The Impact of Cooperative Learning on CHC Students' Achievements and Its Changes over the Past Decade

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Abstract

Informed by emergent learning theories and multiple evidenced benefits, cooperative learning has developed into a widely accepted organization mode of class in the Western context. For the same reason, cooperative learning is transferred, during the past decade, into classrooms of Confucian Heritage Culture (CHC) contexts. Concerns, however, are raised regarding the effectiveness of the transfer, for contextual factors have long been acknowledged as a powerful barrier to borrowed initiatives, especially those that are not compatible with the deep-rooted cultural values in the situated contexts.

This paper is built on Thanh-Pham's (2014) review of literature, which is on the impact of cooperative learning on the CHC students' learning achievements and conducted during 1990 to 2006. This paper has expanded Thanh-Pham (2014) with a similar review on available literatures, which were published from 2007 up to 2016. This review of 39 publications shows up noticeable changes regarding the impact of cooperative learning in the CHC contexts. Specifically, the positive findings have risen from 47.2% to 86.9%, whereas negative and null change studies fall considerably. Influencing factors are analyzed via SPSS22.0 Software and verified with exemplars. Reasons for these changes point to the changing context and adaptive agency.

Keywords: Cooperative learning, Impact on learning achievements, Changes, Confucian Heritage Culture contexts

1. Introduction

Cooperative learning, which was defined as "the structured use of small group through which students work together to maximize their own and each other's learning" (Johnson, Johnson, & Holubec, 1998, p.1), is widely accepted in the Western context. The popularity of this mode is grounded, first of all, on the acknowledgement of its underlying theories such as cognitive-development, social-cognitive behavioral-learning and social interdependence theory (Johnson & Johnson, 2014, 2015). These theories advocate a teaching mod e of constructivist nature and foreground students' active, central and social role in learning via interactions and negotiations. The effectiveness and efficiency of cooperative learning in enhancing teaching/learning (Cook, 1991; Johnson, Johnson, & Smith, 1998; Johnson, Johnson, & Stanne, 2000; Salvin, 1980) is another important reason for its widespread use in and out of classrooms. It has been evidenced that students, via engaging themselves in promotive interactions and constructive negotiations, tend to achieve more and better academically, socially and psychologically than they do in competitive and individualistic modes (Johnson & Johnson, 2013, 2015). Specifically, engagement in groups helps students to retain better learning of more depth (Manera & Glockhamer, 1989; Slavin, 1983)), more positive attitudes towards learning, with higher levels of attendance, achievement and student satisfaction (Gunderson & Johnson, 2008; Michaelsen, 1983), improved relations among group members(Fraser, Diener, Beaman, & Kelem, 1977), and higher self-esteem, more mature cognitive abilities and better critical thinking skills (Johnson & Johnson, 1989, 2005, 2009, 2015; Johnson, Johnson, & Smith, 1998).

Group work, however successful in the Western contexts, cannot be assumed to be generalizable and transferable around the globe. Indeed, policy transfer across cultures and boards has been cautioned as early as 1960s by Noah and Eckstein (1969), two pioneering experts in the field of comparative education: "It was one thing to assert that the study of foreign education was a valuable enterprise; it was quite another to believe that foreign examples could be imported and domesticated" (p.21). Multiple failed experiences, while providing similar warnings, have up-fronted the necessity of careful examination of the complex relationships between global trends and local contexts to ensure that the to-be-borrowed initiative be compatible with the local context and particularly, the educational and cultural

values embedded in it (Phillip & Ochs, 2003). This is because a borrowed initiative usually is to be "appropriated, recontexturalized and indigenized" (p. 189) before it can be adopted and adapted to the local contexts (Spreen, 2004). Otherwise, little or no effects, resistance or even rejection can be expected.

Voices have been heard that group learning may not be as applicable to the Confucian Heritage Culture (CHC) contexts as it is in the Western contexts because of the largely different sociocultural context and the situated culture of learning (Agelasto, 1998; Hofstede, 2003; Phuong-Mai, Terlouw, & Pilot, 2005; Thanh-Pham, 2014). Experiments, too, have proven that the actual practice of group learning in the CHC contexts is rather complicated (Nelson & Carson, 1998; Thanh-Pham, 2014; Yang, Badger, & Yu, 2006), and its potential benefits are not all transferable. Actually, over half of the empirical studies in Thanh-Pham's (2014) review reported negative impact of cooperative mode on CHC students' learning achievements.

Nonetheless, it needs noting that Thanh-Pham's (2014) review included studies which were published between 1990 and 2006 only. This paper hence sets out to review available and relevant literature published from 2007 to 2016, aiming to figure out if any change has occurred during the last decade. If yes, what the changes are, and what has led to these changes? If not, why and what can be done to better realize the potential of cooperative learning in the CHC contexts?

