

# Revisiting Secondary Education Reform in China: Comparing the Perceptions of Teachers and Students between 2012 and 2022

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## Abstract

This mixed methods study compares how secondary school teachers implemented Education Reform in China in 2012 and 2022. The survey asked how often a teaching or evaluation strategy was used. The conclusions of the current study indicate that even though teacher-directed lessons (teacher talk, questioning, and discussions) still dominated, sample teachers were able to use a variety of student-centered learning (SCL) methods (activities and group work) in accordance with the Reform initiatives. A significant obstacle to reform remains high-stakes examinations, which rely heavily on rote memorization, rather than the creative application of knowledge.

## Keywords

Education reform;  
International education;  
Student-centered  
learning (SCL);  
Classroom management

*I hear and I forget, I see and I remember, I do and I understand –Xunzi/Confucius*

## 1 Introduction

In the 1990s, large-scale education reform orchestrated by provincial, state, or national governments emerged around the world. Fullan (2000) studied system reforms in England, Canada, Finland, and the United States. Each country had its unique history and context, but all of the governments introduced large-scale reforms that sought to improve instruction and develop closer links between objectives, programs, teaching, and student evaluation. Joong et al. (2012, 2013ab, 2019, 2020, 2021) have examined secondary reforms in Canada, China, Sierra Leone, the Philippines, the Caribbean (Guyana, Jamaica, and Trinidad & Tobago), and Mexico. The studies concluded that teachers are ready to change and respond positively if they think that the change is justified. Key hindrances to reform implementation were contextual issues such as large classes and a lack of resources and training. According to Schweisfurth (2011), “student-centered education has been a recurrent theme in many national education policies in the global South” (p. 425). SCL emphasizes the important role of active student participation. In a recent meta-analysis of the international literature on SCL, Bremner (2020) found that ‘active participation’ is the most mentioned element when it comes to conceptualizing SCL. It has become an influential education movement adopted in many countries, and now China. In our Caribbean reform study (Joong et al., 2020), a number of Caribbean scholars (Jennings, 1999; MacKinnon & MacKinnon, 2010) claimed that SCL could be one of the solutions to the problem of student underperformance. However, Schweisfurth (2011) concluded that changing classroom practices and adopting a more SCL pedagogy are particularly problematic in developing countries. Similar challenges were found in our secondary reform study in the Caribbean (Joong et al., 2020) and in a study by Jennings (2017), in which she reviewed interventions in schools’ curricula including SCL to achieve improvement in learning. Additional challenges found in both studies were high student–teacher ratios and inadequate professional development. The teachers also complained that there was a “reduction in discipline” and that classrooms were noisy (Joong et al., 2020). It is very difficult to conduct SCL instruction in these settings. Joong and Noel (2013b) and Joong et al. (2019) had similar findings in their studies in Sierra Leone and the Philippines.

Reform in education often demands changes in practice that challenge classroom teachers (Fullan, 2000). Teachers initially report feeling overwhelmed and under-supported (Helsby, 1999; Lasky & Sutherland, 2000; Taylor, Rizvi, Lingard and Henry, 1997). These feelings occur because changing the curriculum and the resultant transitioning require teachers to alter the “specific blueprint for learning that is derived from the desired results—that is, content and performance standards”(Wiggins & McTighe, 2006, p. 6). Changing classroom practices and adopting more SCL pedagogies involve instructional improvement. Elmore and Burney (1997) identified seven principles of strategy for organizing system-wide instructional improvement (pp. 4–5). The first three are relevant to this study:

1. It is about instruction and only instruction;
2. Instructional improvement is a long, multistage process involving awareness, planning, implementation and reflection;
3. Shared expertise is the driver of instructional change.

Educational reforms increase tension as outcomes are measured and results are evaluated against standards. These changes can trigger resistance, debate, and passivity within teachers. Teachers play key roles in reform as the agents of change who work directly with students (Clarke, 1997; Fullan, 2001). Fullan (1996) explained, “We need to first focus on how teachers make sense of the mandates and policies because there will be no educational reform until after the teachers interpret the policies and make decisions based on their beliefs about the new demands” (p. 12).

We must also pay attention to the impact of reforms on students (Earl & Sutherland, 2003). To date, little research directly sought the views of students as compared to those which have reported the wide range of teachers’ views on problems with educational change. We cannot deny the credibility of students as expert witnesses of effective instruction. Recommendations from the National Association of Secondary School and Sizer (2004) suggest that listening to students can be an effective strategy for school improvement. The report also encourages teachers to use a variety of instructional strategies including SCL activities. Fullan and Stiegelbauer (1991) posed the question: “What would happen if we treated the student as someone whose opinion mattered in the introduction and implementation of reform in schools?” (p. 170). This study provides a glimpse of secondary education reform in China by listening to the voices of students and teachers.

## 2 Literature review

### 2.1 Student-centered Learning SCL

The study by Joong (2012) was one of the first studies on Quality Education Reform in China. Numerous studies have been conducted since. We will examine a few studies related to relevant topics in the reform. F. Zhang and Liu (2014) conducted a mixed-methods design study to examine the beliefs of Chinese junior secondary English teachers. Data were collected using mailed surveys completed by 733 sample teachers in ten provinces. In general, teachers’ beliefs were found to be congruent with constructivism-oriented or SCL reform, but a closer examination suggests that both traditional and constructivist beliefs were employed. Constructivist beliefs include student participation and interactive classes while traditional beliefs involve teacher-directed approaches. A variety of contextual factors are found to exert a strong influence on teachers’ beliefs, such as Confucian culture, high-stakes examinations, and school environment (F. Zhang & Liu, 2014). Yan (2015) conducted an interpretative study to investigate the English secondary teachers’ perceptions and implementation of the English Curriculum Reform with a sample of ten teachers at three schools in Central China. An implementation gap was found despite the teachers’ common endorsement of the new curriculum’s goals and pedagogy. The study showed a considerable mismatch between the teachers’ perceptions and their classroom practices including SCL. The underlying causes involve a combination of individual teacher factors and systemic factors, such as lack of expertise needed for pedagogical transformation, lack of resources and training, and pressure from exam-obsessed students and parents. Yan (2015), Alexander (2001) and Wang (2011) also found SCL teaching tends to be more time-consuming and more unpredictable for task completion than teacher-directed strategies. Similar findings and conclusions were made in our previous reform studies in China (Joong, 2012) and other jurisdictions (Joong, 2021; Joong et al., 2019, 2020, 2021).

