Education Research International

Self-Perceived Teacher Efficacy around the World

Guest Editors: Hoi Yan Cheung, Michael Bender, and Walter J. Lonner

Self-Perceived Teacher Efficacy around the World

Education Research International

Self-Perceived Teacher Efficacy around the World

Guest Editors: Hoi Yan Cheung, Michael Bender, and Walter J. Lonner

Editorial Board

Contents

Hindawi Publishing Corporation
Education Research International
Volume 2013, Article ID 826945, 1 page
http://dx.doi.org/10.1155/2013/826945

Editorial

Self-Perceived Teacher Efficacy around the World

Hoi Yan Cheung,[1] Michael Bender,[2] and Walter J. Lonner[3]

[1] *Department of Applied Social Studies, City University of Hong Kong, Hong Kong*
[2] *Department of Cross-Cultural Psychology, School of Social and Behavioral Sciences, Tilburg University, Tilburg, The Netherlands*
[3] *Department of Psychology, Western Washington University, Bellingham, WA, USA*

Correspondence should be addressed to Hoi Yan Cheung; hycheun3@cityu.edu.hk

Received 26 February 2013; Accepted 26 February 2013

The topic of teacher efficacy has always been an important area to research on. Different studies have shown the advantages of teachers having high efficacy; for example, they tend to stay in the career longer and students will achieve more when their teachers have high efficacy. This special issue investigates different antecedents that allow teachers to build this special efficacy, the level of teacher efficacy in different cultural settings, and will shed light on teacher efficacy using both quantitative and qualitative methods for investigation.

One of the studies in the special issue compared teachers with high efficacy and teachers with low efficacy in China and found that high teacher efficacy was related to better working memory (J. Tao, 2012). Furthermore, W.-H. Lam (2012) investigated the efficacy of teachers in Hong Kong who taught in the subdegree sector. A subdegree is a degree which students study after secondary school and before they enter university. Results found that it was important for teachers to increase their efficacy in the subdegree sector. L. Zunders-Fraser and J. Lancaster (2012) focused on the efficacy of preservice teachers before and after taking an inclusive education course in Australia. Results showed that when the courses had applied the embedded design principles, preservice teachers' efficacy improved significantly. There was also one study by W. Jiayi and C. Ling (2012) that scrutinized the evaluation of teachers in China and how a better teacher evaluation could help teachers in implementing improvements in the school context—which would ultimately enhance their efficacy. Finally, Y. Bouchamma (2012) applied different strategies in investigating leadership practices in Canadian schools. They found that with effective leadership practices, teachers were motivated and their confidence and efficacy were increased.

In a nutshell, the studies document the current search for effective tools for the enhancement of teacher efficacy. Across the studies included in this special issue, multiple areas were identified that allow for an enhancement of teacher efficacy. On top of that it becomes apparent that, while an actual comparative theoretical approach and empirical studies are missing in the field, teacher efficacy is a topic relevant across multiple cultural settings, as evidenced in the papers collected here.

In other words, this special issue strives to promote the importance of teacher efficacy around the world and to increase the awareness of educators about different ways of enhancing the level of teacher efficacy in their countries. By comparing our teacher efficacy with other cultural contexts, we hope to open an avenue for future research to develop insights that will help us understand more clearly how we can benefit from diversity and harness differences for the advancement of teacher efficacy.

Hoi Yan Cheung
Michael Bender
Walter J. Lonner

Hindawi Publishing Corporation
Education Research International
Volume 2012, Article ID 712149, 16 pages
doi:10.1155/2012/712149

Research Article

Leadership Practices in Effective Schools in Disadvantaged Areas of Canada

Yamina Bouchamma

Fondements et Pratiques en Éducation, Faculté des Sciences de l'Éducation, Université Laval, 2320 Rue des Bibliothèques, Québec, QC, Canada G1V 0A6

Correspondence should be addressed to Yamina Bouchamma, yamina.bouchamma@fse.ulaval.ca