2. Confucian Heritage Culture (CHC) Contexts vs Cooperative Learning

Confucian Heritage Culture (CHC) is now a term often used to refer to the East and South Asian countries and regions which have been influenced by the Confucian cultural values; to name a few, China, Korea, Singapore, Japan, Malaysia, Vietnam, Taiwan, Hong Kong etc. CHC is frequently highlighted in academic arena because it is now widely acknowledged that the CHC values have influenced these contexts and their members such as learners and teachers so deeply and widely that they are not easily adaptive to educational innovations borrowed from other cultures, and therefore, need to be considered and examined carefully before further move is taken (Biggs & Watkins, 2001; Phuong-Mai, Terlouw, & Pilot, 2005; Thanh-Pham, 2014; Tran, 2013 etc.).

Indeed, CHC has left quite rich legacies, which have shaped its descendants' and, in a more general sense, the contexts' ideologies, attitudes and behaviors, and formed a culture of learning and teaching specific to its contexts (Finnan & Levin, 2000). These legacies are now seen as unique, powerful, and capable of deterring initiatives that do not cater to its values (Carless, 2011; Chen, 2016; Kennedy, Chan, Fok, & Yu, 2008). Some key legacies and values in the CHC do seem at odds with the principles underlying cooperative learning: teacher authority in classrooms and competitive assessment environment, in particular.

2.1 Teacher Authority in Classrooms

Hierarchy is a well-perceived norm in CHC contexts. Hofstede and Hofstede (2005) found that CHC nations mostly score very high on Power Distance Index, with Malaysia being 104, and China, 80. In this hierarchical culture, teacher ranks on the top five, right after Heaven, Earth, Sovereign and Parent (天地君亲师，tiāndìjūnqīnshī). In this sense, teacher is revered and respected as an authoritative figure. This authority, rightfully reflected with a podium in the Chinese classrooms for now and in the past, is not to be offended. The CHC classrooms are usually quiet and strictly disciplined. The students are required to keep silent in class and speak only when invited to by the teacher. Actually, student talk, except for special occasions, are regarded as a maldisciplinary behavior and disrespect for teacher, and therefore forbidden in classrooms.

Teacher's authority is typically reflected in the roles that CHC has identified for them. HánYù (韩愈), a well-known Confucian scholar in the Tang dynasty, has defined teacher in his classical essay *On Teacher* (师说 shīshuō) as 'to transmit Tao (knowledge), teach a trade, and disabuse doubts *(师者,传道授业解惑也 shīzhě, chuándào shòuyè jiěhuòyě)*'. This well-accepted definition showcases a perception of teacher in this culture as "the repository of knowledge", "a respected elder transmitting to a subordinate junior" (Ginsberg, 1992, p. 6) and "a sage on the stage" (Morrison, 2014, p. 4). Students, on the other hand, are posited as a "listener' or 'knowledge recipient". Interactions between teacher and students are rare; and interactions between students are virtually invisible in class. The students mostly make senses of what teacher has taught by themselves, and leave questions to later time when it is convenient and not offensive to the teacher's authority (Shi, 2006).

For these reasons, CHC learners have been stereotyped as "passive learners", who are compliant and obedient, reluctant to ask questions or speak up in class. And a typical Chinese classroom is dominated by teacher and their talk, whereas students are largely marginalized (Biggs & Watkins, 2001; Tran, 2013). In this same vein, Chinese and other CHC students tend to regard teacher as an authoritative assessor of their work and hence value feedback from teachers much more than those from others such as peers and parents (Cortizza & Jin, 1996; Hu & Lam, 2010).

This role definition of teacher and the hierarchical teacher/students relationship form quite an antithesis to the advocated roles of the teacher as a learning facilitator and scaffolder, or so-called "guide on the side" (p.4) by Morrison (2014), who emphasizes developing students' high-level knowledge and learning process, and the student as an active, participative and interdependent meaning co-constructor, who is responsible not only for his/her but also for others' learning, in the cooperative learning regime (Thanh-Pham, 2014).

2.2 Competitive Assessment Context (in CHC)

Examination can trace its origin back to the kējǔ (科举) system in Han Dynasty (206 BC – 220AD) in China (Spolsky, 1995). Indeed, as the use of examination for civil official selection has spread widely to many other countries since 18th century, it is also referred to as 'The Fifth Great Invention' that China has contributed to the civilization of the world (Feng, 2014). kējǔ (科举) is perceived as a Confucian cultural phenomenon because it finds underlying theory, practicing mode, and content in Confucian classics and values (Gan, 2001). The extended use of examination system has shaped not only Chinese but also other CHC countries' ideologies and attitudes about means and ends of education, which still works in modern times.