## 2.2 Examination System

China has a traditional examination system. Graduates at each level who wish to continue their education take entrance examinations, Zhongkao (中考) and Gaokao (高考) at the end of junior and senior secondary schooling respectively. The examination system plays a pivotal role in Chinese society and is cited as one of the major obstacles to curriculum reforms by practically all sources (Dello-Iacovo, 2009; Yan, 2015). Examination results have a significant impact on students' future and is a form of performance assessment of teachers and school (Y. Feng, 1999; Hannum et al., 2011; Marton, 2006). Examination-oriented education is considered to be traditional knowledge-centered and teacher-centered (Q. Zhong, 2005), while quality education represents its opposite, student-centered or SCL (Dello-Iacovo, 2009; Wang, 2011; Yan, 2015; Q. Zhong, 2005). The above literature review suggests that it is crucially important to transform the current Gaokao-based examinations to achieve alignment with curriculum reform goals.

## 2.3 Objectives of the Study

Results and conclusions of the previous study (Joong, 2012) and the above literature review have shown that in general, teachers in China have endorsed the reform goals and pedagogies that include SCL. The objective is to compare teachers' and students' perceptions of how teachers implemented secondary school reforms in 2012 and 2022. Areas of interest include curriculum planning, teaching strategies, assessment and evaluation strategies, integration of technology, classroom management, special education programs, and high-stakes examinations. Two research questions related to the Education reform are:

1. Compare the perceptions of students and teachers of secondary education reforms in 2012 and 2022 in China.
2. To what extent have teachers implemented the Quality Education Reform in China, in particular, student-centered learning (SCL)?

Comparison and analysis of the perceptions of the teachers and students in the implementation of reforms in 2012 and 2022 will provide insight. Findings and recommendations from this study will assist school administrators, teachers and parents in China and other jurisdictions in designing, adapting, and implementing exemplary practices in curriculum planning, teaching pedagogy, and student evaluation methods.

## 2.4 Methodology and Data Collection

Major sources of data for this study were anonymous surveys for teachers and students. Sample questions involved use of the five-point Likert scale indicating how often a teaching and student evaluation strategy is used, and the amount of planning and support available. **This study used a concurrent triangulation strategy (Creswell et al., 2003; Terrell, 2012).** A survey was conducted which collected both quantitative responses, using Likert type questions, and qualitative responses through open-ended questions. Surveys are commonly used to measure the implementation of large-scale reforms and how often certain strategies are used (Desimone et al., 2010). Classroom observations were also made at three sample schools. Identical surveys were used in the previous study in 2012 and in this study. All the items on the survey were analyzed quantitatively. The qualitative data (open-ended questions and classroom observations) were then analyzed to help explain, or elaborate on, the quantitative results and corroborate the quantitative findings (Terrell, 2012).

## 2.5 Population and Sample

The previous study included twenty-four sample secondary schools in four provinces (Guangxi, Guangdong, Shandong, and Hubei). Findings and conclusions were reported in Joong (2012). This study reports findings from the current study and comparisons and analysis of the perceptions of the teachers and students in the implementation of reforms in 2012 and 2022. **Sixteen sample schools from three regions of China (Nanning, Hangzhou and Beijing) were selected for the current study using convenience sampling.** Schools were selected representing urban-rural (75%-25%) and school types. Socio-economic status of the students as reported by sample teachers were: low (29%), middle (57%) and high (14%). Ethnic make-up as reported by sample students were Han (80%), Zhuang (16%), and others (4%). At each sample school, 25 randomly selected teachers and two representative classes (approximately eighty students) were asked to complete separately designed surveys. Surveys are designed to provide a synthesis of what happens in the classrooms. The return

rates for the surveys were 98% (students) and 80% (teachers). However, due to the non-probability sampling, research findings were not generalized to populations but are presented as findings from the captive participants (Etikan et al., 2016).

### 3 Results of the Study

#### 3.1 Teachers' Voices

Fifty-four percent of the 327 teacher respondents in the current study were female. Mean teaching experience was 12.5 years. Sample teachers were well represented in different subject areas and grade levels. The teachers used the internet and printed resources. Mean class size decreased from 51 in 2012 to 38 in 2022.

#### Comparison of the results from 2012 and 2022

##### 3.1.1 Curriculum Planning

On average, just as they did in 2012, respondent teachers spent fourteen hours each week preparing classes in 2022. One of the Quality Reform (Ministry of Education of the People's Republic of China [MOE], 2001) initiatives is to introduce transformation from "centralization" to "decentralization" in curriculum policy. Data in the current study indicate that 77% of the sample teachers used central curriculum, 13% used provincial, 7% used city, and 3% used school/foreign curriculum. Similar results were obtained in the previous study with an 80% vs. 20% split (Joong, 2012). In planning, more teachers (64% vs 59% in the previous study) stated that they received adequate resources in 2022. The percentage (64%) of teachers who claimed that they had adequate professional development remained constant. To prepare for their lessons, in the past, teachers in China depended heavily on textbooks (Ma et al., 2006). In the current study, they depend on both the internet (91%) and textbooks (86%). Classroom observation data in both studies revealed that teachers in the sample schools tended to follow the content sequence of the textbooks. More importantly, staff rooms are equipped with more computers and printers than in 2012.

##### 3.1.2 Teaching and Student Evaluation Methods

Figures 1 and 2 compared sample teachers' self-reporting of the teaching and student evaluation methods they always/often used in 2012 and 2022. With the exception of group work, discussions, and activity learning, results indicated that sample teachers in 2022 are using a little more (within 5%) variety of teaching and student evaluation strategies.