Received 7 September 2012; Revised 4 November 2012; Accepted 6 November 2012

Academic Editor: Hoi Yan Cheung

Purpose. The purpose of this paper was to examine leadership practices in effective schools located in economically disadvantaged areas of three Canadian provinces: Ontario, Québec, and New Brunswick. *Research Design.* Our study was conducted in five successful schools selected on the basis of student outcomes on province-wide standardized exams, as well as on some risk factors such as rural area, low socioeconomic level, and proportion of Francophones (Ontario and New Brunswick). To increase the study's validity, we used triangulation and various data sources: (1) individual interviews; (2) observation of school principals; (3) field documentation; (4) student essays; (5) internal school documents such as mission statement, rules, and directives. *Participants.* Participants included Department of Education heads and school board administrators, school principals and vice principals, teachers, school counsellors, educational psychologists, parent school board members, and students. *Findings.* Results show that leadership practices in effective schools can be grouped together around five dimensions: establishing goals and expectations; strategic resourcing; curriculum planning, coordination, and evaluation; promoting and participating in teacher supervision and development; ensuring order and support.

1. Issue and Context

The purpose of this paper was to examine leadership practices in effective schools located in socioeconomically disadvantaged areas of three Canadian provinces: Ontario, Québec, and New Brunswick. The identification of effective leadership practices could be useful for the professional development of school principals who must overcome the socioeconomic and cultural determinism of students in these disadvantaged areas where the improvement of academic success for all remains a permanent challenge. Before the presentation of our results concerning the effective practices of our participants, we will present the three contexts of the study (Québec, NB, and Ontario), the literature related to leadership effect and effective schools, the theoretical framework of the study regarding the leadership effect on academic success, and, finally, our methodology.

Similar to the United States, with its "No Child Left Behind" policy predominant since 2001, Canada is also committed to the academic success of all of its students. This study addressed leadership practices in effective schools located in three Canadian provinces: Ontario, Québec, and New Brunswick. Despite being located in socioeconomically disadvantaged areas, these schools reported good outcomes in core subjects (mathematics and French) in their respective provincial standardized exams. In this particular context, reforms are not always a panacea, and social conditions can sometimes amplify the challenges which teachers face on a daily basis [1, 2].

An increasing number of authors emphasize the importance of applying teaching practices that have been proven effective [1]. In this regard, research on effective schools has shown the effect of leadership, educational methods, the monitoring of students' progress, as well as operational expectations and requirements for all students [3]. Despite the research on this subject, many authors maintain that the most complex changes in terms of school reforms are still in the *black box* [2]. While the positive effect of effective

leadership on student achievement is an established fact, the way in which this leadership can make a difference, the degree of its effect, and the essential ingredients of an effective leadership are yet to be explored [4]. This study examined these leadership practices in three provinces where the academic achievement of every student continues to be a concern.

1.1. Academic Success in the Three Contexts. Improving public education and student achievement were top priorities for the Ontario Government during its 2004 and 2008 mandates [5]. In its plan entitled *Leading Student Achievement* [6], the objectives were, among others, (a) to provide principals with the necessary means to help their teaching staff with their less successful students and (b) to conduct studies on effective schools in the Ontarian context based on the leadership effect on student achievement [4]. In other respects, the Office for Quality and Responsibility in Education (OQRE) contributes to improving the quality of education in Ontario. In addition, the Literacy and Numeracy Secretariat assists school boards to improve student outcomes. In this regard, a team of student achievement agents was designated to meet the province's objectives which were the improvement of their students' learning and performance in literacy and numeracy.

With its education plan entitled *When Kids Come First* (2007), New Brunswick laid down specific guidelines to improve student achievement involving all levels concerned by this particular issue. The province continued to refer to the broad lines of this program when the Canadian Council of Ministers of Education published the results of the national assessments, in which New Brunswick came last on the list, and recently, government officials mentioned measures on improving Francophone students' scores in literacy, numeracy, and sciences.

