

THE SAME LESSON IN TWO DIFFERENT CULTURES – WHAT DIFFERS AND WHAT IS THE SAME? A LEARNING STUDY ON READING COMPREHENSION IN SWEDEN AND HONG KONG

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Abstract

This project is about the relationship between what happens in the classroom and what the students learn from reading. We have found that what the students learn may differ in different classes radically even if the school resources are the same, learning is organized in the same way, even if the students are equally capable and motivated and even if the teachers are equally well educated and experienced. We have found that radical differences in what the students learn frequently originate from differences in how the content of learning is handled, structured in the interaction between teachers and students. Such differences have to do with what is made possible for the students to discern, to notice, to become aware of, through what is said, what is exemplified, what commonalities and what differences are brought out by means of discernment, simultaneity and the systematic use of variation. The study is a comparison between how reading comprehension is taught in two different cultures, Sweden and Hong Kong. The same lesson, developed and designed in Hong Kong, and content is given to three school year four-classes in Sweden and one school year-four class in Hong Kong, in the learning study model. The results show the similarities and differences between the learning outcomes, but also the similarities and differences in how the teachers offer the students to experience the object of learning and what implications this have on the student's results. The results show how powerful the design of the lessons is independent of the different cultural settings.

Key words: reading comprehension, variation theory, learning study.

Reading is a basic skill or generic capability which is used across all school subjects for learning and knowledge development in the new millennium (National Agency for Education, 2007; Curriculum Development Council, 2001). “How do we best teach our students to make sense of their reading?” is the central question to scholars and practitioners. The research of reading comprehension moves from individual strategy research in the 1980s to multiple strategies that permeate classrooms to prepare students to make sense of their reading (Raphael, George, Weber & Nies, 2009). In this decade, we need to consider the importance of coherence in the reading curriculum for reaching higher levels of student achievement. To achieve this, teachers have to shift from an adopted program imposed by outsiders to ongoing teacher collaboration and a coherent reading curriculum to meet specific needs of children (Au, 2005).

In the international comparative study of reading, the Progress in International Reading Literacy Study (PIRLS) carried out in 2001, Sweden was the best performing country with a mean score of 561, while Hong Kong ranked 14th among 35 participating countries where students obtained a mean of 528 on overall reading achievement in the reading comprehension test (Mullis, Martin, Gonzalez & Kennedy, 2003). Surprisingly, Hong Kong obtained a mean of 564 and ranked second among 44 participating countries/ districts in PIRLS 2006 (Tse, Cheung, Lam & Loh, 2008). Hong Kong thus outperformed Sweden in 2006, which scored 549 and ranked 10th. There was a remarkable reversal between the positions of these two places that Sweden fell from first place to 10th, while Hong Kong rose from 14th place to 2nd.

This remarkable jump in reading performance of students in Hong Kong has attracted a great deal of attention from researchers and educators all over the world. The drop of 12 points between 2001 and 2006 on the international reading scale in Sweden can be explained by a decline in strong readers over the past five years. This could be interpreted as a sign of deterioration in reading comprehension (National Agency for Education, 2007). Swedish schools have been doing well in providing their students with reading resources. In 2006, 82% of schools had a high Index of Availability of School Resources (ASR), whereas Hong Kong had only 4% and the international average was 52% (Mullis, Martin, Kennedy & Foy, 2007). Sweden in fact offers better resources for reading development than Hong Kong. Why did the Chinese learners demonstrate such an obvious improvement despite fewer school resources compared with western countries? Researchers have been identifying factors that contributed to the decline in Sweden and remarkable improvement in Hong Kong.

In this study, we explore the seemingly paradoxical relationship between the achievement and resources and reveal what happens in the classroom and what the students learn from reading. We found that what the students learn may differ in different classes radically even if the school resource is the same. Learning is organized in the same way although the students are equally capable and motivated and the teachers are equally well educated and experienced. We also found that there are radical differences in what the students learn. Such differences frequently originate from how the content of learning is handled and structured in the interaction between teachers and students. In other words, these differences pertain to what is made possible for the students to discern, to notice, to become aware of, through what is said, what is exemplified, what commonalities and what differences are brought out by means of discernment, simultaneity and the systematic use of variation (Marton & Booth, 1997; Marton & Tsui, 2004).