The first, examination is given a very high status. To be exact, the role of examination is foregrounded so much that success in it becomes the goal of education, and the only criterion for successful teaching and learning (Han & Yang, 2001). The teaching as well as learning in this context are therefore rightfully examination-oriented, product and ends –focused to the neglect of process and means (Carless, 2011; Chen, Kettle, Klenowski, & May, 2013). Teaching to the test and learning for the test are commonplace practice (Cheng & Curtis, 2010).

The second, examination results are attached utilitarian values and seen as a fair means of selection. This is because examination, for the commons, is one and most often the only possible way to go up in social status ladder, and nearly every great emperor in the Chinese history has endeavored to play it fair so as to select real elites for good uses (Gao, 2013). Actually, examination is widely accepted by the public as a "fair means by which to select and to teach, and as a road to success" (Cheng & Curtis, 2009, p. 269).

The third, the selection via examination is highly competitive. This is largely related to the narrowing-down approach that the education system in CHC countries operates. The education system in China for example is characterized by "a steep pyramid" (Wang, 1996, p. 76). Nowadays, access to schooling is no longer a big issue thanks to the compulsory basic education policy in 1985 and the expansion of higher education enrollment since 1998. The current competitivity in Chinese education is more often a combined result of imbalanced distribution of the educational resources, the norm-referenced nature of the selection process, especially for top universities (Gao, 2013; Qiao, 2010), and the intense competition in employment market (Powell, 2008). Until the "Nearby Enrollment for Compulsory Education Policy" in 2014 and 2015, Chinese students need to successfully pass entrance examinations at every rung of education ladder from kindergarten on to go to key schools where education facilities and quality are better. Now, students still need to pass a highly selective entrance examination to go to key senior high schools, where chances are better for them to go to top universities, so as to secure better opportunities for employment.

Situations in other CHC contexts such as Japan, Korea, Hong Kong, Vietnam and etc. (Choi & Lee, 2009; Kwon, Lee, & Shin, 2017; Zeng, 1995) are quite alike at higher education entrance stage at least. This assessment regime again goes against the cooperative learning principles, which emphasizes learning and its process, and cooperation for improved learning outcomes and capabilities (Thanh-Pham, 2014).

Given all these conflicts and mismatches between cooperative learning principles and the CHC values, and institutional constraints such as big class size and top-down approach of policy-making in the CHC contexts, Thanh-Pham (2014) warned "it would be dangerous if reformers simply remove the old practices and ignore the impact of their historical development (p.56)". It is more than once noted (Finnan & Levin, 2000; Rambla, 2014) that these taken-for-granted beliefs and assumptions in the local contexts might in time become a vast and complex 'web' that prevents the teaching and learning practices in classrooms from change.

3. Thanh-Pham's Review

Available research on cooperative learning in the CHC contexts shows up a scenario, which is different from the sweeping triumph in the western contexts. This is showcased in Thanh-Pham's (2014, p. 41) review of all relevant empirical research that was published between 1990 and 2007. The 17 publications that she gathered from database such as ERIC and other sources covered disciplines such as math, English, social science studies, and engineering; education levels from primary to college, and some major countries and regions in the CHC contexts such as Singapore, China, Malaysia, and Hong Kong and Taiwan (see Table 1 for detailed information).

Table 1. Cooperative learning studies and academic performance of CHC students (1990-2007)

Researchers (year)	Location	Members	Edu level	Treatment methods	Duration	Subject area	Achievement Effects
Betty (2000)	HK	NR	Primary	STAD	1 semester	NR	+
Chang (2006)	Taiwan	NR	Primary	STAD	10 weeks	Visual arts	+
Chan (2000)	Singapore	NR	Primary	Mixed method	NR	Maths	0
Cheng (2006)	Taiwan	98	College	Group study	8 weeks	Technology	+
Chung (1999)	HK	23	College	Mixed	1 semester	Maths	-
Eva (2003)	HK	21	Secondary	Mixed method	2 terms	English	0
Hassim et al. (2004)	Malaysia	128	College	Mixed method	1 semester	Engineering	+
Hwang et al. (2006)	HK	122	College	Group study	1 semester	Accounting	+
Law (2006)	China	NR	Primary	STAD	1 term	Social science	-
Lee et al. (1999)	Singapore	4 teachers	Primary	Mixed	1 year	Social science	+
Lee et al. (1999)	Singapore	286	Primary	Mainly Jigsaw	1 year	Social science	0/+
Lee (1990)	Malaysia	NR	Secondary	TGT & STAD	NR	Maths	+
Liao (2006)	Taiwan	84	NR	Mixed method	12 weeks	English	+
Meriam (2000)	Malaysia	NR	Secondary	TGT	3.5 weeks	Maths	0
Messier (2003)	China	145	Secondary	Mixed method	4 weeks	English	-
Sachs et al. (2003)	HK	520	Primary	Project team	1 year	English	-
Tan et al (2007)	Singapore	241	Secondary	Group study	1 semester	Geography	0