> *In light of New Brunswick's repeated low outcomes on international and national assessments, we must act urgently and at an age as early as possible to place the emphasis on school readiness, which will guarantee success in school and in life [7].*

In Québec, the government provides the school system with official state-sanctioned administrative authorities to improve academic success. For example, the *Conseil Supérieur de l'Éducation* provides guidelines on education-related issues, analyses in this area, and programs such as the *Stratégie d'Intervention Agir Autrement* focusing on improving student performance in socioeconomically disadvantaged areas. Each aspect of this program focuses on this improvement process through orientations, objectives, adaptation of practices in schools and classes, and so forth. One of these objectives is to reduce school inequalities relative to students' socioeconomic status [8].

2. The Literature

2.1. The Leadership Effect and Effective Schools. Many studies have examined the effect of leadership on students' learning and achievement [9–11]. One group of authors considered this effect to be second only to the teacher's effect [4, 12]. Studies on school success should be the cornerstone for any investigation on educational leadership and its effects on student outcomes, as leadership is a significant characteristic of effective schools. The leadership effect is considered to be indirect, with an impact stemming from many sources: the staff's motivation, dedication, and working conditions, the distribution of power among all of the actors involved in the school [12, 13], and the school's organisation and culture (Wahlstrom, 2004; [4, 14, 15]).

In their meta-analysis, Robinson et al. [14] showed that the impact of instructional leadership on student outcomes was three to four times greater than that of transformational leadership. Along the same lines, Anderson [16] demonstrated that the best outcomes in mathematics and language were linked to an instructional leadership, which has been part of the school culture for years. This kind of leadership focuses on providing evaluation and support for students, with particular emphasis on the promotion of academic events in the community [16].

Studies have produced different ways to categorise the topics. For example, the study by Silins and Mulford [17] on leadership in "learning-organisation" high schools revealed six dimensions pertaining to leadership practices that promoted organizational learning: (1) vision and objectives; (2) culture (the principal is committed to build a nurturing and trusting environment for staff and promot staff/student respect); (3) structure; (4) intellectual stimulation; (5) individual support (the principal provides moral support, appreciation, and constructive feedback); (6) the expectation of results.

Among effective leadership practices, other studies combine various factors such as success-oriented behaviour, transformational leadership, a preference for education-related tasks, staff principal, and effective time management [18]. School leaders can stimulate student performance daily on several levels: providing professional development for their teachers, responsibly delegating, encouraging empowerment, acknowledging responsibilities, expressing clear objectives and expectations, facilitating instruction, and effectively welcoming change [19]. Leithwood et al. [4] grouped effective leadership practices together into three categories: (1) established orientations, (2) staff development, and (3) reorganisation. Deemed to be at the heart of an effective leadership, these practices, although necessary, do not suffice in every situation. Hallinger and Heck [20] proposed a different categorization: (1) goals, (2) persons, and (3) structures and social systems.

In this particular domain, one the most exhaustive studies on effective leadership practices is from Robinson et al. [14]. In their meta-analysis on effective leadership practices, Robinson et al. [14] demonstrated five dimensions: (1) establishing goals and expectations, (2) strategic resourcing, (3) planning, coordination, and evaluation of teaching and the curriculum, (4) promoting and participating in teacher development, and (5) ensuring order and support. In the next section, we present a review of these five dimensions from investigations of the leadership effect on academic achievement.

2.2. Establishing Goals and Expectations. Leadership can make a difference on student performance with an emphasis on well-defined academic and learning objectives [21–23]. Leaders in effective schools tend to focus more on communicating goals and expectations [23, 24] and informing the community about student achievement [23]. In effective schools, there is also a higher level of consensus among staff members regarding the school's mission, compared to the level observed in less effective schools [25]. These goals are integrated in the classroom routines and procedures [26]. In addition, effective principals are more likely to involve their teachers in decision making processes on education issues [24, 27]. Among the predominant characteristics related to school performance are the monitoring of the students' progress [3] and the importance of establishing clear goals that are prioritized [11].

2.3. Strategic Resourcing. Few studies have examined the subject of strategic resourcing, although one did find, in contexts of high academic success, a reciprocal link between the school leader's established goals and the number of teachers hired by this principal [22].

