learners: See how they read* (pp. 131–141). Norwood, MA: Christopher-Gordon Publisher.
- Suknantapong, W., Karnchanathat, N., & Kannaovakun, P. (2002). An analytical study of humanities and social sciences students' problems in reading English. *Songklanakarin Journal of Sciences and Humanities*, 8, 121–132.
- Wichadee, S. (2011). The effects of metacognitive strategy instruction on EFL Thai students' reading comprehension ability. *Journal of College Teaching & Learning*, 8(5), 31–40.
- Wigfield, A., Cambria, J., & Ho, A. (2012). Motivation for reading information texts. In J. T. Guthrie, A. Wigfield, & S. L. Klauda (Eds.), *Adolescents' engagement in academic literacy*. College Park, MD: University of Maryland.