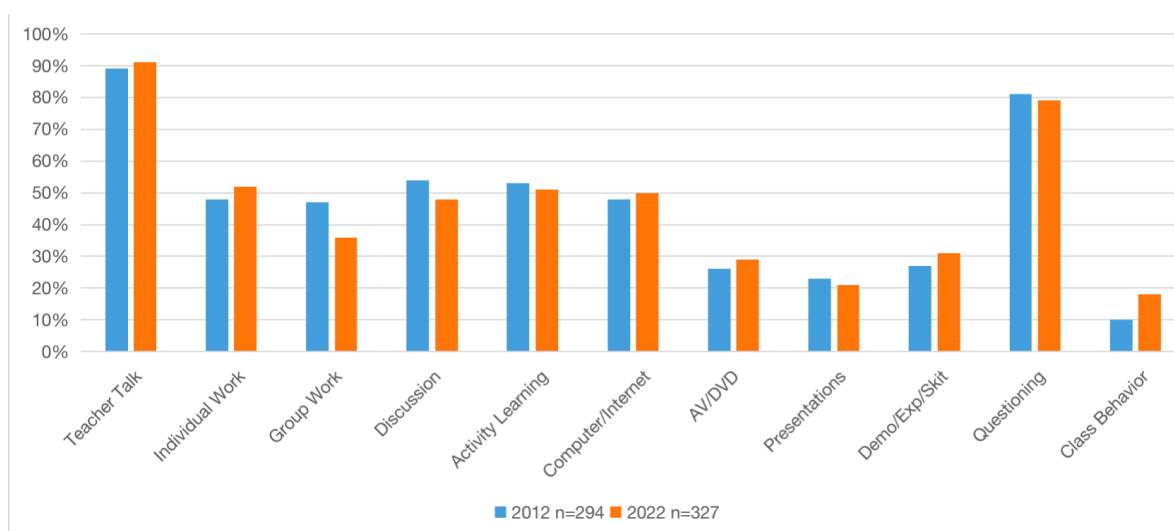


Figure 1: Teachers' Perceptions of Evaluation Methods (% Always/Often Used)

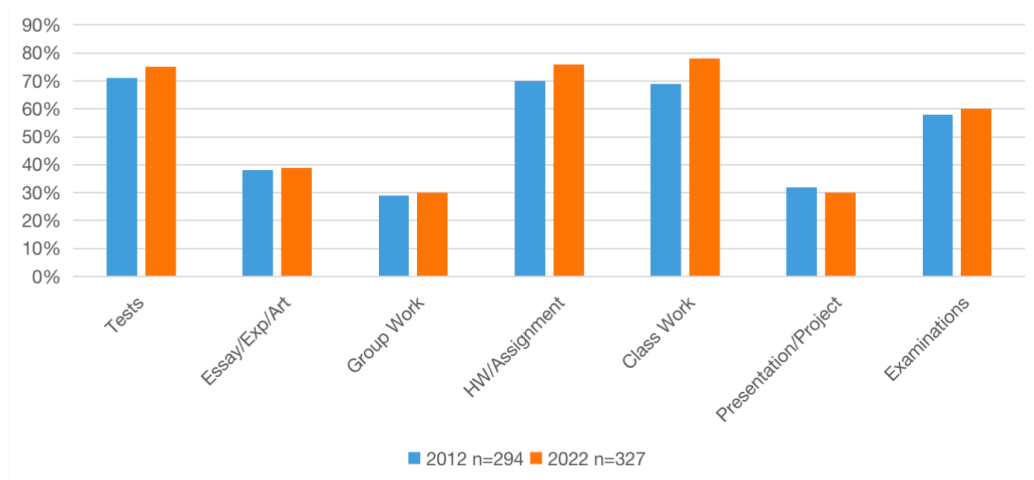


Figure 2: Teachers' Perceptions of Teaching Strategies (% Always/Often Used)

Eighty to ninety percent of the sample teachers stated that they always/often use teacher talks and questioning strategies. About half of the respondents always/often use individual work, discussions, activities, and integration of computers/internet. For student evaluations, three-quarter (75%) of the sample teachers always/often rely on tests, homework/assignments, and classwork. Sixty percent of the sample teachers always/often use examinations.

### 3.1.3 Student Outcomes

Sample teachers were asked to rate their perceptions of student outcome during class time. On student concentration time, 54% of the sample teachers stated 'lots', 30% claimed 'average' and 16% claimed 'little.' Results are similar for student work completion: 42% said 'lots', 54% said average and 4% reported "little". Results for student achievement are also similar, at 44%. 41% and 15% respectively. Students' on task time and work completion rates were between average and good in the previous study (Joong, 2012).

### 3.1.4 Satisfaction with Reform Implementation

In the current study, most sample teachers (68%) were satisfied with their courses and implementation. Only 2% were dissatisfied, and 30% were in between. Similar results were found in the previous study (Joong, 2012) with a slighter higher (77%) satisfaction rate. When sample teachers were asked which of five areas need improvement (see Figure 3), the percentage was significantly decreased in all areas. This is a good indication that the goals of the Quality Reform have been achieved according to the sample teachers, and the need for professional development is reduced.

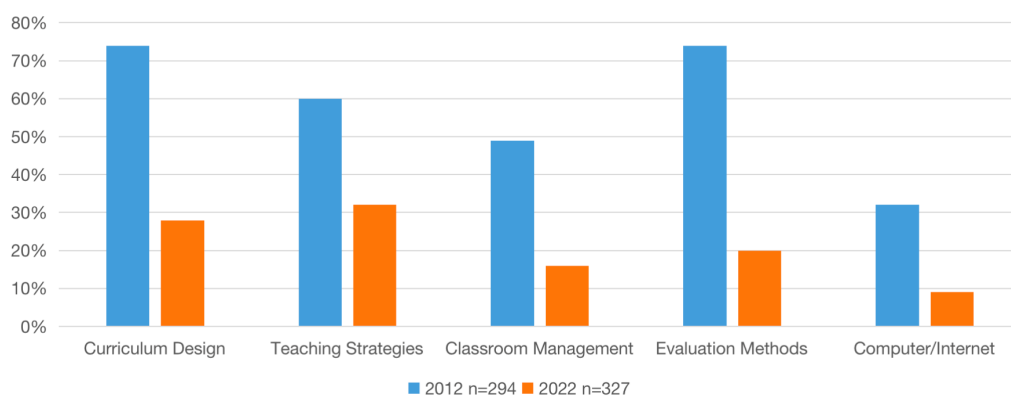


Figure 3: Comparison of Teachers' Perceptions on Areas Needing Improvement (2012 vs 2022)

### 3.2 Students' Voices

Of the 1,440 student respondents from the sixteen sample schools in 2022, most (75%) were from urban communities. Gender was closely divided with fifty-two percent females. They spent on average 2.8 hours per day on homework/studying and had a one-day absence per term. Tao (2003) had a similar finding that in order to achieve good results, students were often overloaded with homework and had no time to develop their own interests. Correlation between students' perceptions of course variables is shown in Table 1. There were significant correlations between course performance and course interest (.581\*\*), course difficulty (-.306\*\*), course quality (.372\*\*) and negative classroom behaviour (-.102\*\*). This means that course performance was influenced by student behaviour, and the quality, interest, and level of difficulty of the courses as perceived by students. There was a positive significant (.166\*\*) correlation between course difficulty and negative behaviour. More difficult courses meant worse behaviour because if students do not understand, they tend to act out or start chatting. Similar findings were found in the previous study (Joong, 2012).