Differences in the students' learning seem to correspond to those differences in teaching (Marton, 2006). It seems, based on the PIRLS 2006, that Hong Kong teachers paid more attention to developing their students' reading comprehension skills or strategies in classroom

than did the Swedish teachers. They acted more in line with the variation theory of learning (Holmqvist, Gustavsson & Wernberg, 2008a; Marton, 2006; Runesson, 1999) to develop their students' reading ability. Following the accomplishments we made as described above, this project focuses on how variation theory is implemented into the Western and Chinese cultures to enhance students' reading comprehension.

Theoretical Assumptions

This theory focuses on how students learn to discern various entities and their varying features. In order to be aware of something, it must be discerned; and in order to discern something, the learner has to experience how it differs from other things. How someone experiences something can be characterized in terms of what features the person manages to discern (i.e., what differences he/ she notices) and focuses on simultaneously.

The presence of differences is a necessary, but not a sufficient, condition for experiencing differences. In order to experience differences (variation) in certain respects, things have to remain invariant in other respects. The pattern of variation and invariance in a certain situation constrains – and suggests — what can possibly be learned there. According to the theory of variation (c.f. Marton and Booth, 1997; Bowden and Marton, 1998; Marton and Tsui, 2004), the likelihood of learning something is a function of the particular pattern of variation and invariance in how the learners encounter that specific object of learning. This relationship between learning, the pattern of variation, and invariance inherent in the conditions of learning has been demonstrated empirically (e.g. Pang, 2002; Marton and Tsui, 2004; Lo, Pong and Chik, 2005; Holmqvist, 2006, 2008a, 2008b, 2008c, 2008d, 2009, in press).

Empirical Studies

Variation theory has been extensively used in practice through learning study (Pang & Marton, 2003, 2005). A learning study builds on design-based research (e.g. Cobb et al., 2003, Kelly, 2004), a “lesson study” model from Japan in which teachers collaborate to plan and investigate the researched lessons without explicit theoretical grounding (e.g., Lewis et al., 2006, Stigler & Hiebert, 1999), and “the teaching research group” model from China (Ma, 1999). Compared to lesson study, learning study aims to build theory-grounded innovative learning environments and pool together the valuable experience of teachers, while keeping the focus on the object of learning. Over the last couple of years, there has been a growing number of learning studies conducted in Sweden, Hong Kong, and the United Kingdom (e.g. Cheung, accepted; Holmqvist, 2006; Lo, Pong & Chik, 2005; Pang & Marton, 2005; Runesson, 2005; Al-Murani, 2006). To date, several hundred learning studies have been completed with encouraging results.

Tse, Cheung and the PIRLS research team launched the research project “PIRLS 2001” and “PIRLS 2006” that examined Chinese reading literacy of Grade 4 students in Hong Kong, and identified factors affecting students' reading achievement. The results were compared to students from 34 countries all over the world. Findings from PIRLS 2001 (Tse, Lam, Lam & Loh, 2005) showed that students lacked effective and creative strategies for reading and that there was an urgent need for Hong Kong students to improve their higher levels of comprehension processing. In traditional teaching, teachers provide guidance for the students' learning. For each question asked, teachers already have a model answer in their minds and they will provide it directly if students fail to figure it out. Students need not invest much effort in discovering the meaning of the texts or even in choosing the appropriate strategies for comprehension. Tse et al. (2007; 2008) and Cheung et al. (2009) used multiple regression procedures to investigate the relationship between primary school children's reading

achievement and their teachers' classroom practices in PIRLS 2001 & 2006, and found that teachers' instructional strategies and activities, and the use and nature of resource materials and practices for assessment correlated significantly with students' reading achievement.

Cheung, Tse and Tsang (2003) conducted a pilot study on learning study to examine the effects on primary school teachers' as to their teaching of a generic attribute, creativity, in Chinese writing practice. After participating in the learning study group for one year, the participating teachers were able to produce significantly positive results in teaching creative writing. We have previously developed four learning studies to enhance creativity in Chinese writing using the phenomenographic approach and variation theory (Cheung, 2005; 2007; Cheung, Marton & Tse, accepted). Outcome assessments revealed that the students in the target group outperformed students in the comparison group in almost all aspects of creativity. This study provided empirical evidence of the positive effects of learning study. The groundbreaking aspect of this enquiry is that it is the first learning study to prove that the tool can be used in the enhancement of generic capability.

