【School Education Reform Series】

Teachers' Competence in Assessment for Learning in Early Childhood and Primary Education

Nicholas Sun-keung Pang
Zoe Lai-mei Leung

Faculty of Education Hong Kong Institute of Educational Research
The Chinese University of Hong Kong

About the Authors

Nicholas Sun-keung Pang is Professor in the Department of Educational Administration and Policy, The Chinese University of Hong Kong. He is also the Leader of the School Development and Evaluation Team.

Zoe Lai-mei Leung is School Development Officer of the School Development and Evaluation Team, The Chinese University of Hong Kong.

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School Education Reform Series

School education has become one of the most essential institutions in modern society. Tremendous resources have been invested in schools. Most modern societies have made it compulsory for their young people to spend a lengthy period of time in education. The effectiveness and efficiency of school education have been viewed as the necessary conditions for the development and prosperity of all modern societies. With the development of global economy and the emergence of the information age, all societies are under pressure to improve or even reform their school education system, if they are to enhance, or at least to maintain, their competitiveness in the ever-changing world economy.

How should Hong Kong equip its new generation to meet the challenges of the 21st century? School education reform is certainly one of the key issues in this matter. Which direction should our school reform take? What school reform programs should we adopt? How should we summarize and evaluate the existing school reform programs? How should we share, disseminate and promote those school reform programs that have been proven effective?

To address these issues, the Hong Kong Institute of Educational Research publishes the School Education Reform Series. It aims to provide local educators with a forum to exchange their ideas and experiences on the matter. To these ends, this series will publish research results, program designs, summaries of practices and experiences, and evaluative reports pertaining to school reforms in Hong Kong.

Teachers' Competence in Assessment for Learning in Early Childhood and Primary Education

Abstract

This paper explores the definition of Assessment for Learning (AfL) and its importance in learning and teaching. Through lesson observation visits, the authors conducted a study to examine the practice of AfL by Hong Kong teachers. Results indicate that there is a considerable improvement regarding teachers' competence in AfL, therefore it is recommended that more professional development programs for practicing teachers and pre-service teachers about AfL should be offered to promote young children's capability of "learning to learn" in early childhood education.

Background

Traditionally, assessment has been used in ranking students' achievement in learning (Connell, Ashenden, Kessler, & Dowsett, 1982, p. 185) and inevitably produces academic winners and losers ever since the children entered their elementary class. Students who succeed early will build on winning streaks to learn more as they grow, whereas those who fail early will often fall farther and farther behind (Stiggins, 2007, p. 22).

According to Nisbet (1993), assessment has pervasive influence in schooling as it affects how children learn and how teachers teach. It always has impacts on the learning

process through the washback effect (Alderson & Wall, 1993), cramming and rote learning — to the extent that learning for assessment is almost as important as the genuine learning, which assessments are originally devised to measure (Nisbet, 1993, p. 25).

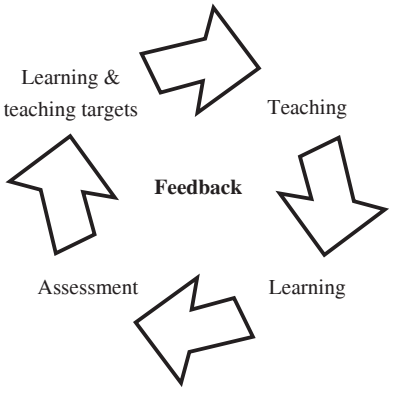
Education today has shifted from its "sorter and sifter" role to a gap-bridging role for learning differences found in classrooms. The mission of teachers is not to "let students who have not yet met standards fall into losing streaks, succumb to hopelessness, and stop trying" (Nisbet, 1993, p. 25); instead, teachers must strive for assisting students to experience success in learning according to their own pace. Thus, the purpose of adopting assessments in the curriculum evolves from verifying learning to supporting learning — that is, Assessment for Learning (AfL), which has learning as its object and through which, students understand where they are and what they can do next in the process of learning (Connell et al., 1982, p. 200). As Stiggins (2007) stated, "Rather than sorting students into winners and losers, assessment for learning can put all students on a winning streak" (p. 22).