Table 1: Correlation between Course Variables in Student Sample (n = 1440)

	Course Interest	Course Difficulty	Course Quality	Negative Behaviour
Achievement	0.581**	-0.306**	0.372**	-0.102**
Interest		-0.267**	0.519**	-0.152
Difficulty			-0.131**	0.166**
Quality				-0.082**

\*\* . Correlation is significant at the 0.01 level (2 tailed).

Figures 4-8 compared the students' perceptions of the teaching methods always/often used by their subject teachers in Math, English, Science, Social Studies, and Chinese in 2012 and 2022. The three dominant teaching strategies used by subject teachers for each of the five subjects are teacher talk (>90%), individual work (50-60%), and teacher questioning (50-70%), all teacher-directed strategies. In terms of usage, except for individual work where there is a slight decrease of 5-10% by all five subject teachers in 2022, the percentage of subject teachers using teacher talk and questioning strategies stayed almost constant between 2012 and 2022.

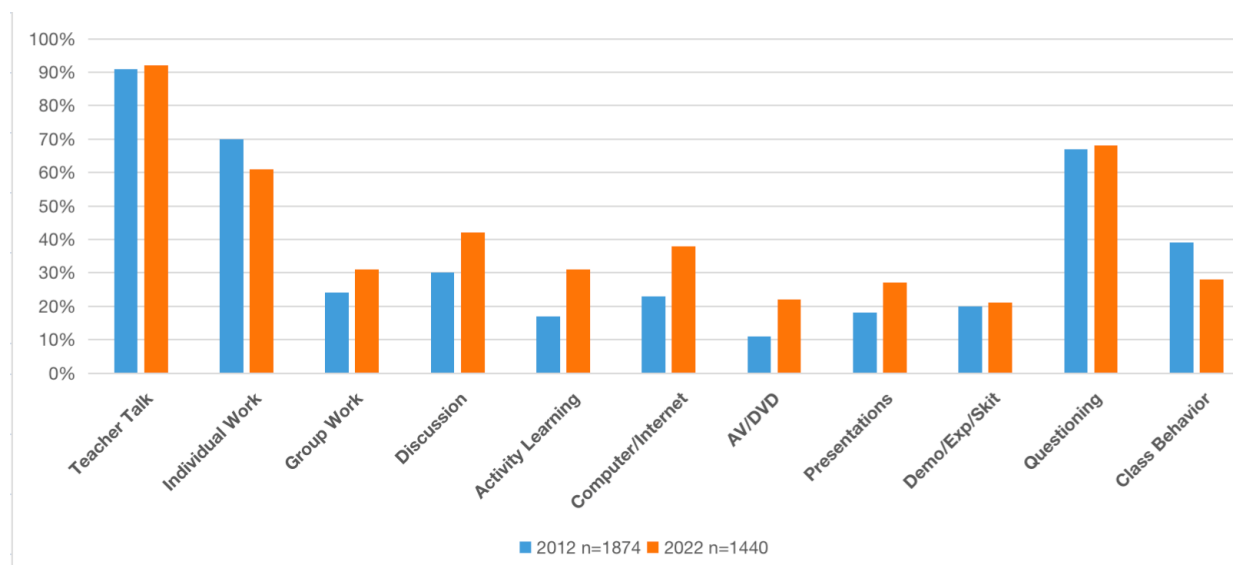


Figure 4: Students' Perceptions of Teaching Strategies in Mathematics (% Always/Often Used)

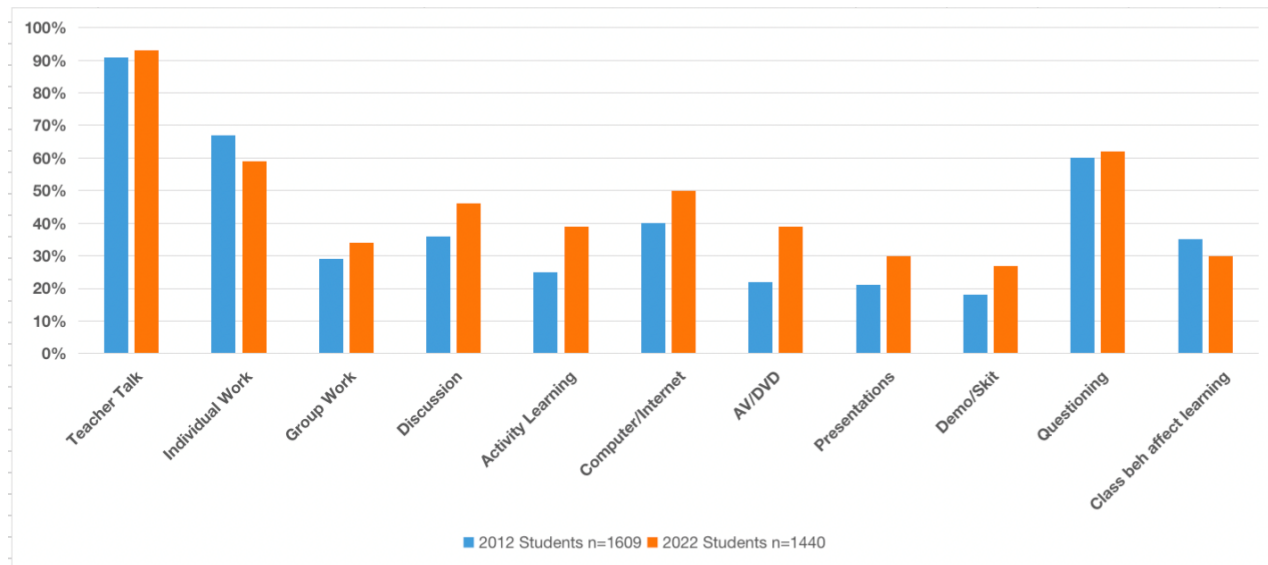


Figure 5: Students' Perceptions of Teaching Strategies in English (% Always/Often Used)