Note: NR=Not reported; 0 indicates no differences, + indicates positive achievement, and – indicates that a control group significantly exceeded an experimental group in achievement

These studies have conducted cooperative learning experiments, which lasted for a few weeks to one year, only to find that 9 out of 17, that is, 52.9%, reported neutral and negative impact on students' learning achievements. Analysis of reasons accounting for these not-so-desirable results points to 1) possible validity issue of the designs; 2)CHC students' possible unfamiliarity with this new kind of learning approach; and more importantly, 3) local institutional constraints and disjunctions between some principles of cooperative learning and the CHC cultural values.

The first reason is beyond the scope of this study. The second is understandable, given the fact that cooperative learning is a borrowed and new initiative to both CHC teachers and students alike. The third and major reason, however, challenged the Western-based assumption that cooperative learning will entail better learning outcomes than the otherwise traditional ways of learning, and raised the issue of cultural appropriateness of cooperative learning to the CHC contexts. On the one hand, the passive CHC learners, who are used to listening and taking notes in classrooms, find it hard to become active and independent in their learning (Tan, Lee, & Sharan, 2007). Affective factors such as anxiety out of lack of participation in classroom (Sachs, Candlin, Rose, & Shum, 2003), reluctance to argue or assess others' work out of a concern for harmony within the group (Chung, 1999; Eva, 2003), and individualistic (Hassim et al., 2004) and competitive (Suige, 1997) culture are also contributing to 'unproductive' or even 'defunctional' group work and discussion with CHC students. Teachers, on the other hand, find it hard to shift from 'sage on the stage' to 'guide on the side'. They could not even finish cooperative tasks properly for reasons such as time limits (Sachs, Candlin, Rose, & Shum, 2003), doubts about the effectiveness of cooperative mode in a competitive context (Messier, 2003) and students' ability to learn by themselves (Zakaria & Iksan, 2007), and their sheer unwillingness to do it (Lee, Ng, & Phang, 1999). In short, the cultural values of the CHC contexts do seem to have made it hard for the cooperative learning principles to be implemented as effectively as they do in the Western context.

4. This Review

This study did a similar review of cooperative learning-related literature that were conducted in CHC contexts and published after 2007. The authors searched ERIC database and other available sources, and found 39 empirical studies that fit with Thanh-Pham's (2014) two selection criteria. That is, effects of cooperative learning as related to CHC students' academic achievement, and conducted in classroom settings (see Table 2 below for more details).

Table 2. Cooperative learning studies and academic performance of CHC students (2007-2016)

Researchers (year)	Location	Participant	Edu level	Treatment methods	Duration	Subject area	Achievement Effects
Hang et al. (2015)	Vietnam	19	Primary	Observation, interviews,	NR	Science	-
Chen (2013)	Taiwan	315	College	Questionnaire	NR	NR	0
Gonzales & Torres (2015)	Philippine	127	Secondary	Quasi-experimental	2 weeks	ESL Reading	0
Koh (2008)	Singapore	217	College	STAD	2 years	Biology	0
Vreven & McFadden (2007)	Other	369	College	Test, survey	3 weeks	Psychology	0
Chen, Wang & Lin (2015)	Taiwan	50	Secondary	Game-based Learning	NR	Science	+
Li & Campbell (2008)	Other	22	College	Interviews	NR	NR	+/-
Jung (2013)	Korea	5	College	Interviews	1 year	Music	+
Park & So (2014)	Korea	3	College	Interviews	1 term	Pedagogy	+
Huang et al. (2012)	Taiwan	57	College	Survey, interviews	1 term	Graphic design	+
Lin (2010)	Taiwan	NR	College	Jigsaw	NR	English learning	+
Liu (2016)	Taiwan	153	College	Questionnaire	1 year	NR	+
Li et al. (2010)	Other	13	College	Group work	2 years	Various majors	+
Xu et al. (2014)	China	307	College	Statistical modeling	1 term	Multimedia	+
Du et al. (2016)	China	307	College	multilevel analysis	1 term	Multimedia	+
Han (2015)	China	105	College	Survey, interviews	1 term	English listening	+
Fu (2013)	China	58	College	Action research	1 term	English reading	+
Jia (2016)	China	120	College	Comparison	1 term	English writing	+
Ning & Carry (2014)	China	118	College	Control group design	NR	NR	+
Yang et al (2016)	China	48	College	Survey, interview	NR	English translation	+
Pan & Wu (2013)	Taiwan	78	College	Survey	1 term	English reading	+
Lan et al (2015)	Taiwan	81	Primary	Quasi-experimental	NR	English Writing	+
Wu (2014)	Taiwan	5	College	Comparison &contrast	6 weeks	English writing	+
Duxbury & Tsai (2010)	Taiwan	233	College	Survey, question	1term	Foreign language	+
Kutnick et al. (2016)	HK	524	Primary	Quasi-experimental	7 months	mathematics	+
Chan (2014)	HK	NR	Primary	Interview, observation	2 years	Core subjects	+
Law (2011)	HK	279	Primary	Test, jigsaw, survey	1 term	Reading	+
Mizuno (2011)	Japan	39	Secondary	Survey, case study	1 year	Japanese	+
Asakawa et al. (2016)	Japan	97	Secondary	Questionnaire	22 months	English	+
Kumiko (2011)	Japan	NR	College	NR	1 term	English	+
Tran & Lewis (2012)	Vietnam	80	College	Jigsaw	6 weeks	mathematics	+
Tran (2014)	Vietnam	110	College	STAD, group	8 weeks	Psychology	+
Tran (2010)	Vietnam	77	College	Jigsaw	14 weeks	English Reading	+
Leng et al. (2015)	Malaysia	37	Secondary	Survey	1 month	History	+
Choi & Rhee (2014)	Korea	5445	College	Questionnaire	NR	Various majors	+
Ornprapat et al. (2010)	Thailand	40	College	Interview	1 term	English class	+
Zainuddin (2015)	Indonesia	90	Secondary	Group comparison	NR	NR	+
Talib & Kailani (2014)	Indonesia	206	Secondary	Comparison	1 term	Natural science	+
Thanh-Pham et al. (2010)	Other	145	College	Survey, interview	8 weeks	NR	+