Assessment for Learning

The concept of AfL is underpinned by the beliefs that each student is unique, and they possess different potentials and the ability of improving their learning. Students' motivation in learning will be enhanced when they are given chances to experience progress and success through the adoption of formative assessment practices. Thus, in order to promote better learning, schools are encouraged to put more emphasis

on AfL as an integral part of the learning, teaching, and assessment cycle (see Figure 1). This means that the curriculum is responsible for setting out what students should learn in terms of learning targets or objectives, while the assessment serves as a means to collect evidence of student learning by assessing both the learning product (i.e., the learning targets and content that students are expected to achieve) and the learning process (i.e., how they learn). Most importantly, teachers should use the information collected by the assessment practice as the basis for decisions on improving learning and teaching, and informing students about their strengths and weaknesses. At the same time, students' motivation and interest of learning will be reinforced with teachers' recognition of their achievements and provision of necessary steps for improvement (Black & Wiliam, 1998a; Curriculum Development Council, 2001; Curriculum Development Institute, 2002). In sum, the rationale of AfL is to collect students' learning evidence or data and to make

Figure 1. The Learning, Teaching, and Assessment Cycle



Source: Adapted from Curriculum Development Institute (2002).

use of the evidence for revising the teaching and learning content and progress in a positive, proactive direction. Another important function of AfL is facilitating students' self-evaluation so that they can become independent learners.

The Assessment Reform Group (1999, p. 4) highlighted five essential factors of improving learning through assessment:

- providing quality feedback;
- having the involvement of students in their learning;
- adjusting teaching by making use of assessment results;
- emphasizing assessment on students' motivation and self-esteem; and
- seeing the need for self-assessment and peer assessment among students.

Thus, it is recommended that teachers should inform students about the learning goals at the beginning of each lesson and share the success criteria with students before the tasks or activities. This is regarded as highly important because this gives students a better understanding of the standards they should aim at, hence facilitating them to evaluate their own learning through peer or self-assessment, as well as promoting their ownership of learning. With teachers' quality and timely feedback, self-reflection, and fellow classmates' comments, students are able to recognize their strengths and weaknesses. As a result, their motivation and self-esteem will be enhanced with the recognition of their achievement, and they will also get practical advice and suggestions for improvement from their teachers and peers.

Black and Wiliam's Meta-analysis in 1998

By reviewing 250 research reports on formative assessments in classrooms, Black and Wiliam (1998a) confirmed that quality feedback given by teachers could improve students' learning substantially. Black and Wiliam (1998a) presented a brief account of eight research findings in classroom experience which demonstrated the important components found in formative assessment.

The first evidence quoted in Black and Wiliam's (1998a) research paper was Fontana and Fernandes's (1994) study on 25 Portuguese Mathematics teachers trained in self-assessment methods on a 20-week part-time course (i.e., the experimental group) and 20 Portuguese Mathematics teachers taking part in another course in education (i.e., the control group). In the study, both students of the experimental group and the control group were given pre- and post-tests in Mathematics. Results showed that students in the experimental group outperformed their peers about two times of the mean gain, indicating that informing students about teaching objectives and success criteria of tasks as daily practice, and providing opportunities for students to self-reflect on their progress appeared to be crucial to their learning.

The second evidence presented by Black and Wiliam (1998a) was Whiting, Van Burgh, and Render's (1995) study. After analyzing a teacher's review on his experience and records about 7,000 students over a period of 18 years, Whiting et al. suggested that teacher's quality feedback and communication with students were important for students'

improvement. Most importantly, teachers' belief that "all students can succeed" was regarded as an essential factor for students' progress in learning (Black & Wiliam, 1998a, p. 11).

Other evidence highlighted by Black and Wiliam (1998a) was Butler's (1988) experiment on 48 Israeli students of 11 years old across four schools. In the study, the subjects were given written tasks under teachers' supervision in three sessions. Feedback was given twice during the study. The first one was given after the first session of tasks whereas the second feedback was given after the second session. The students were divided into three groups for receiving feedback. The first group was given only written comments (i.e., descriptive feedback) from teachers. The second group received only grades (i.e., evaluative feedback). The third group was given both written comments and grades. The findings indicated that the "comments only" group showed one-third of gain in the scores in the second session of tasks, and remained in this higher level at the third session. The "grade only" group showed a significant decline when comparing the scores of the first and third sessions but had a gain in the second session of task. For the "grade with comments" group, there was a significant regression across the second and the third sessions. According to Black and Wiliam (1998a), the significant feature of Butler's (1988) study was that the effect of descriptive feedback seemed to be undermined by evaluative feedback (i.e., grades or marks).

In addition, Black and Wiliam (1998a) presented Fuchs and Fuchs's (1986) meta-analysis of 21 different studies on

teachers' feedback for assessment activities with frequencies between 2 and 5 times per week given to pre-school and grade 12 students. It was found that those studies where teachers took follow-up actions after making use of the assessment data produced a mean effect size of 0.92, whereas those studies where teachers did not take follow-up actions produced a mean effect size of 0.42. Black and Wiliam (1998a) further suggested that making use of the assessment data to inform learning and teaching could have a positive impact on students' learning.