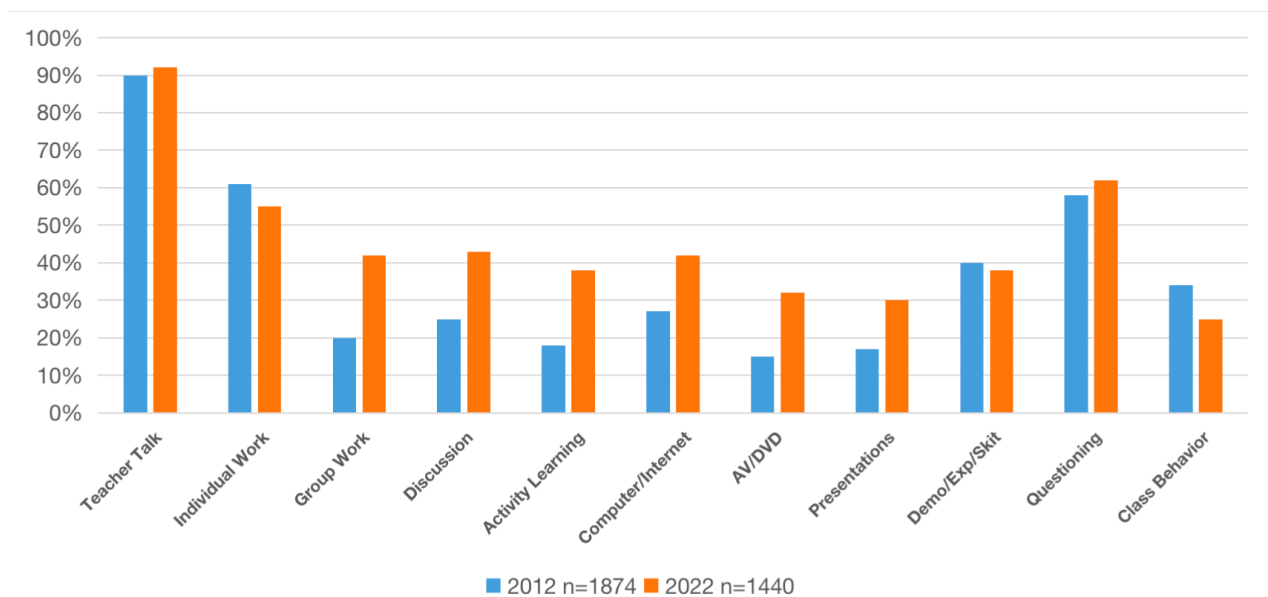


Figure 6: Students' Perceptions of Teaching Strategies in Science (% Always/Often Used)

As for the SCL strategies, in general, a little more than one-third of teachers for the five subjects always/often used group work and conducted activities-based lessons, and almost half had discussion lessons. Use of all three strategies increased from 2012 (See Figures 4-8). The exception was Science where there is a small decrease (from 40% to 38%). Demonstration/Experiments/Skits also experienced increased usage from 2012 by the five subject teachers. Student presentations in classes have also increased in usage but to a lesser extent. These results indicate that an increasing number of subject teachers in China always/often use more SCL strategies than ten years ago. As for integration of technology, except for Mathematics, close to half of the subject teachers always/often integrated computers and a third used AV in their classes in 2022. This is more than double their usage in 2012. In accordance with the Quality Reform goals, using the survey data from sample teachers and students, we can conclude that sample teachers used a much greater variety of SCL teaching strategies and more often (almost double the class time) in 2022 than in 2012.



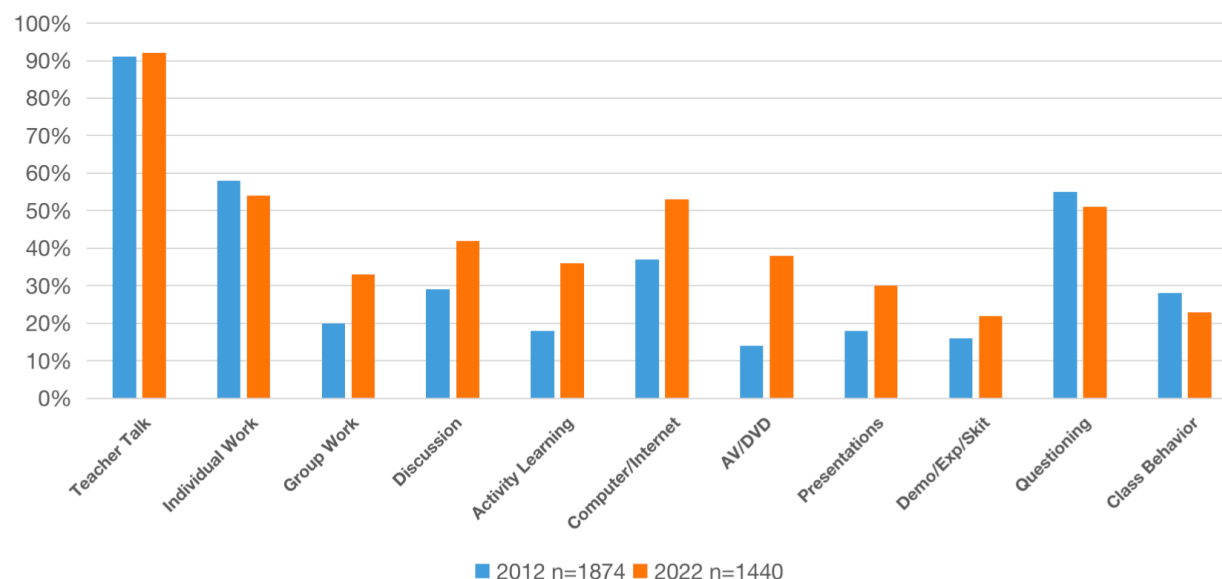


Figure 7: Students' Perceptions of Teaching Strategies in Social Studies (% Always/Often Used)