Note: NR=Not reported; 0 indicates none effects, + means positive, and − negative. Other in the Location column means the study was conducted in areas other than CHC countries but still on CHC students.

Compared with Thanh-Pham's review, this group of literature can be said to be much larger not only in numbers, but also in discipline variety and geographical coverage. Nonetheless, a most striking finding that this review has revealed is that 33 out of 39, that is, 84.6% of the studies reported positive findings in regards to the impact of cooperative mode on students' learning achievement, which leaves only 5 studies (12.9%) reported negative or none effects and one with mixed findings. That is, this review shows a rising in positive studies by 37.5% as compared to Thanh-Pham (2014). 37.5% over a decade is certainly a considerable change in the area of education. A question arising from this big change regarding the cooperative mode's impact on CHC students' learning achievement is: What indeed makes this happen?

5. Analysis & Findings

To address this question, the 56 studies involved in the two literature reviews were coded and put into SPSS 22.0, a software frequently used for quantitative analysis. Then, factors such as location, education level, discipline and duration were explored as independent variables via a multinomial logistic regression model. This is because variables used in this set of data are mostly qualitative and of categorical nature (Leech, Barrett, & Morgan, 2015).

The output data, as illustrated in the table of parameter estimates (Table 3), demonstrate that location and duration are insignificant statistically (sig>.05). Yet, the other two factors, education level and discipline, is statistically significant with Sig-value less than .05. That means where the study was conducted and how long it has lasted do not seem to affect the positive or negative nature of its findings; whereas students' educational level and the subject area that studies were conducted within do.

Table 3. Factors influencing students' learning achievement (Parameter Estimates)

		Estimate	Std. Error	Wald	Df	Sig.	95% Confidence Interval	
							Lower Bound	Upper Bound
Threshold	[Achievement = 1]	29.674	1.124	696.947	1	.000	27.471	31.878
	[Achievement = 2]	33.433	1.563	457.697	1	.000	30.370	36.495
Location	[Country=1]	-.405	1.424	.081	1	.776	-3.196	2.386
	[Country=2]	1.229	1.732	.503	1	.478	-2.166	4.625
	[Country=3]	-1.092	2.051	.283	1	.594	-5.113	2.928
	[Country=4]	-2.668	1.756	2.308	1	.129	-6.111	.774
	[Country=5]	-16.977	3469.661	.000	1	.996	-6817.388	6783.434
	[Country=6]	-16.746	3436.109	.000	1	.996	-6751.395	6717.904
	[Country=7]	2.126	1.819	1.366	1	.242	-1.439	5.692
	[Country=8]	1.044	2.791	.140	1	.708	-4.427	6.514
	[Country=9]	-1.554	1.924	.652	1	.419	-5.325	2.218
	[Country=10]	0[a]	.	.	0	.	.	.
	[Edu Level=1]	13.026	1.214	115.138	1	.000	10.647	15.406
	[Edu Level=2]	13.710	1.096	156.415	1	.000	11.561	15.858
	[Edu Level=3]	13.147	.000	.	1	.	13.147	13.147
	[Edu Level=4]	0[a]	.	.	0	.	.	.
	[Duration=1]	.116	1.096	.011	1	.916	-2.032	2.263
	[Duration=2]	-1.846	1.263	2.137	1	.144	-4.321	.629
	[Duration=3]	-1.073	1.993	.290	1	.590	-4.978	2.833
	[Duration=4]	-2.628	2.198	1.430	1	.232	-6.936	1.679
	[Duration=5]	0[a]	.	.	0	.	.	.
	[Discipline=1]	16.685	1.127	219.171	1	.000	14.476	1 8.893
	[Discipline=2]	16.846	1.289	170.725	1	.000	14.319	19.373
	[Discipline=3]	18.024	1.687	114.134	1	.000	14.717	21.330
	[Discipline=4]	16.344	.000	.	1	.	16.344	16.344
	[Discipline=5]	0[a]	.	.	0	.	.	.

