

## E13-PO

*BERGENTOFT Helene,  
Kristianstad University,  
SWEDEN*

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### **Regulation Of Tenseness - An object of learning to achieve self-awareness for students in Upper Secondary School**

The key objective of this study has been to study how upper secondary school students develop knowledge about how tenseness affects their health and performing capacity. The way the students are offered to understand the object of learning, i.e. regulation of tenseness, is designed and analyzed by variation theory learning study. The design of the first lesson (A) was based on interviews. The remaining three lessons (B, C and D) were based on the analysis of the lessons and learning outcomes in the previous lessons (A, B and C). Students' understanding of regulation of tenseness depends on which critical aspect they are aware of. The students did not intentionally discern different responses of bodily tension, and had a limited number of ways to influence the levels of tenseness. The results show an increased learning outcome in all four groups. Results from the last lesson, D, show a very healthy increase (129%) in learning outcomes, and all students in that lesson improved their results. The effect of varying only the most important aspects appears in the last cycle, where the features (e.g. heart rate, respiration, muscle tension) contrasted more clearly, which developed the students' learning of the object of learning. The physical activities were kept invariant, and different responses of the sympathetic nervous system were contrasted, one at time, to establish knowledge of different bodily responses to tenseness. It appears sufficient to vary two critical aspects in one lesson to achieve the most powerful learning. Awareness about how the body responds to different kinds of pressure, physically or psychologically, is important for understanding the impact tenseness has on health and performing capacity. However, how the students are offered the aspects critical for developed understanding is crucial to increase their learning. The results show how the teachers, during the iterative process, discover what it takes to learn progressively during the learning study. The students' results increase due to the more precise way the teachers pinpoint what is critical for the students' understanding. The more familiar with how to design learning situations based on variations theory the teachers were, the more fruitful it was for the students' learning outcome.

## E14-PO

*LUA Yik Pin, GOH Kwee Lay,  
CHEONG Sock Ching,  
HUANG Li His, LIM Chan  
Tuan,  
Singapore Chinese Girls'  
School,  
SINGAPORE*

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### **Enhancing critical and perspective thinking in a Chinese Language class**

Creating an environment that engages students in the learning of Chinese Language is an uphill task for many. This paper aims to show the effect lesson study (LS) had on a team of Chinese Language teachers and their students. The questions posed to the team were: (1) How to enhance critical and perspective thinking in a Chinese Language class? (2) Does the participation in LS as a form of professional development serve as a catalyst for building a culture of open sharing amongst the teachers? The participants for this study comprised five experienced Chinese teachers with varied expertise. The lesson objective was to scaffold students' development in critical and perspective thinking so as to enhance their skills and competencies in picture discussion. To achieve the objective, the group decided to use mind map and a self-devised mnemonic, PEAR (Places, Environment, Activity, Reason) to scaffold students' thinking to improve students' performance in picture discussion. The group adopted Bloom's taxonomy as well as the use of inquiry-based learning to help refine the quality of the students' questions and responses. At the end of the first lesson, it was reported that students did not manage to identify the Big Idea from the stimulus given. Upon reflection and further discussion, the team realised that there was a need for more teacher facilitation in order to guide the students in the synthesis of information and arrive at the big ideas. This was then implemented in the revised lesson carried out with another group of students. The results of the study highlighted the importance of development of