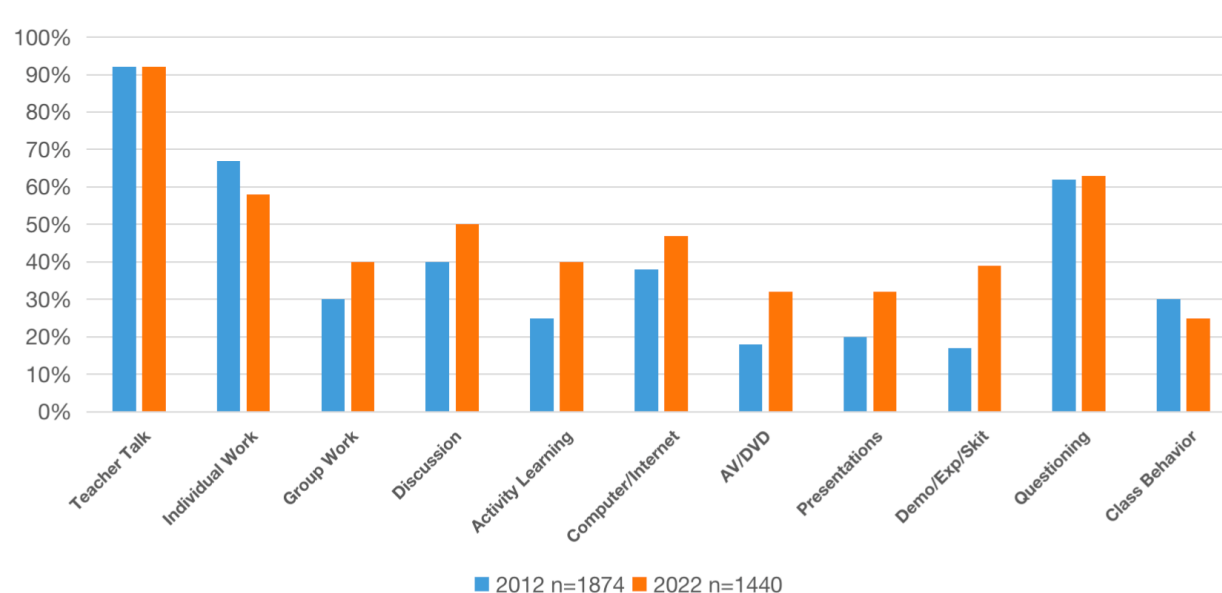


Figure 8: Students' Perceptions of Teaching Strategies in Chinese (% Always/Often Used)

### 3.3 High-Stakes Examinations

A comparison of the students' and teachers' satisfaction with the Examination system in 2012 and 2022 is shown in Figure 9. In 2012, in general 17-20% of the sample teachers and students were satisfied with the Exam system and a little less than 40% of both samples were dissatisfied. The remainder of both samples (44-50%) were in-between. The numbers are reversed in 2022. A third of both samples were satisfied with the Exam system and 18-20% were dissatisfied and the remaining samples (46-48%) were in-between. This means a growing number of both teacher and student samples (about 15%) became satisfied with the Exam system. However, half of both samples are in-between.



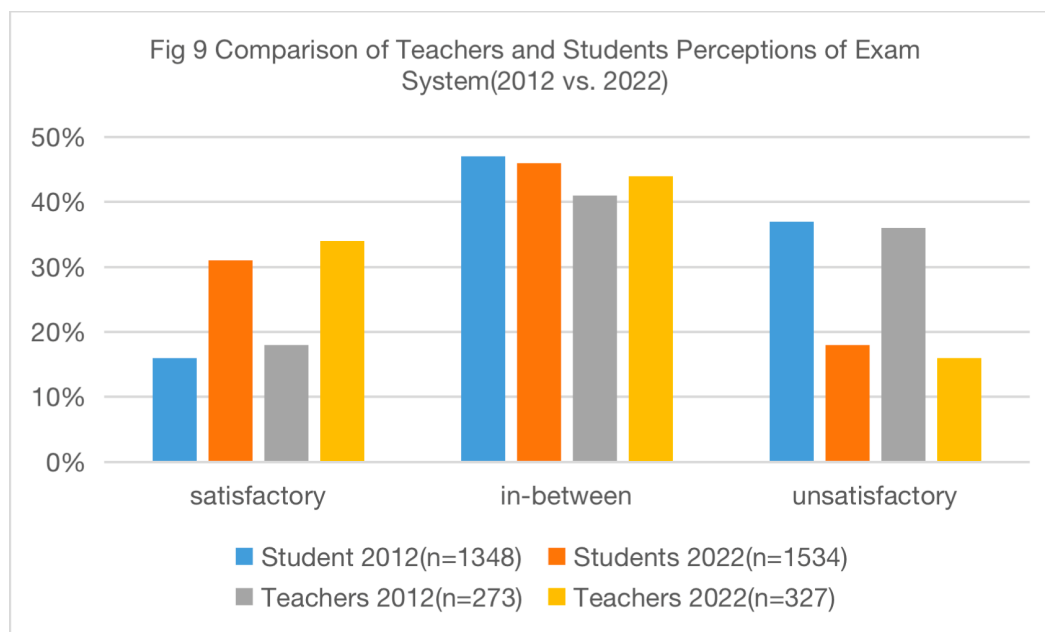


Figure 9: Comparison of Teachers and Students Perceptions of Exam System (2012 vs. 2022)

Both samples were asked whether to keep, get rid of or modify the Gaokao Exam system. Results in the current study indicate that about 10% of the sample students and a handful of sample teachers wished to get rid of the Exam system. About 20% of the sample students and 15% of the sample teachers wished to keep it. About half (45-50%) of both samples wished to modify the Exam by a little and a third (32%) of the sample teachers and a quarter (22%) of the sample students wished to modify it by a lot.

Based on these results, it can be concluded that this current study confirmed the findings of Dello-Iacovo (2009) and Yan (2015) that the high-stakes examination system is one of the major obstacles to curriculum reform. They also affect teachers' curriculum decisions (Yan, 2015; X. Zhang & Ren, 1998). X. Zhang (2004) explained: "the solid tradition of exam-oriented education . . ." has affected " . . . courses, teaching methods, teacher-student relationships and the system of evaluation and selection" (p. 12).

The studies by Yan (2015) and Huang (2004) suggested that it is crucially important to transform the current Gaokao examinations to achieve alignment with curriculum reform goals. As mentioned above, the MOE of China attempted to modify the Exam system (Song & Zhang, 2019). Despite the large number of students, in order to strengthen the reform of education evaluation and college entrance examinations, the MOE of China focused on system design, concept change, resource investment, overall planning, strategic layout and so on (B. L. Zhong, 2021).

### 3.4 Classroom Observations

For triangulation purposes, the researchers conducted classroom observations at three conveniently selected sample schools, focusing on curriculum, facilities, and resources. In general, classrooms are large and are mostly equipped with SMART Boards. Computer and Science Labs were well equipped. Class size was in the 40s with students sitting in rows. In most observed classes, teachers conducted teacher-directed lessons using PowerPoint presentations, teacher talk and questioning. Most students put up their right hand eager to be called. This is followed by individual work or work in pairs on assignments. Small group work was difficult due to the set-up of the classrooms. Each student has his/her own textbook for each subject. The same textbooks are used for each course in China. Teachers usually followed the content sequence of the textbooks. Noise levels were limited and there were limited behaviour problems. The following is a sample SCL lesson observed in a Grade 7 class on Chinese Opera. Students were shown a 5-minute segment of *Romance of the Three Kingdoms* with a focus on the four main role types. This was followed by whole class questioning

and answers for five minutes. Students were then asked to divide into groups of four. Each group made a mask of their own design for an assigned character and a brief script of the lyrics.