Note: Link function: Logit.

This parameter is set to zero because it is redundant.

5.1 Insignificant Factor 1: Location

Studies in Thanh-Pham (2014) were conducted within five countries [Hong Kong (5), Singapore (4), Taiwan (3), Malaysia (3) and China (2)], with 12 out of 17, that is, 70.6% being economically developed regions. Geographical coverage in this review is more than doubled and includes a dozen, or say, most of the CHC countries. It thus can be said that cooperative learning has attracted a general academic attention in CHC contexts. It's also worth noting that while developed countries still retain their academic attention in cooperative learning, of which Taiwan (9 or 23%) is particularly keen on it; developing countries begin to show an interest in exploring cooperative learning and its potential as well. China (7) and Vietnam (4), for example, come to the second and third in the number column, and Indonesia, Philippine, Malaysia, and Thailand all claim one or two studies to their names.
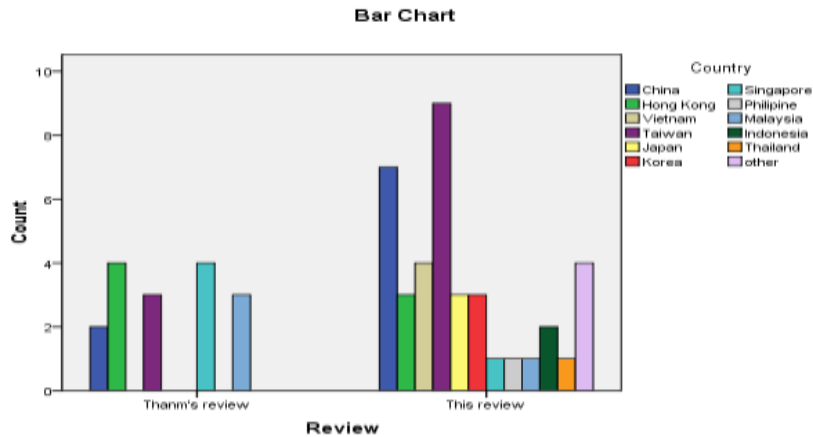
Figure 1. Location comparison

The insignificance of location factor within such a wide geographical coverage implies that the actual implementation of cooperative learning and its effects are not much different within the CHC contexts, regardless of the name, size and development degree of the located country. This finding, in a way, confirms the conformity of cultural influence in this region, and ensures the rationale and necessity for looking cooperative learning from a CHC perspective.

5.2 Insignificant Factor 2: Duration

62.5% of the studies within the two reviews last no longer than a term, which is most manageable for experiments (Creswell, 2008). Four in Thanh-Pham's review and three in this review last for one year. Also four longitudinal studies in this literature group are conducted to observe the long term effects of cooperative learning on students' achievement.

Table 4. Review * Duration Crosstabulation

		< a term	a term	a year	> a year	not reported	Total
Thanm's review	Count	4	8	3	0	2	17
	% within Review	23.5	47.1	17.6	0	11.8	100.0
This review	Count	7	16	3	4	9	39
	% within Review	17.9	41.0	7.7	10.3	23.1	100.0
Total	Count	11	24	6	4	11	56
	% within Review	19.6	42.9	10.7	7.1	19.6	100.0

Experiments of longer period are usually perceived as more robust in validity and reliability, especially in impact studies (Creswell, 2008), the insignificance of duration factor in this paper, nonetheless, shows that it does not make much differences in the effectiveness/ineffectiveness of cooperative learning in the CHC situations.