Further Research Based on Earlier Learning Studies

Previous studies had some methodological flaws. First, the generic capability of the students was not examined in earlier learning studies (Marton & Morris, 2002; Marton & Tsui, 2004; Pang, 2002; Pang & Marton, 2003; 2005, Marton & Pang, 2006). In this study, groups of primary school language teachers will work together to develop instructional materials for achieving a mutually acceptable learning objective. The aim is to develop the basic skills or generic capability for reading in Swedish and Chinese learners. This adds a new dimension to learning studies that has not been addressed previously. Second, most learning studies have not included a comparison group. This poses problems for drawing valid conclusions about the critical role of the theory from earlier results. This study includes a comparison group, which provides powerful empirical evidence of the positive effects of learning study.

The pedagogical implications that we intend to test in the present project originate from various pioneering studies conducted by Cheung, Holmqvist & Tse. Tse & Marton (2005) demonstrated that using variation theory leads to improvement in reading comprehension among Grade 7 students in 3 participating schools. That project strengthened students' insight that the same expression could be understood in different ways, and this should be developed in relation to students' reading messages of different lengths. The experimental group showed greater improvement than the control group. Cheung & Cheng (2009) and Cheung & Tse (2009) applied variation in reading to deepen the understanding of a story in primary school students by using storybooks as the learning resources and systematically looking at the text from various perspectives. Students participating in a sequence of lessons predict what will happen next in the text, and the learners are simultaneously aware of the new text and the text they have read previously by using contrast variation. Thus, the study develops the students' insight that the same expression can be understood in many different and original ways. The set of text of which the learner is simultaneously aware is enlarged and more varied. Students are engaged in reflective variation by attempting alternate ways of understanding the whole text and its parts on one hand, and on the other hand by making explicit the implications of their way of understanding the whole text or its parts. The study (Marton & Chinese Language Research Team, in press) targeted 158 Grade 9 Hong Kong students reading argumentative texts. The most striking results were the lack of immediate effects and strong long-term effects. In this case occasional reading experiences during four months (between the post-test and the delayed post-test) were "the novel learning resource". Holmqvist et al. (2007) worked with three learning studies to investigate in what ways the contrasts affect the students' learning outcomes. The results show how one pattern of contrasts allows

the students to look critically upon their previous knowledge and make them find new ways of seeing the object of learning. This pattern has been found to be more powerful in preparing students for future learning because it generates new learning (a case of generative learning). They have proved that the effect of generative learning in learning studies is cumulative: the more time that passes, the stronger the effect becomes. This study also investigates the effect of generative learning in reading, as reading is a basic capability that can be applied to all domains and is very useful to the learner of the future.

Methodology of Research

Learning Study

The method used is called learning study and is a form of action research in the classroom (Marton, 2006; Holmqvist et al., 2007). Learning study is a fusion of lesson study (Lewis & Tsuchida, 1998; Lewis, 2002; Stigler & Hiebert, 1999) and design experiments (Brown, 1992; Kelly & Lesh, 2000). It includes several different steps and methods for collecting data (Holmqvist & Nilsson, 2005). In this study three lessons have been carried out in Sweden and one in Hong Kong, but the design of the first lesson in both countries was made in a previous learning study in Hong Kong 2009. In the first design the students are given the task of finding a suitable helping hand for the main character, which is the invariant. Students have to discern the various aspects of the supplementary characters in the story and compare them. The teachers put the focus on the similarities and differences among the critical aspects within a learning object. As in Reed et al.'s (2002) study, data sources such as classroom observations, videotapes, interviews and teacher journals have been used. Subsequently we compare what they have produced using variation theory. In each learning study, small tests are implemented immediately before and after the research lesson.