Black and Wiliam (1998b) summarized some general findings from their meta-analysis and pointed out that students' learning could be promoted through:

- provision of effective feedback to students;
- active involvement of students in their own learning;
- adjustment of teaching after taking account of assessment results;
- recognition of the profound influence of assessment on students' motivation and self-esteem; and
- the need for students to assess themselves and understand how to improve.

The new concept of AfL not only influences Western countries (Black & Wiliam, 1998a, 1998b), but also challenges the fundamental rationale of the traditional mode of assessments in Hong Kong. In the following section, the initiative of educational assessment in Hong Kong since 2000 will be reviewed in more details.

Throughout the past decade, the concept of "Assessment of Learning" (AoL) has been adopted in most school assessment practices in Hong Kong (Pang & Leung, 2008). Summative assessments have been used to confirm what students know, to check whether they have achieved the curriculum outcomes, and to show how they are placed in relation to their peers. However, this traditional rationale of AoL has been challenged and replaced by the AfL approach (as discussed above) because the expectation for education from society has shifted from ensuring students' possession of basic skills and knowledge to helping them become competent in critical thinking, problem solving, and effective communication for coping with the ever-changing society (Western and Northern Canadian Protocol for Collaboration in Education, 2006, p. 3).

The Education Commission (2000), after a comprehensive review of the Hong Kong education system, recommended a reform for the system. The scope of the reform covers the curricula, the academic structure, the assessment mechanisms, and the admission systems for different stages of education. "Lifelong learning and all-round development" are the expected outcomes of the reform. In view of the deficiencies in the assessment mechanism — characterized by the heavy emphasis on the products of learning (e.g., memory, understanding of knowledge and concepts on written tests and examinations) while failing to reflect students' "learning to learn" competence in the learning process, the Education Commission recommended AfL as one of the major areas of action in the current education reform:

> As part of the curriculum, the major function of assessment is [to] help teachers and parents understand the learning, progress and needs of their students, as well as their strengths and weaknesses. Teachers could take into account the results of assessment in planning the teaching syllabus, designing teaching methods and giving guidance to individual students to help them learn effectively and exploit their potentiality fully. This will also enable students to have a deeper understanding of themselves. (Education Commission, 2000, p. 46, para. 7.12)

In order to promote the AfL culture at the school level, teachers are encouraged to conduct multiple modes of assessments at various stages of basic education to identify students' strengths and weaknesses at an early stage, so that follow-up actions can be taken as soon as possible (Education Commission, 2000, p. 46). Additionally, teachers should share the learning goals or assessment criteria with students at the beginning of each lesson. This gives students an understanding of the standards for which they should aim at, thus enabling them to evaluate their own learning as well as enhancing their ownership of learning. With teachers' effective questioning techniques, observations, timely and quality feedback, as well as the comments from their fellow classmates and their self-evaluation, students can recognize their strengths and weaknesses. Thus, not only will their motivation and self-esteem be heightened because of the recognition of their own achievement and progress of learning, the way to improve learning will also be known to them by making use of the feedback and suggestions from their teachers and peers. It is important to note that

although the rationale of AfL has been clearly spelt out by the government since 2000, the inspection annual reports (Education and Manpower Bureau [EMB], 2006, 2007; Education Bureau [EDB], 2008, 2009b) from the education authority show that there is still room for improvement.

Quality Assurance Inspection Annual Reports — Kindergartens

With respect to early childhood education, the *QA Inspection Annual Report 2004/05: Kindergartens* pointed out that only 25% of teachers made proper observations and records about students' performance/work in their daily teaching. Moreover, many kindergartens failed to demonstrate a full understanding of the importance of formative assessment in early childhood development and were weak in utilizing meaningful assessment data for informing learning and teaching (EMB, 2006). Although the *QA Inspection Annual Report 2005/06: Kindergartens* showed that the majority of kindergarten teachers adopted formative assessment in evaluating children's learning, 20% of kindergartens under inspections still used dictations and examinations as the major tools in assessing children's work. This implies that kindergarten teachers may not have a clear concept about AfL, thus inevitably increasing students' pressure in learning (EMB, 2007, pp. 4–5).

