

Title: A Cross-Cultural Examination of Metacomprehension

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Abstract

Western researchers examining metacomprehension have shown that even adult readers are often unable to monitor their comprehension adequately or use strategies effectively to aid their comprehension. Is lack of metacomprehension ability a general phenomenon that exists around the globe or simply a characteristic of learners in the western society? A promising avenue to further understand factors contributing to metacomprehension skills and mechanisms of metacomprehension is to study learners in other cultures, particularly a culture that is highly distinguishable from the western culture, like the Taiwanese Chinese culture. The purpose of the study was to gather cross-cultural data to examine metacomprehension using Chinese college-students in Taiwan. The calibration of comprehension research paradigm was used to examine Chinese college-students' competence to accurately evaluate their comprehension. A set of passages and test questions were constructed in Chinese, and a number of additional tasks often used by researchers to study metacomprehension in the American culture were translated and used for this study. Additionally, the effects of several theoretically important variables on metacomprehension ability were also examined, including processing speed and metacomprehension knowledge. Data collection for the study was conducted in Taiwan.

A Cross-Cultural Examination of Metacomprehension

Background

Metacognition, as defined by Flavell (1985), is "any knowledge or cognitive activity that takes as its object, or regulates, any aspect of any cognitive enterprise." This construct includes two components: knowledge about cognition and regulation of cognition (Baker & Brown, 1984). A person's knowledge about cognition is the general information and stable knowledge that he or she possesses concerning cognitive processes, and his or her awareness about strategy use when engaged in activities such as reading. An example of a person's knowledge about cognition in text processing is the understanding of facts relating to basic comprehension processes (e.g., "Passages containing familiar information are easier to read than those containing unfamiliar information."). Regulation of cognition, on the other hand, refers to the effectiveness with which learners keep track of ongoing cognitive processes and their employment of regulatory strategies in order to solve problems. Thus, in text processing, regulation of cognition itself consists of two components: evaluation of comprehension and regulation of comprehension (Baker, 1985). An example of evaluation of comprehension is when a reader becomes aware of his or her comprehension difficulties, whereas an example of regulation of comprehension is when a reader decides to use a rereading strategy to resolve comprehension failures by going back to previous portions of the text where comprehension was difficult.

As noted by Baker and Brown (1984), the two metacognitive components (knowledge about cognition and regulation of cognition) are "somewhat separate phenomena." (p. 353) Knowledge about cognition is a relatively stable phenomenon. An individual who knows general facts regarding text processing and comprehension strategies is likely to continue to know these facts when asked about them. However, activities related to regulation of cognition, such as checking comprehension and implementing useful strategies, are not necessarily stable skills. For example, a reader who is aware of the effectiveness of certain strategies may not actually apply them due to a heavy cognitive load or a lack of interest or motivation. Thus, although one's knowledge of metacognition may frequently enhance one's regulation of cognition, the former does not guarantee the latter.

Researchers interested in metacognitive skills in comprehension (i.e., metacomprehension) examine readers' general knowledge about text processing as well as their actual evaluation and regulation activities during reading. Knowledge about evaluation and regulation is generally assessed by having students answer questions on a questionnaire. Regulation of cognition focuses on the extent to which readers evaluate ongoing comprehension processes and use comprehension strategies to regulate comprehension (see Baker, 1989 for a review). Two research paradigms are commonly used to study these "comprehension monitoring" processes. One is the error detection paradigm, which investigates readers' ability to recognize comprehension failures and

employ strategies to resolve comprehension failures. In this paradigm, lexical, syntactic, and/or semantic errors are intentionally placed in texts presented to readers. Readers are either informed or uninformed about the presence of errors before reading and are either explicitly told to report the embedded errors or asked to report anything that does not make sense in texts. The rationale behind the error detection paradigm is that if a reader is evaluating his or her ongoing comprehension, the errors should be noted because they hinder understanding of the text. Researchers are also interested in examining the extent to which readers use effective strategies to resolve comprehension failures, for example, the extent to which they reread sentences containing errors (e.g., Zabrocky & Commander, 1993; Zabrocky & Moore, 1994).

While the error detection paradigm has been used to examine both components of regulation of cognition (namely evaluation and regulation of comprehension), a second paradigm used to examine regulation of cognition, called "calibration of comprehension," places its emphasis solely on the evaluation component. This paradigm considers the accuracy with which readers evaluate the final state of their comprehension (e.g., Glenberg & Epstein, 1985; Maki & Berry, 1984; Weaver, 1990). In this paradigm, students read a passage and are asked to make predictions about their future performance on a comprehension test. For example, readers may be asked to rate their confidence in their ability to answer questions about the passage just read, to predict how well they expect to do on a comprehension test, or to assess how well they think

they understand the passage on a Likert-type scale (e.g., Glenberg & Epstein, 1987; Maki, Foley, Kajer, Thompson, & Willert, 1990; Weaver & Bryant, 1995).

Calibration of comprehension is the relation between confidence and performance or between predicted and actual performance.

Western researchers have examined the effects of a number of variables on metacomprehension using both research paradigms (see Lin & Zabucky, 1998, for a review). These variables can be classified into three categories: subject, task, and text variables. Subject variables are studied to examine the relations between individual characteristics (e.g., readers' prior knowledge, reading ability, interest level, education level, processing speed, etc.) and metacomprehension ability. Researchers studying task variables focus on the effect of different kinds of comprehension tasks (e.g., multiple-choice vs. inference verification tests, immediate vs. delayed tests, etc.) on readers' metacomprehension level. Finally, the effects of text variables on metacomprehension are investigated by manipulating the text itself (e.g., text genre, text difficulty level, etc.).