One teacher in Sweden and one teacher in Hong Kong taught one lesson each (A and D), and the remaining two lessons in Sweden was taught of one of the researchers (B and C). This design was made as we found interesting results in the first lesson in Sweden that we wanted to study further in two re-designed lessons. The students from four classes (in total 92 grade four students, 60 from Sweden and 32 from Hong Kong) were all the same age and grade four. One class (n=32) participated from Hong Kong and three classes (n=3x20) from Sweden. The replicated lesson, developed in Hong Kong, was based on this plan for instruction:

Learning Objectives

1. Students are able to identify the problem or conflict of the story.
2. Students are able to discover the various attempts to solve the problem from the story.
3. Students are able to create their own solution to the problem.
4. Students are able to discern the result of the conflict from the story.

Materials: *Dr Thompson* Chapter 3 "A Difficult Guest" (in mother tongue). The story is about a goose who visits Dr Thompson and his animal friends. She talks a lot and does not listen to the others, which makes them feel bored and try to get out of the situation.

Teaching Plan for the first lesson

Students should be given a pre-test before the lesson

1. Teacher reads aloud paragraph 1-3. She asks the students, "When and where did the

- story happen?” Teacher then asks the students to guess who was knocking at the door (students are encouraged to give as many answers as possible).
2. Teacher shows the title of this chapter “A Difficult Guest” and invites the students to guess what a difficult guest is.
 3. Teacher shows the picture of the goose, Tina. Students read paragraphs 4-11. Teacher then asks students, “What are the characteristics of Tina?”
 4. Teacher shows the picture on p. 2 (all animals sitting with Dr Thompson around the table) and asks, “How did Dr Thompson and the animals feel as you can tell from their faces?”
 5. Teacher asks students, “What is the main problem for them?”
 6. Teacher invites students to discuss the goal of the story and their own attempt to come up with a good excuse to leave Tina.
 7. Students report some of their attempts to solve the problem.
 8. Teacher invites 4 students to read aloud paragraphs 12-15. Each student reads one paragraph. Teacher lets the students identify the different attempts of Dr Thompson and the animals.
 9. Teacher asks students to read paragraph 16 and report the result of the story.
 10. Students are divided into groups and compare their own attempts with those in the storybook. They have to choose which one is best and give their reasons.
 11. The oral report of the groups after their group discussion.
 12. Teacher invites students to evaluate the different attempts from different perspectives. Teacher gives feedback on the different attempts. Teacher then summarises the qualities of having a good reason to resolve the problem.

Students will be given a post-test after the lesson

The tests consist of questions about the activity’s time, place, goal, how the characters try to solve the problem and what the result is. The same kinds of questions are given in both pre- and post-test.

Results of Research

The first lesson, given to one class each in Sweden (A Swe) and Hong Kong, shows the greatest increase (from 75 to 92% and 51 to 82%) (Table 1). As the discussions in the first lesson were pointing out some aspects not focused on in the first learning plan, the two following lessons (B and C Swe) were re-designed. Instead of variation only between the characters in the story, variation in what perspective they should take was introduced. In the first lesson, they discussed the problems and solutions from the perspective of we – them. They were asked to discuss the attempts to solve the problem from the perspectives of Dr Thompson and the animals in the story.

Table 1. Results from the learning study in percent (%).

Group	A Swe	B Swe	C Swe	D HK
Pre-test (1)	75	92	80	51
Post-test (2)	92	97	91	82
Diff. 1 & 2	+17	+5	+11	+31

This encouraged them not to identify themselves in the problem, and the solutions in the discussions with the children were probably not how they themselves would like to be treated. This made us re-design the lesson and study if it is possible, and, in that case, what is required to get an understanding of not only what another person wants to do, but also how they would like to be treated.

Table 2. Excerpt 1 (B Swe).

Emmie:	The ferret he should go to the clinic
T:	Someone else trying something?
Tom:	The fox wants to help the ferret...
T:	Anyone else?
Laura:	The parrot he was tired and needed to sleep
T:	Did you find anything more in the text?
Emmie:	Dr. Thompson should read in his book to help her.
T:	Now many of them are trying to find an excuse to get away from this goose. Let's make a turn-about and say it is you, you are the goose Tina. How would you like the others to behave towards you if you were the goose Tina?
Laura:	Tell her that I talked too much.

The discussion in this group thus differs from the discussion in the previous lesson. The discussion was more or less without empathy for the talking goose, a feeling of trying to get rid of her instead of solving the problem.

Table 3. Excerpt 2 (A Swe).