Quality Assurance Inspection Annual Reports — Primary and Secondary Schools

According to EDB (2009b), there were 714 primary schools

and secondary schools that have undergone External School Review from 2003 to 2008 (p. 2, para. 1.5). The report indicated that there was a need for teachers to:

- further explore how to stimulate students' in-depth thinking through the use of a wider range of questions such as the chasing technique and high-order thinking questions;
- help students to clarify concepts and consolidate learning through prompting and re-directing questions;
- improve the quality of feedback — that is, providing concrete feedback on how well students have performed and what needs improvement against the learning objectives, and giving suggestions to facilitate improvement after questioning or class activities;
- improve the quality of peer assessment and effectiveness through provision of quality feedback and development of students' skills for analyzing and commenting on peer performance. (EDB, 2009b, p. 16)

Since "teachers' professional attitude and competence are the key to reform success" (EDB, 2009b, p. 19), it would be beneficial for schools to collaborate with professional organizations and tertiary institutions for improving teachers' professional knowledge and skills in AfL.

Pang and Leung's Study on AfL in Hong Kong Schools in 2008

Pang and Leung (2008) investigated teachers' habit in using AfL skills and techniques with 39 primary school and

kindergarten teachers from 13 schools in Hong Kong as the participants. During the study, two School Development Officers (SDOs) from the School Development and Evaluation Team (SDET) of The Chinese University of Hong Kong visited each participating school and conducted class observations (N = 78) for three different lessons (single or double sessions) from November 2007 to January 2008. They were asked to observe whether the teachers had used any AfL teaching strategies (i.e., informing teaching objectives, informing success criteria, effective questioning, quality feedback, self-assessment, and peer assessment) in the lessons. Both the SDOs were required to fill in a checklist during their observations to record the frequency of the AfL teaching strategies used by the teachers.

With respect to the 78 lessons observed, the most frequently used AfL teaching strategies was "effective questioning," whereas "quality feedback" and "peer assessment" were sometimes and occasionally found in the lessons observed respectively. Other AfL teaching strategies like "informing teaching objectives" and "informing success criteria" appeared to be rarely used by both the kindergarten and primary school teachers. It is worth noting that no teachers had ever adopted "self-assessment" in the lessons observed (see Table 1).

Pang and Leung's (2008) findings indicated that the majority of the teachers failed to recognize the importance of informing teaching objectives to students at the early stage of their lessons, nor did they have clear teaching targets when planning the lessons beforehand. Similarly, many of them did

Table 1. AfL Teaching Strategies Used by Teachers in the 2008 Study

AfL teaching strategy	Frequency of adoption (N = 78)
Questions that stimulate high-order thinking*	80.6%
Quality feedback*	65.7%
Peer assessment	43.3%
Informing teaching objectives of task(s)	12.8%
Informing success criteria of task(s)	12.8%
Self-assessment	0.0%

* indicates skills or techniques used at least 3 times per class observation.
Source: Adapted from Pang and Leung (2008, p. 25).

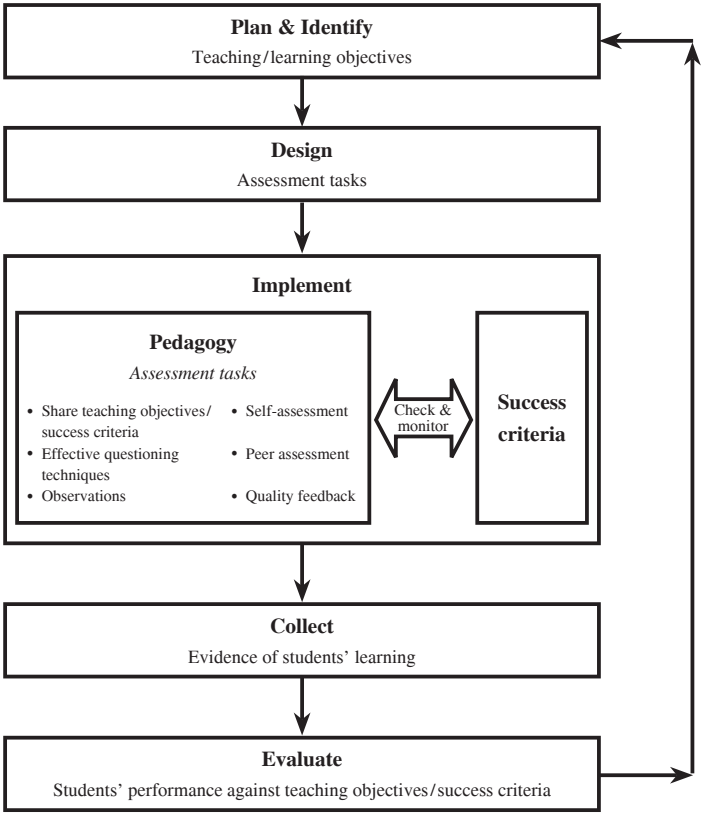
not acknowledge the importance of sharing success criteria before the task(s) and as a result, their students were unable to understand what they were expected to achieve. Also, some teachers were incapable of making use of the information collected by the assessment tools to give quality feedback for improving students' learning. Furthermore, teachers appeared to have little knowledge about peer assessment, self-assessment, and their crucial roles in developing students' "learning to learn" competence.