Most secondary schools in China have demonstration classrooms. Occasionally competitions among teachers from local schools are held (Wang, 2011). The above Chinese Opera class was observed at a competition with students and teachers. These are excellent professional development tools, for SCL lessons. The above classroom observations corroborated most of the quantitative findings (Terrell, 2012).

## 4 Conclusions and Discussion of Research Questions

This study draws attention to the Education Reform in China. Results and conclusions of the study indicate that the reform has a direct impact on teachers and, in turn, on students and parents in China.

### 4.1 Research Question 1: Compare the perceptions of students and teachers of the Quality Education Reform in 2012 and 2022 in China.

In general, most of the teacher respondents (68%) were satisfied with the reforms. Some sample teachers are still struggling with transitioning. In meeting one of the Reform curriculum policy objectives (MOE, 2001) on ‘decentralization,’ the split remains at the ratio of 8:2. Like the previous study (Joong, 2012), sample teachers (64%, slight increase) indicated that there was adequate support in terms of resources and professional development. Regarding teaching practices, both participant teachers and students said that subject teachers were using both teacher-directed and student-centered (SCL) strategies. Dominant strategies used were teacher talk, individualized learning, and questioning, all teacher-directed strategies (Figures 1 and 4–8). Integration of technology has also increased to over 50% in some courses. The use of AV has doubled to 30% as most classrooms are equipped with projectors/ SMART Boards. We observed a few of these SCL activities in Science and IT classes. However, even though classroom management issues have decreased slightly from 2012 to 2021 (35% to 30%) from students’ perspectives, the needs continue as new modes of teaching and transitioning created new situations for students to deviate from expected behaviours. As for student evaluation, as in 2012, both sample teachers and students claimed that traditional tests, class work, homework, and examinations were always/often used (See Figure 2).

In open-ended comments in the surveys on changes in the past five years, these two teacher comments highlight the key changes:

*“Change in curriculum, reduce and modify, no change in exam system.”* and *“traditional lecture to a variety of teaching strategies.”* A few students offered similar comments but two stood out based on our results: *“It is recommended to add more experiments in subjects such as physics and chemistry”* and *“more skits, videos, hands-on, in order to add interest and willingness to learn.”*

Most of these results are in accordance with policies from the reform goals (MOE, 2001) and numerous studies (Joong, 2012; Dello-Iacovo, 2009; Wang, 2011; You, 2019). In the current study, most sample teachers (68%) were satisfied with their reform implementation, only 2% were dissatisfied, and 30% were in between.

### 4.2 Research Question 2: Implementation of Quality Education reform in China, in particular, SCL.

The MOE hopes to change from an overemphasis on passive learning and rote memorization to the promotion of students’ active participation in learning activities. The MOE also hopes to promote a willingness to inquire, collect and process information, acquire new knowledge, analyze and solve problems, and interact and cooperate with others (MOE, 2001; Zhou, 2013). As indicated above in answers to Research Question 1 in both studies, most of the sample teachers have dedicated themselves to the education of students and made the necessary changes to adopt most of the reforms. With respect to teaching practices, both participant teachers and students stated that their teachers were using both teacher-directed and student-centered (SCL) strategies. More teachers are adopting the SCL strategies in this follow-up study. Dello-Iacovo (2009), Wang (2011), You (2019), and Joong (2012) had similar findings. Sample teachers claimed that they received sufficient resources and professional development, which is an important criterion for SCL policies to succeed (Schweisfurth, 2011).

Tabulating data from the Figures 4-8 into Table 2 for comparison, the three dominant teaching strategies used by

subject teachers (>50% by respondents) for each of the five subjects are teacher talk, individual work, and teacher questioning, all teacher-directed strategies. In terms of usage, except for individual work where there is a slight decrease of 4-11% in all five subjects, the other two strategies stayed almost constant ten years later.

Table 2: Comparison of Students' Perceptions of Percent Always/Often Increase of Teaching Strategies in Five Subjects from 2012 to 2022

	Math	English	Science	SocStudies	Chinese
Teacher Talk	91% to 92%	90% to 92%	90% to 92%	91% to 92%	92% to 92%
Individual Work	(70% to 61%)	(68% to 58%)	(61% to 55%)	(58% to 54%)	(67% to 58%)
Group Work	25% to 30%	29% to 34%	20% to 42%	20% to 33%	30% to 40%
Discussion	30% to 43%	37% to 46%	25% to 43%	29% to 42%	40% to 50%
Activity Learning	17% to 32%	25% to 38%	18% to 38%	18% to 36%	25% to 40%
Computer/Internet	24% to 38%	40% to 50%	27% to 42%	37% vs 53%	38% to 47%
AV/DVD	11% to 22%	22% to 39%	15% to 32%	14% to 38%	18% to 32%
Presentations	18% to 26%	20% to 30%	17% to 30%	18% to 30%	20% vs 32%
Demo/Exp/Skit	20% to 21%	28% to 38%	(40% to 38%)	16% to 22%	17% to 39%
Questioning	68% to 69%	61% to 62%	58% to 62%	(55% to 51%)	62% to 63%
Class Behavior	38% to 28%	35% to 30%	34% to 25%	28% to 23%	30% to 25%

Results in Table 2 indicate that sample teachers in China always/often use more SCL strategies in 2022 than they did ten years ago in all five subject areas. In general, a little more than one-third of the subject teachers always/often used group work; more than a third conducted activities-based and student presentations lessons and almost half had discussion lessons. Except for Science where there is a small decrease (from 40% to 38%), the percentage of subject teachers who always/often conducted demonstration/experiment/skits and student presentations classes has also increased. Demonstration and experiments are SCL lessons that are intended for science and skits are activities usually conducted in English lessons. It is surprising that teachers in Chinese lessons have begun to use skits as the usage has more than doubled (17% to 39%). This was highlighted in our classroom observations. As for SCL strategies, a comparison of students' perceptions in five subjects from 2012 to 2022 (Table 2) indicates an increase in the use of discussion (to 40-50%), activity-based lessons (to 32 to 40%), group work (to 30-40%) and student presentations (to 26-32%) in all five subjects. However, the use of demonstrations/experiments/skits lessons is quite disappointing in science lessons where there was a slight decrease (from 40% in 2012 to 38% in 2022). On a positive note, the use of skits or similar activities in Chinese lessons have doubled, from 17% to 39% and in English, from 28% to 38%.