2.4. Planning, Coordination, and Evaluation of Teaching and the Curriculum. Leadership in effective schools is characterised by an active supervision and a well-planned curriculum [23]. To get results, these leaders involve their staff in setting goals [23, 24, 28] and participate actively in discussions with their peers on education-related issues [23]. In addition, they strive to establish a system and an environment that is conducive to improving both teaching and learning and welcome the participation of teachers and the school community in the decision making process. To improve student achievement in a school-based management context, two conditions are necessary: empowerment and leadership ([17], page 655).

2.5. Promoting and Participating in Teacher Development. The more teachers talk about the active involvement of their superior, most often the school principal in their professional development, the better the student outcomes [21]. Teachers in effective schools often mention the participation of their principals in informal discussions on problem-solving issues in teaching [23, 24]. In so doing, these leaders have a key role in the school's communication network, which means that their advice is more likely to have an impact on the coordination of efforts in the school community [29].

2.6. Ensuring Order and Support. According to Robinson et al. [14], leadership in effective schools is characterised by an emphasis on establishing a secure and supportive environment that involves clear social expectations and codes of conduct [23]. In these effective schools, teachers consider leadership to be successful when it protects them from undue pressure from outside sources such as education officials and parents [23, 30]. The effective leader has the skills to quickly identify and resolve conflicts before they get out of hand by ensuring order and by providing a nurturing environment, where conflicts among the personnel are rapidly and effectively addressed [31].

3. Theoretical Framework: The Leadership Effect on Academic Success

For the elaboration of our theoretical framework, we were inspired by the study from Robinson et al. [14] on leadership and student achievement.

3.1. Dimension 1: Establishing Goals and Expectations. Effective leaders not only determine the appropriate goals but also clearly communicate them to their staff and enlist their commitment to achieving these goals. Attention is also given to ensure a followup. The effective leader welcomes input from staff members and gets them involved in the goal-making process with proper consensus and clarity.

3.2. Dimension 2: Strategic Resourcing. The word "strategic" signifies that the school's principal screens, hires, and mobilises resources around the school's established educational goals. This dimension in no way refers to the leader's abilities in terms of fundraising, grant proposal, or business partnership activities.

3.3. Dimension 3: Curriculum Management. Leaders in effective schools distinguish themselves by their personal involvement in planning, coordinating, and evaluating the curriculum. The four interrelated subdimensions regarding this factor are (1) the leader's active participation in discussions related to education-related issues, (2) the leader's collaboration with staff in reviewing and improving the level of teaching, (3) the leader's level of involvement in in-class observations and the required followup, and (4) the leader's commitment to make sure that their teachers systematically evaluate their students' progress.

3.4. Dimension 4: Teacher Supervision and Coaching. Effective school leaders not only encourage professional development among their staff but also participate in these activities as leader/learner in both formal and informal discussions. They are committed to their staff's professional development and improvement and are thus more likely to be perceived by their staff as a source of reference in education, which suggests that they are more accessible and knowledgeable of such issues.

3.5. Dimension 5: Ensuring Order and Support. Effective leadership centers on establishing a secure, supportive environment through a clear code of ethics and expectations. Teachers' academic and professional training activities are prioritised and protected from undue stress from external factors. This principal also creates a well-organised, nurturing environment both in the classroom and in the school itself, where the teachers feel safe, at home, and appreciated.

4. Methodology

The methodology used in this study was inspired by the educational ethnography tradition whose goal is to describe beliefs, values, and practices of cultural groups and individuals in a given social context [32]. The educational ethnography perspective enables the researcher to understand the complexity of the underlying cultural and psychosocial forces in a specific situation and the relationship between the various elements involved in this situation. Each aspect finds its meaning in the context of a global structure, which is why understanding these various elements may be arduous if the context is not taken into account [33].