Pang's AfL-PDICE Model (2008)

Pang (2008) further elaborated the AfL concept and develops the AfL-PDICE model (see Figure 2). In the model, there are five stages, namely Planning, Designing, Implementing, Collecting, and Evaluating.

In the *planning* stage, teachers need to identify certain learning and teaching objectives before designing assessment

Figure 2. Pang's (2008) AfL-PDICE Model



tasks or activities. In *designing* the tasks, teachers should have a clear picture about the learning objectives of the lessons and set success criteria around these objectives.

During the *implementing* stage, teachers should share the learning objectives with students so that they can have a clear picture of what they are going to learn at the beginning of the lesson. Similarly, teachers should share the success criteria of the assessment tasks with students to

assist them to understand what they need to achieve, thus facilitating self-assessment and peer assessment after the task as well as enhancing their ownership of learning. In order to enhance AfL, teachers are required to use effective questioning techniques such as high-order thinking questions to encourage students to apply, analyze, synthesize, or evaluate their knowledge currently learnt. This also helps to reveal students' thinking processes and understanding so that teachers can make use of this evidence to target their teaching according to students' needs, and diagnose students' strengths and weaknesses during the learning process. Also, a culture of success should be advocated with the belief that each student can make achievements by building on their previous performance. This can be achieved by the quality feedback given by teachers through discussing with students about their strengths and weaknesses demonstrated in their work/performance, and through giving practical and feasible suggestions to help them make plans for further improvement.

For self-assessment and peer assessment, it is based on the belief that encouraging students to self-reflect on their own work can enhance learning. Once students understand how to assess their current knowledge and the gaps in it, they will have a clearer idea of how they can help themselves improve their learning. Thus, teachers should provide opportunities for their students to reflect on their own work. In addition, encouraging students to comment on the work of their fellow classmates is essential in learning since they can understand both the learning objectives and the task requirements (or assessment criteria) while evaluating others' work. Moreover, looking at different answers or responses can help students

understand the alternative methods they could have used for the task.

It should be noted that the *collecting* stage is not necessarily detached from the implementing stage as teachers are often required to collect evidence of students' learning by assessing both the learning product and the learning process through their observations in class, rating students' worksheets, reviewing students' self-assessment/peer assessment forms, and conferencing with students. Finally, in the *evaluating* stage, teachers can make use of the information collected by the assessment practice to form basis in evaluating how well the learning and teaching is being done and thus informing learning and teaching in their curriculum plan in the future (Pang, 2008, pp. 1–2).

Studies of the Practice of AfL in Hong Kong Classrooms (2009–2010)

Since AfL is an important component in learning and teaching, it is worthy to examine teachers' practice in adopting AfL teaching strategies in their daily teaching. This study aims at exploring teachers' habit in using AfL skills and techniques in 10 primary schools and 10 kindergartens participating in a school development project "From Assessment for Learning to Promoting Self-regulated Learning in Early Childhood Education (Kindergarten & Lower Primary Levels)" in Hong Kong. This two-year school development project was sponsored by the Quality Education Fund from September 2008 to August 2010, and was organized by the SDET of The Chinese University of Hong

Kong. The study is divided into two phases. The first phase is from May to June 2009 of the first-year intervention while the second phase is from April to June 2010 in the second year. During the study, an SDO from the SDET visited each project school and conducted lesson observations for one or two lessons.

The Pre-study in 2009

The pre-study was conducted from May to June 2009. The subjects were 29 teachers from 10 kindergartens and 10 primary schools in Hong Kong. During data collection, an SDO was assigned to conduct class observations (N = 29) in each project school to observe whether the teachers had used any AfL teaching strategies in the lessons. The SDO was required to rate the extent that teachers used the AfL strategies (e.g., informing teaching objectives, informing success criteria, effective questioning, observations, quality feedback, self-assessment, peer assessment, collecting learning evidence, and teacher reflections) in the lessons against a 5-point scale ("0" for not using the technique, "1" for weak, "2" for satisfactory, "3" for good, and "4" for excellent).