One of the key successes in the teaching paradigm in China is the integration of computers and increase in AV-aided lessons. Data in Table 2 indicate students' perceptions that the percentage of usage has increased by 10-15% from 2012 to 2022. At the same time, due to the introduction of SMART Boards and internet access in sample schools, the use of AV technology has doubled in all five subjects. The lack of integration of technology is the key reason for the lack of success in our reform studies in other jurisdictions such as the Philippines, Mexico, Sierra Leone and the Caribbean countries. The increase in SCL lessons was confirmed in classroom observations and open-ended comments by sample teachers and students in the survey. Typical responses in over forty teachers' comments include "*new teaching methods*", "*small group learning*" and "*traditional combined with tech-blend*." A representative phrase is "*change from students' passive learning to active learning*" by a Mathematics teacher. 'Activity' is a key word used by over 85 students in their comments.

Typical suggestions include: “*More activity-based lessons,*” “*More skits, videos, hands-on, in order to add interest and willingness to learn,*” and “*It is recommended to add more experiments in subjects such as physics and chemistry.*”

Our previous study (Joong, 2012) recommended that a lower teacher-student ratio (PTR) and more resources may help. The sample schools have decreased their class size from 51 in 2012 to 38 in 2021 and 64% of the teacher respondents claimed that they have adequate resources and professional development. These are also key reasons for successful implementation of SCL in China.

## 5 Results and Discussion

Reform in education often demands changes in practice that challenge classroom teachers (Fullan, 2000). This follow-up study drew attention to the Quality Education Reform that has had direct impact on teachers and, in turn, on students and parents in China. An indication that the reform effort is bearing fruit is the gradual changes in the teaching and student evaluation strategies. While it may be too optimistic to assume that Chinese teachers are breaking away from their teacher-directed tradition, there are indications in the results of this study that some of them are exploring new strategies such as integration of technology, group work, discussion and activity-based learning. This finding was confirmed by numerous studies (e.g., Dello-Iacovo, 2009; S. Feng, 2004; Liu & Qi, 2005; Wang, 2011; You, 2019). Other indications during our classroom observations are the newly edited textbooks, the abundance of online resources, AV materials, and SMART Boards. Demonstration lessons and teacher competitions on innovative teaching methods are common practices as indicated in our classroom observations (Cheng, 2004). In general, a majority of the teacher respondents were satisfied with the reforms. Some sample teachers are still struggling with transitioning. As in the previous study (Joong, 2012), teachers indicated that there was adequate support in terms of resources and professional development. However, resources in rural schools are scarce and teachers have to go to cities for training (Joong, 2012; Ma et al., 2006; Wang, 2011). Regarding teaching practices, most teachers and students agreed that subject teachers were using a variety of teaching methods including SCL strategies and integration of technology, although teacher-directed strategies still dominated. When compared with the previous study (Joong, 2012), sample students claimed that their subject teachers were using more SCL lessons (See Table 1). As indicated above, numerous studies had similar findings. Classroom observations and open-ended responses in our survey corroborated most of the findings in the survey (Terrell, 2012). Classroom management needs increased as new modes of teaching and transitioning created new situations for students to deviate from expected behaviours. This was a major issue in our conclusion in the previous study as over 30% of the sample students claimed that behaviours of other students were affecting their learning (Joong, 2012, Table 2). As for student evaluations, both sample teachers and students claimed that traditional tests, classwork, homework, and exams were used most often. All educators struggled to create new tasks and implement new modes of teaching and evaluation. In addition, as stated in the policies (MOE, 2001), the Quality-Oriented Reform was also “designed to improve students’ all-round development, strengthen their sense of social obligations, enhance their innovation in study and advance their problem-identifying and problem-solving skills.” (Zhou, 2013, p. 160). Over twenty sample teachers and forty-three students claimed that students’ social skills had improved. Zhou (2013) and Yu and Mocan (2019) reported similar findings in their studies.

Results in Figures 4-8 and Table 2 indicate that Classroom management needs are fewer than in our previous study (Joong, 2012). More in-service (classroom management and activity-based teaching strategies) and resources (especially in rural schools) could achieve more success.

The persistent problem with the current reform lies with the examination system. Teacher respondents claimed that there was little room for introducing activity-based learning and other innovation. Numerous teachers claimed that “The high school entrance exam (gaokao) and college entrance exam (zhongkao) are too rigorous.” The Chinese government attempted to modify the examination system, but to little avail due to the large number of students in China. Huang (2004) was correct in saying that examinations still guide teaching and learning in schools, and that China should reform the examination system to improve the quality of education. Tao (2003) suggested that reforms involve not only the entire education system but also society. X. Zhang (2004) claimed that the solid tradition of examination-oriented education has affected the curriculum, teaching methods, teacher-student relationships, and the system of evaluation and selection. Educational leaders in both China and other jurisdictions with high-stakes examination systems who want to

implement change will have to make similar decisions (Joong et al., 2020; Joong, 2013; Joong, 2021). With more and more parents, teachers, and students suggesting that the exam system should be modified, the government will have to examine alternatives (Joong, 2012). This recommendation was made in the previous study and needs to be repeated.

## 6 Conclusion

In conclusion, when compared with the previous study (Joong, 2012), results in this study indicate that sample teachers have made great strides in changing current teaching praxes (teacher-directed lessons) and student evaluation modes (tests and exams) to satisfy the SCL reform. Findings in this study clearly show that SCL can be effectively implemented in China. All educators struggled to create new tasks and implement new modes of teaching and evaluation. More in-service training and a reduction in class size would help in both of these initiatives.

Even though the problem is not as serious as ten years ago, sample teachers in China appeared to have classroom management problems as about one-third of the sample students claimed that the behaviour of others in the classroom was affecting their work. Classroom management needs increased as new modes of teaching and transitioning created new situations for students to deviate from expected behaviors.

As in most developing countries, most youngsters and parents are challenged to use education as the ladder for upward mobility. China is no different. Sustaining large-scale education reform is not simple (Elmore & Burney, 1997; Livingstone et al., 2017). Even though the Quality Education Reform is experiencing much more success in China ten years later, some teachers still have difficulty changing from teacher-directed praxes to SCL praxes. Results and conclusions of this study indicate that teachers in China experienced great success with SCL and integration of technology due to additional resources and professional development. The obstacle for SCL reform in China is its high-stakes examinations such as Gaokao. There is a strong commitment to Quality Education Reform by educators, parents and students in China. However, achieving education reforms, in particular, SCL and integration of technology require even more government support and resources and in-service professional development. Varied and appropriate instructional materials are needed to make instruction and studying more motivating and encouraging.

## 7 Disclosure statement

The authors declare that they have no conflict of interest.

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