4.1. Participants and Data Collection Methods. Our study was conducted in five successful schools (1 to 5) located in socioeconomically disadvantaged rural areas of three Canadian provinces (Ontario, Québec, and New Brunswick). The schools were selected on the basis of student outcomes on province-wide standardized exams, as well as on some risk factors such as rural area, low socioeconomic level, and proportion of Francophones (Ontario and New Brunswick). To increase the study's validity, we used triangulation and various data sources [34, 35]: (1) individual interviews, (2) observation of school principals during a workday at school, (3) field documentation, (4) student essays, and (5) internal school documents such as mission statement, rules, and directives.

Semistructured interviews were conducted with each participant who was asked to express their views regarding their own practices as well as those of their principals. Each interview lasted between one and two hours and was recorded and transcribed. The school principals were interviewed using a method that enabled them to identify and to define their professional experience so as to better understand these practices [36–38]. Interviews were conducted with school principals (SP) ($N = 5$), managing directors of education (MDE) ($N = 4$), directors of education (DE) ($N = 2$), their assistants (ADE) ($N = 3$), teachers (T) ($N = 46$), school counsellors (CO) and psychologists (PSY) ($N = 7$), parent committee members (PCM) ($N = 11$), and students (S) ($N = 265$). School principals and vice principals spoke of, among others, management practices and their school's social climate. The managing directors of education, directors of education, teachers, school counsellors, and educational psychologists talked about a variety of topics: practices, perception of their role, perception of academic success, challenges they must face on a daily basis at school and the means they use in order to cope with these challenges, and relations with actors of the institution (staff, students, etc.) or linked to the institution (family, community, etc.). Parents expressed views on such topics as school management practices, their own practices, school social climate, and so forth. The students were asked to write an essay in which they described their school to a fictitious correspondent who would be attending their school the following year.

In Québec, the disadvantaged segments of the population were selected with what is referred to as the *indice de défavorisation* (MELS), where every school is classified on a scale from 1 to 10, from the least to the most disadvantaged. For Ontario and New Brunswick, we used the Statistics Canada databases and selected item *income of area households*. For all three provinces, student outcomes in French and mathematics were considered and had to show a progression over the three years preceding the study. The school principals had to be in residence for at least three years. The study was evaluated by the Ethics Committee for Research on Human Subjects to ensure participant anonymity and data confidentiality.

4.2. Data Analysis. The transcripts of the interviews, observations, students' essays, and field notes were analysed with Atlas.ti (V 5.5) qualitative data analysis software. The coding was mainly elaborated with the categories of our theoretical framework, but we let the door open for emerging categories [39]. We have been in the obligation to make the following changes to the dimensions of Robinson et al. [14] after a close examination of our data: only curriculum in dimension 3 was used, and we framed dimension 4 with respect to teaching and the supervision of teaching staff. There were no changes for dimensions 1, 2, and 5, namely, (1) establishing goals and expectations, (2) strategic resourcing, and (5) ensuring order and support. As seen in Table 1, dimensions 3 and 4—(3) planning, coordination, and evaluation of teaching and the curriculum and (4) promoting and participating in teacher development—became, respectively, (3) curriculum management and (4) teacher supervision and coaching.

Once the data were coded, compared, and analyzed, we then considered the five dimensions of Robinson et al. [14] with a few changes to avoid the overlapping of topics during their categorisation, which regarded teaching as well as the curriculum.

Subtopics were developed from the content of each dimension, and we completed the five dimensions as needed with an approach centered on our data [40]. Phase one of our study centered on developing a descriptive table showing the most obvious practices used in each school, while phase two focused on the analysis of each individual case according to the different topics. Finally, general conclusions were drawn following a comparative analysis to identify the primary topics and commonalities. A sample from our data was coded by three persons. We then applied the principle of reliability by intercoding (between the three persons) and intracoding (to ensure the stability of each one within a specific time frame) [41].

5. Results

Our analytical framework is an adaptation of the Robinson et al. [14] study on leadership practices and effective schools. We identified five themes linked to leadership practices in the effective schools under study: establishing goals and expectations; strategic resourcing; curriculum management; teacher supervision and coaching; ensuring order and support.

Table 1: Dimensions of Robinson et al. [14] with modifications.