The result shows that teachers used AfL strategies more frequently in their lessons in 2009 (see Table 2) when compared to Pang and Leung's (2008) findings (shown in Table 1 above).

The Post-study in 2010

The post-study was conducted from April to June 2010

Table 2. AfL Teaching Strategies Used by Teachers of the Pre-study in 2009

AfL teaching strategy	Frequency of adoption (N = 29)
Questions that stimulate high-order thinking*	100.0%
Quality feedback*	100.0%
Peer assessment	79.3%
Informing teaching objectives of task(s)	79.3%
Informing success criteria of task(s)	55.2%
Self-assessment	24.1%

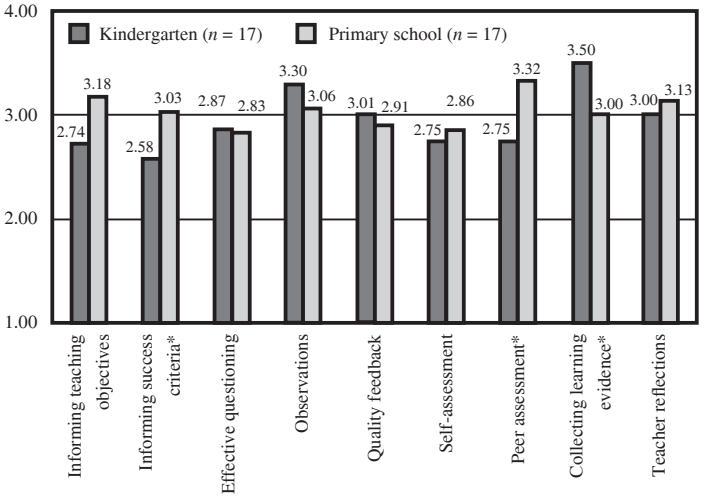
* indicates skills or techniques used at least 3 times per class observation.

during the second year of the project. The participants were 34 teachers from the 10 kindergartens and 10 primary schools mentioned above. Similar to the pre-study, one SDO was assigned to conduct class observations (N = 34) in each school to observe whether the teachers had used any AfL teaching strategies in the lessons. The SDO was required to rate the extent that teachers used the same AfL strategies during their observations against a 5-point scale as in the pre-study.

Comparison of AfL Strategies Used Between Kindergarten Teachers and Primary School Teachers in the Post-study

When comparing the AfL teaching strategies used between kindergartens and primary schools in the post-study, there is a significant difference ($p < .05$) between the primary school teachers and the kindergarten teachers in the use of "informing success criteria," "peer assessment" and "collecting learning evidence" in the lessons observed (see Figure 3). For example, primary school teachers outperformed kindergarten

Figure 3. Comparison of AfL Strategies Used Between Kindergarten Teachers and Primary School Teachers in the Post-study



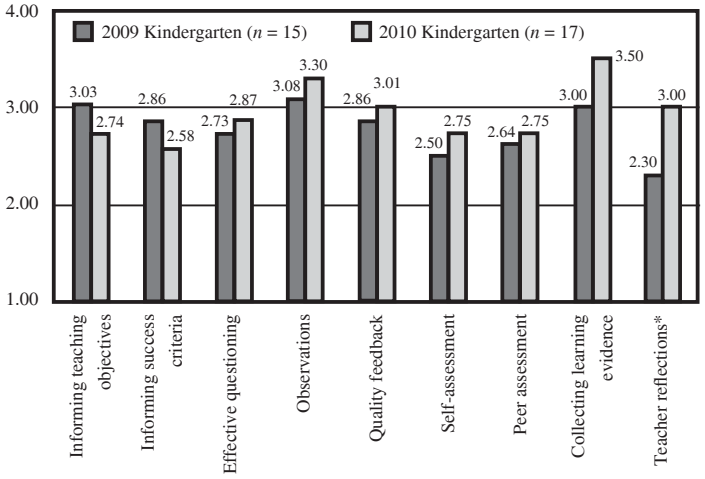
* $p < .05$

teachers in adopting the first two AfL strategies but were weaker than the latter in "collecting learning evidence" during the lessons.

Comparison of AfL Strategies Used by Kindergarten Teachers Between the Pre-study and Post-study

When comparing kindergarten teachers' AfL competence between the pre-study and post-study, there is a significant improvement ($p < .05$) in "teacher reflections," having a score of 3.00 (reaching the "good" level) in the post-study compared to 2.30 in the pre-study (only at the "satisfactory" level) (see Figure 4).