Very few studies have been conducted to compare metacognition between learners in Western and Eastern countries. In those studies, metacognition as a general phenomenon or metacognition specifically related to memory, called metamemory, have been examined (e.g., Han, Qu, & Bai, 1994; Han, Shi, & Hao, 1997; Sun, Wu, Wu, & Xu, 1995; Van-Ede, 1995; Wu, Sun, Wu, & Xu, 1995) and results have been inconsistent. Using general knowledge questions, several

researchers have shown that contrary to expectations, Asian college students (e.g., students in Hong Kong and mainland China) were considerably more overconfident than British and American college students when asked to assess the probability of their answers being correct (e.g., Wright & Phillips, 1980; Wright, Phillips, Whalley, Choo, Ng, Tan, & Wisudha, 1978). Such stronger overconfidence in Asian countries than in Western countries existed even after test item difficulty was controlled for different cultural groups (e.g., Yates, Zhu, Ronis, Wang, Shihotsuka, & Toda, 1989) or when probability judgments were examined within the context of practical decision making (e.g., Yates, Lee, Shinotsuka, Patalano, & Sieck, 1998). However, very recently, Lunderberg, Fox, Brown, & Elbedour (2000) have used actual course exam questions to examine students' ability to make accurate probability judgments in five different nations – the United States, the Netherlands, Israel, Palestine, and Taiwan. The researchers found that Taiwanese college students not only displayed very little overconfidence bias but also were best able to discriminate between what they knew and what they did not know compared to participants in the other four countries. Thus, cross-cultural research on metamemory has shown inconclusive evidence on the likelihood of culturally based overconfidence.

To date, there have not been any cross-cultural comparisons of metacomprehension accuracy using either the error detection paradigm or the calibration of comprehension paradigm. Research on metacomprehension conducted in the United States has shown that even young adult readers (college

students) are often unable to monitor their comprehension adequately or use strategies effectively to aid their comprehension (e.g., Glenberg, Wilkinson, & Epstein, 1982; Lin, Zabucky, Moore, 1997; Weaver, 1990; Zabucky & Moore, 1994). Is lack of metacomprehension ability a general phenomenon that exists around the globe or simply a characteristic of learners in the United States? A promising avenue to further understand factors contributing to metacomprehension skills and mechanisms of metacomprehension is to study learners in other cultures, particularly a culture that is highly distinguishable from the western culture, like the Taiwanese Chinese culture.

Purpose

The purpose of the study was to gather cross-cultural data to examine metacomprehension using Chinese college-students in Taiwan. The calibration of comprehension research paradigm was used to examine Chinese college-students' competence to accurately evaluate their comprehension. A set of passages and test questions were constructed in Chinese, and a number of additional tasks often used by researchers to study metacomprehension in the American culture were translated and used for this study. Additionally, the effects of several theoretically important variables on metacomprehension ability were also examined, including processing speed and metacomprehension knowledge. Yao (1999) examined the relationship between metacognition and personality factors in university students in Mainland China. The study found that personality factors like extraversion, emotional stability, and sense of

responsibility are reliable predictors of Chinese college students' metacognitive knowledge. Thus, we also examined several personality constructs in relation to Taiwanese college students' metacomprehension ability. Data collection for the study was conducted in Taiwan.

Method

Participants: Participants were 139 college students from two colleges in the northern part of Taiwan. Participants were run in groups in sessions lasting about 2 hours.

Materials and Procedures: Eight passages at the college reading level were developed in Chinese, each with a length of 2 pages. Each text was divided into two sections, with each section having approximately the same amount of material. A 7-point scale was generated for participants to assess their understanding level on each section of the texts. Four multiple-choice comprehension questions were constructed for each text (two questions based on the first section of the text and the other two based on the second section of the text). The order of the passages presented to participants was randomized. The passages were printed on paper and collated into a booklet form. On each text, participants read the text and judged their comprehension on the text. A comprehension test was then given after reading each text.

A number of additional tasks were also used and presented in the second session of each experiment. The Letter Pair task (designed by Salthouse and Coon, 1994) was used to examine participants' processing speed. Participants'

metacomprehension knowledge was measured using the Metacomprehension Scale (designed by Moore, Zabrocky, and Commander, 1997). Finally, four personality scales were used: (1) the second version of the Work and Family Orientation Questionnaire (WOFO-2) developed by Spence and Helmreich (1978) to examine achievement motivation; (2) the Self-Monitoring Scale developed by Snyder (1987) to examine the tendency to monitor self-image; (3) the Public Self-Consciousness Scale developed by Fenigstein, Scheier, and Buss (1975) to measure the tendency to think about public aspects of oneself; and (4) the Social Desirability Scale constructed by Crowne and Marlowe (1960) to measure the tendency to focus on positive self-presentation. All of the above tasks and scales were translated into Chinese and were presented in a random order to participants after they read the experimental passages in the first session of each experiment.

Results

Data Analyses are in progress and will be completed for discussion in the conference. Implications of the research findings for education will be provided. Future research projects using the error-detection paradigm for cross-cultural examinations of metacomprehension will also be discussed.

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