5.3 Significant Factor 1: Education Level

As is shown in Figure 2 below, while Thanh-Pham's (2014) review focuses mainly on primary and secondary schools (12 out of 17, or 70.5%), studies on college students seem to take the lion's share in this review, which is 27, or 69.2%, of the 39 studies.
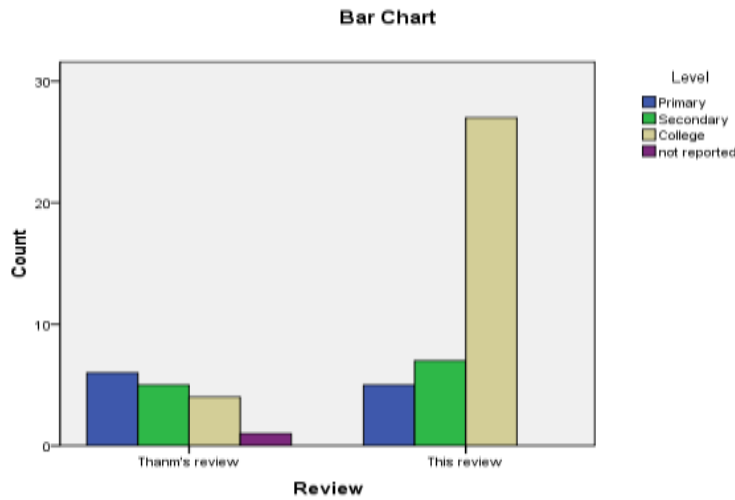

Figure 2. Level comparison

In other word, the past decade has seen a shift of cooperative learning-related research focus from basic to higher education level. And a crosstabulation between education level and achievement (Table 5) shows that while the negative ratings of studies on primary and secondary students are both 41.6%, the percentile of positive studies on college students are as high as 83.9%. That means cooperative learning is more likely to positively impact students of higher education level than those of basic education levels.

Table 5. Level * Achievement Crosstabulation

		Positive	Negative	None	Mixed	Total
Primary	Count	7	4	1	0	12
	% within Level	58.3	33.3	8.3	0	100.0
Secondary	Count	7	1	4	0	12
	% within Level	58.3	8.3	33.3	0	100.0
College	Count	26	1	3	1	31
	% within Level	83.9	3.2	9.7	3.2	100.0
not reported	Count	1	0	0	0	1
Total		41	6	8	1	56

This is understandable given that college is a context different from primary and secondary schools. Basic education (from year one to year 12) in the CHC societies usually adopts a unified curriculum and a high-stakes examination system, which is quite competitive. New pedagogies are accordingly faced with resistance from both teachers and parents, as experiments on these new pedagogies, even in response to a top-down initiative, can be time-consuming and risky in some way. Law et al. (2009) made this explicit when secondary school teachers in their study were observed to be struck in the tensions of examination and dare not to try new teaching style with major subjects. In contrast, teaching in universities is more open and flexible, teachers have more control over their curricula and they are more likely to appreciate the potential that cooperative learning can provide. Competition at higher education stage is much less severe. Learners in colleges are much more mature than their primary and secondary counterparts, and more likely to embrace this more social way of learning and make the best of it. Of course, it is also possible that

these students have more or less experienced or known about cooperative learning style during their basic educational years, can finally open their arms to it.

5.4 Significant Factor 2: Subject Factor

Table 6 below shows that apart from a unreported one, the subjects in Thanh-Pham's (2014) review are evenly distributed in the areas of Science, English, Math, and Other, with each being 23.5%. This review, however, sees English (38.5%) and Other (25.6%) relatively higher and the other two falling to 12.5% (Math) and 7.7% (Science).

Table 6. Subject distribution in the two reviews

		English	Math	Science	Other	Not reported	Total
Thanh's review	Count	4	4	4	4	1	17
	% within Review	23.5	23.5	23.5	23.5	5.9	100.0
This review	Count	15	5	3	10	6	39
	% within Review	38.5	12.8	7.7	25.6	15.4	100.0
Total	Count	19	9	7	14	7	56
	% within Review	33.9	16.1	12.5	25.0	12.5	100.0

This can in part be explained with the high proportion of college studies in this review (69.2%), the subjects of which are mostly related to majors and thus coded as "Other". The fact that English discipline is most active in trying new teaching styles might account for the percentage of English in this review.