Figure 4. Comparison of AfL Strategies Used by Kindergarten Teachers Between the Pre-study and Post-study

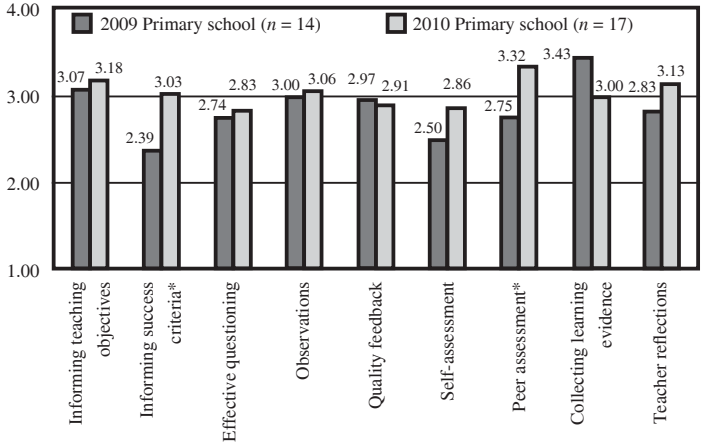


* $p < .05$

Comparison of AfL Strategies Used by Primary School Teachers Between the Pre-study and Post-study

Similar to the kindergarten teachers, all the AfL strategies were well adopted (see Figure 5) by the primary school teachers in the post-study (i.e., mean > 2.50). The data also shows that there is a significant increase ($p < .05$) in terms of "informing success criteria" and "peer assessment" during the lessons observed, indicating that the primary school teachers adopted these AfL strategies much more frequently in the post-study than in the pre-study. It is important to note that "informing success criteria" — the weakest part (a score of 2.39) in the pre-study that needed most attention and improvement, has become one of the well-utilized AfL strategies in the post-study.

Figure 5. Comparison of AfL Strategies Used by Primary School Teachers Between the Pre-study and Post-study



* $p < .05$

Discussion

The results of the present study indicate that all the AfL teaching strategies were well utilized (mean > 2.50) by the participating schools as a whole in the post-study, particularly in the areas of "observations," "peer assessment," "collecting learning evidence," and "teacher reflections" (mean > 3.00) (see Figure 3). For kindergarten teachers, there is a significant improvement ($p < .05$) in "teacher reflections" in the post-study when compared with the result in the pre-study (see Figure 4). Also, there is a significant gain ($p < .05$) in terms of "informing success criteria" and "peer assessment" strategies for primary school teachers during the post-study (see Figure 5).

It could be interpreted that the project has a positive impact on teachers of the participating schools through promoting the importance of AfL in classrooms. Also, through the training program and whole-school workshops in the project, teachers' awareness and competence of AfL strategies have been enhanced to a certain extent.

With reference to the quality assurance inspection annual reports (EMB, 2006, 2007; EDB, 2008, 2009b) that Hong Kong teachers are generally weak in using AfL skills in their daily teaching, it seems that the findings of the present study has yielded a rather different result. This discrepancy may be due to the fact that the two-year intervention is successful in cultivating an AfL teaching and learning atmosphere in the project schools. The training program, whole-school workshops and lesson observations among peer teachers may be effective in helping the participating schools to institutionalize an AfL framework in their daily practices, assisting teachers to understand the AfL principles and to acquire the necessary skills and techniques for planning and implementing AfL in their everyday teaching, as well as promoting professional exchange concerning AfL practice among the project schools.

It is interesting to note that primary school teachers are more inclined to share the success criteria of the task(s) with their students and incorporate peer assessment in their lessons than kindergarten teachers (see Figure 3). It generally agrees with Bailey, Huang, Osipova, and Beauregard's (2010) findings that teachers seem to provide explicit success criteria

for learning activities to older children more frequently than to younger ones. It can be interpreted that kindergarten teachers may perceive that it is rather difficult for them to explain the success criteria to younger children owing to the children's limited vocabulary. Similar reason may contribute to the significant difference in incorporating peer assessment between kindergarten and primary school classes, where kindergarten teachers may assume that the toddlers may not be able to make comments to their classmates' work or performance owing to a lack of vocabulary.