Amy:	Our proposal was that we felt sick and had to go out and get fresh air.
T:	How do you think she would feel when you come with such a proposal to her?
Amy:	Well...maybe she needs fresh air, too. [...]
Ann:	We had ... we had, we had told her it was a good story but it would have been better if she had talked with less words.
T:	When you had told her to do it. ... How do you think she would react to that? [...]
Allie:	We had said that she was tiring and that she should go to bed so that she can go up in the morning and fly away...
T:	Ok ...
Allie:	She can tell on the phone.
T:	Yes, she could tell on the phone...
Allie:	So we can hung up.
T:	When someone calls you and hangs up, how does it feel for the goose Tina?

Although the results of the first (A Swe) and last lesson (D HK) show the greatest increase, the results of the other two lessons show high scores on the post test. The tests verify the designed research lessons' powerful design in the positive results of all three groups. The effect of the perspective shift from the characters to the learner is difficult to grasp other than

in the discussion during the lesson. In the qualitative analysis we find how the pupils' way of talking about the goose is more empathetic in the lessons where they had to shift perspective and take the role of the goose themselves.

Discussion

This project builds on earlier published studies by Holmqvist, Cheung, Marton and Tse in various international refereed journals (Cheung, 2005, 2007; Cheung et al., 2009; Holmqvist, et al., 2007, 2008a, 2008b, 2008c, 2008d, 2009; Tse, et al., 2007, 2008). In this study, one of the powerful lessons designed in Hong Kong has been replicated in Sweden and Hong Kong. The results show the same positive effects of the learning outcome in general, and the result was a sustainable event though the design was slightly altered in two research lessons (Swe B and C). In these lessons a perspective shift from the characters to the pupils was made, which resulted in qualitative differences in the ways the pupils discussed how to solve the problem in the story. The effects of empathy have been seen in other studies, e.g. in one by Holmqvist et al. (Holmqvist, Björkman & Ohlin, 2010). There we found how empathy affected learning historical awareness in a positive way. However, to analyse results of a qualitatively changed perspective is not possible with figures only. The teachers' and children's expressions captured in the transcriptions reveal the changes that cannot be covered by the results of the written tests, which mostly record if the pupils have given the right or wrong answers. Learning study can be used also during such circumstances, and that is another result of our study. The results also point out that even if there are cultural differences between the countries, and hence also between the pupils, powerful lessons designed in one country have positive effects on the learning outcome in both countries.

Conclusions

Although the cultural circumstances differ a lot between Sweden and Hong Kong, learning study as a model for design instruction and collect data for research studies work independent of such cultural differences. However, we have to study further in what way the measurement of the learning outcome could be developed not only to benefit quantitative data, such as marks on tests indication right or wrong answer, but also qualitative data. Reading comprehension is an object of learning which has many different dimensions, and it does not seem enough to note differences in giving the correct answers. Other qualities, such as ethical and moral considerations, also have to be taken into consideration when valuing the students' learning outcome. In this study we have seen how the measured learning outcome increases more in the first lesson (A Swe), but on the other hand the ethical considerations are quite different in classes B and C (Swe). We also found that the results in B were almost the maximum. The qualitative differences were found by analysing the transcriptions of the lessons and by that the students' discussions with the teacher gives a view of a deeper and more empathic knowledge about the object of learning in lesson B and C compared to lesson A. The students in lesson B and C also seem to have the ability to think about the presented problem in the story from different perspectives, such as both seeing the problem from another person's view and at the same time from there own view. How they treat other persons is seen in the light of how they would prefer to be treated in the same situation. This learning outcome is based on the assumptions behind variation theory, as the students' are given the opportunity to discern the same phenomenon from different perspectives simultaneously, indication that the students have the ability to see different parts of the whole problem. The aspects critical for understanding in what way the problem (how to in a polite way dismiss a person disturbing you) could be solved requires the understanding not only of how I would

like to change the situation, but also how the person I would like to dismiss feels to avoid hurting her/him or get into trouble and the value of being honest. This goes however a bit beyond the reading comprehension itself, but as we have found empathy to be one aspect critical for deeper understanding it is hard to separate this part from the more formal understanding of a text. To capture such results is by that crucial for further development of both the theoretical framework (variation theory) and the model for collecting data (learning study).

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