A symmetrical normalization analysis between achievement and subject (Figure 3.) shows that the Other, English and Math subjects tends to be positive, which are respectively 86.7%, 78.9% and 66.7%, whereas studies conducted within Science subject is much closer to negative or none. To be exact, more than half (57.1%) Science studies reported negative or none findings. It looks like cooperative learning mode works best with CHC students in Other and English subjects, fine with Math, but not quite with Science subject.
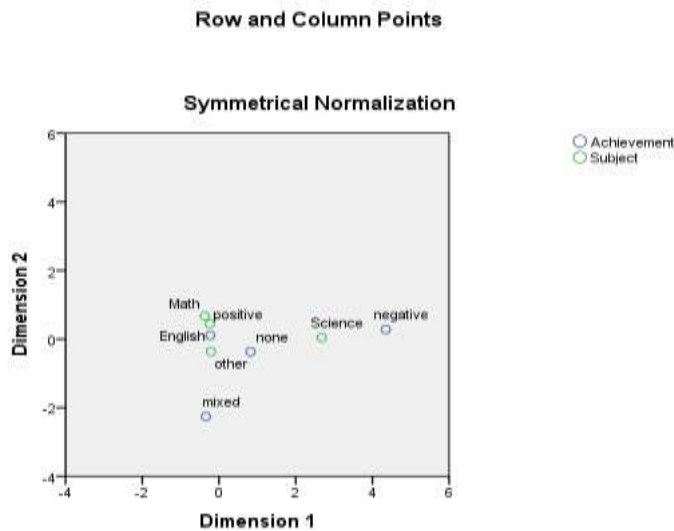

Figure 3. Symmetrical normalization between achievement and subject

Discipline characteristic is probably a reason for this result. English subject, for example, is devoted to language learning, which is innately social and interactive. It is thus no wonder to find most of the studies conducted in this discipline positive. Math and Science subjects, on the other hand, need a lot reflection and internalization on the learners' part. Cooperation between learners, though work sometimes or in some way within the two disciplines, probably does not matter as much.

The pressure of high-stakes examination might play a part too. Other subjects, which are either minor subjects in primary and secondary levels, or subjects in college level, are faced with much less pressure from external

examination than Math and Science, which are both core subjects. These assumptions, however, need further investigation to consolidate.

6. Conclusion: Changing Contexts and Adaptive Agency

Judging from above comparative analysis between the two literature reviews, the past decade has seen major improvements in terms of the impact of cooperative mode on CHC learners' academic achievements. The supportive percentage in terms of academic achievement in the latter review (84.6%), is not only higher than the 37.5% from literatures ten years ago (Thanh-Pham, 2014), but also higher than the percentile in Western studies, for example, 72% (48 out of 68) in Slavin (1990), 63% (63 out of 99) in Slavin (1996), and 80% in Johnson & Johnson (1999). It seems, therefore, safe to conclude that cooperative learning is largely applicable in the CHC environments as well.

Nonetheless, it needs noting that this shift from 'not appropriate' to 'largely applicable' occurs within a period of a decade or so, which is rather quick for education arena. Of course, validity, the first issue that Thanh-Pham (2014) spotted from the literatures of ten years ago, could now serve to explain, in part, this seemingly big and quick change. This is evidential in the many 'not reported' items in Table 2 (3 in participant column, 9 in duration column, and 6 in subject column).

Changes, however, do seem to have taken place to CHC students' possible unfamiliarity with the cooperative learning approach, the second issue that Thanh-Pham (2014) identified. With cooperative inquiry being advocated in both research and policy around the turn of the century, CHC teachers as well as learners are faced with pressure of change. More or less, cooperative mode is taken up in classrooms. Having experienced it in primary and secondary schools, learners become familiar with and then accept this new learning approach. This is part of the reason why college students tend to favor cooperative learning as revealed in this review and the study from Chan and Rao (2009) as well.

Changes happen to Thanh-Pham's (2014) third issue too, which regards local institutional constraints and disjunctions between some principles of cooperative learning and the CHC cultural values. First of all, with globalization, CHC contexts are changing with its changing education, and so do teachers and learners' ideology as well as pedagogy (Chan & Rao, 2009). Law et al. (2009), for example, found that Hong Kong teachers and students, under pressures of change, have taken on new epistemology from new experience. The teachers tried to empower and gradually shift from sage on stage to guide by side, the students tried to take active role in their learning, and take control of it, in the experiments at least. In this way, both teachers and students are making adaptive changes in response to the policy. Fu (2013) from mainland China, Pan and Wu (2013) from Taiwan, Tran (2014) from Vietnam, and Asakawa, et al.(2016) from Japan all provide similar evidence in this regard.

For another, the intense examination culture still prevails and constrains the potential of cooperative mode being fully realized. This is evident in both subject and education level factor analysis: Other subject and tertiary level, which are not under pressure of examination, is more liable to see positive response than Science and Math subjects and primary and secondary levels, which are faced with examination pressure. Chan (2009) and Gao (2013) provide further support with findings that in Hong Kong and mainland China only minor subjects such as politics and history can be used to experiment on cooperative mode.

The reasons accounting for this noticeable change can be multiple and complex. Resistance and reluctance are visible as well. But there is no denying that with the cooperative initiative being advocated in research as well as in policy for over a decade, teachers and students in the CHC contexts begin to take on this kind of pedagogy.

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