In terms of "collecting learning evidence" in the lessons, kindergarten teachers seem to use this AfL strategy much more often than primary school teachers (see Figure 3). It may be due to the fact that EDB (2009a) has stated clearly that kindergarten teachers should not use dictations, tests or examinations to assess young children's ability or performance. Instead, teachers are highly recommended to have assessments based on continuous observations, where evidence for students' achievement or progress made in various aspects should be collected or recorded. Thus it is rather legitimate for kindergarten teachers to incorporate this AfL strategy in their lessons than their counterparts. On the other hand, because of the large class size and packed curriculum, it is rather difficult for primary school teachers to make observations on individual students in class; therefore, they may mainly rely on test and examination results to evaluate their students' progress.

Although kindergarten teachers seem to collect learning

evidence in the class rather frequently, many of them reflected that they had experienced great difficulties in documenting/ complying the data in student portfolios for the following reasons:

- a lack of clear concept/rationale about student portfolio system;
- difficulties in selecting relevant data for record-keeping;
- a lack of data collection and reporting skills;
- increased workload in data collection and reporting during the course of teaching;
- difficulties in making meaningful use of the data collected to inform learning and teaching; and
- parents' misconceptions about the purposes of student portfolios and their roles in AfL.

A number of teachers even expressed a view that they had not been well-equipped with the necessary skills in integrating formative assessment activities/tasks in children's daily learning, nor in revising their teaching contents and schedule according to students' levels and progress owing to inadequate communication and professional exchange among teachers.

It is worth noting that the above findings generally agree with the *QA Inspection Annual Report 2005/06: Kindergartens*, which points out that although all kindergartens under inspection have been using student portfolios for recording children's development, only 17% are able to use student portfolios meaningfully and effectively to inform learning and teaching (EMB, 2007, p. 6).

Implications of the Study

The present study explores teachers' use of AfL teaching strategies in Hong Kong school settings. While the study pioneered a small-scale class observation in 20 kindergartens and primary schools, more large-scale and in-depth studies are needed to consolidate the findings of this preliminary study. Nevertheless, the findings of this study have various implications for early childhood education.

It is found that "informing success criteria" and "peer assessment" strategies are used less frequently in kindergarten classrooms. This results from teachers' assumption that young children may not have the competence to comprehend the success criteria of the task(s) given by their teachers and they may not have the vocabulary to express their comments about their peers' work. Hence, it is important to encourage teachers to share the success criteria verbally to the youngsters and demonstrate the task(s) to them so that they can have a clear concept on the task requirements. Where possible, teachers can select some samples of students' work from previous years and explain to the young children in what ways the samples are considered as a piece of good work. Most importantly, teachers should also teach their students the necessary vocabulary for peer assessment, which are supposed to be useful for students to describe or comment on others' work.

Additionally, the present study indicates that primary school teachers collect learning evidence from their students less frequently than their kindergarten counterparts. This

implies that primary school teachers may be overloaded with tight timetable and large class size. It would be feasible for the school management and curriculum designers to review the existing curriculum and make subsequent adjustments so that teachers can afford to spend more time observing students' progress for further informing learning and teaching.

Even though kindergarten teachers outperformed primary school teachers in collecting learning evidence, they experienced many difficulties in integrating the learning evidence or observation data in the portfolio system as well as explaining the rationale of the portfolio system to parents. Hence, there is an urgent need for the government and universities or educational institutions to organize professional development programs for practicing and pre-service kindergarten teachers. Parents should also be educated about their roles in facilitating young children's on-going development by making full use of the portfolio system. Klenowski (2002) and Taylor (2009) point out that adequate professional training and policy support to teachers from the government and schools are essential, since the majority of teachers are neither trained for nor familiarized with using portfolios and integrating the portfolio system into their existing curriculum.

Finally, the findings from this study show that both kindergarten and primary school teachers have generally demonstrated a considerable improvement in their AfL competence during the two-year intervention. It would be beneficial if similar professional development programs or

training sessions could be provided for practicing teachers as well as student teachers.

Conclusion

While this paper reviews the definition of AfL and its importance in learning and teaching, it also explores teachers' use of AfL teaching strategies in Hong Kong school settings. It further confirms Pang and Leung's (2010) findings that professional training and development are important for raising teachers' awareness and competence of AfL teaching strategies in their daily teaching. Also, through peer observations among fellow teachers with the assistance of SDOs or other professionals, teachers' AfL competence will be promoted to a certain extent. As Brown (2004) states:

> we need to keep abreast of new developments, evaluate tried and tested ones and experiment with our own initiatives, preferably within a supportive learning community of fellow practitioners. (p. 88)

It is hoped that the "learning to learn" capability of our younger generation begins to develop in their early childhood as teachers' awareness and competence of AfL strategies are further enhanced.

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