Robinson et al. [14]	Our framework
(1) Establishing goals and expectations	Idem
(2) Strategic resourcing	Idem
(3) Planning, coordination, and evaluation of teaching and the curriculum	(3) Curriculum planning, coordination, and evaluation
(4) Promoting and participating in teacher development	(4) Teacher supervision and coaching
(5) Ensuring order and support	Idem

5.1. Establishing Goals and Expectations. In order to set definite goals and expectations, the school team develops a plan involving (1) strategic planning, (2) annual operations planning, (3) progress reports, and (4) plan adjustments.

5.1.1. Strategic Planning. The teams responsible for the various programs establish their respective strategic plans. For example, the remedial education team lays down the goals and expectations of their program as follows:

> *For students who are experiencing learning difficulties, we have a team in remedial education that provides solutions to meet the needs of these students. We must have high expectations for these students, but we must also provide the appropriate solutions they need (5.SP)*

> *At the beginning of the year, the school leaders establish clear goals and expectations and communicate them to the staff: "The first thing to do is to know where you go, a good idea regarding where you want to go, and to communicate this message clearly and precisely" (5.SP)*

The following is another reference to this kind of planning:

> *When they develop their global orientations, the team has a meeting. They have regular meetings where they discuss, think about the vision and the core orientations to adopt. This is probably where they do their planning. The school principal helps his vice principals and makes sure to put the plan they have elaborated together into action (5.DE)*

To ensure that this work is feasible, strategic planning development is linked to school planning, past achievements, and the different requests made by stakeholders as follows:

> *When the time comes to draw up the plan, it's often more than just jotting down on paper something that reflects the goals already established for the year... There are other things coming from the school council... to see what we have and to try to make sense of it all (1.SP)*

> *The school principals stated that they try to optimise available resources and set goals to help maintain a level of enthusiasm among their staff. "You must help your teachers to want to or get them to tell you how to improve the situation" (1.SP)*

5.1.2. Operations Planning. Following the drawing up of the strategic plan, the team meets with the teaching and nonteaching staff to discuss and validate whether the plan is operational and feasible.

Involvement of Teaching and Nonteaching Staff. School heads and team leaders begin by drawing up an initial draft of the plan. To validate its feasibility, the teachers then participate in the process of establishing priorities and strategies as follows:

> *In the last few years, we have sought to determine which domain should be our focus. The principals and team leaders then produce a draft along the global objectives they wish to achieve. Afterwards, with the teaching staff's collaboration, we try to see how we can reach our goals using those strategies (4.SP)*

Presenting the Plan to Parents and Students. This improvement plan is related as much to the students' behaviour as it is to their academic success. The plan can also be used to establish the expectations of the students and is presented to them as clearly as possible to guarantee their commitment to the process. "The more this is explicit, I think, the more the student is able to be involved because he understands exactly what the expectations are" (1.ADE).

Staff and parents involved in the school's parents' committee are generally well informed of the quinquennial plan and the improvement plan for the new school year, and they receive the necessary feedback. Teachers meet with parents on opening day to present what the school expects from them as follows:

> *At the beginning, we have an "open house" where parents can come in and meet their children's teachers. In so doing, the teachers have the opportunity to do a general presentation of their objectives and, most importantly, the class regulations (4.SP)*

5.1.3. Progress Reports. Principals in effective schools speak of the goals to reach while taking into account the government's policy. "It would take someone who could say, 'This is where we are headed. We have Department-established goals and we must work toward achieving these goals. So this is where we have to go"' (1.SP).

In order to control what works and what needs to be improved, effective principals do student followups at least once a week. "And every week, we check what we have

achieved in the last week; how they are doing. We check each and every case" (1.ADE). When there are poor results, the principal meets with the student in order to help the latter to set their priorities as follows:

> *At the end of the semester, if the students fail in the core subjects, they meet with the principal who explains that it does not work like that in real life, that this is perhaps the time to start working and get their priorities straight for the future. If your priority is "I don't want to finish high school", this is not a good start. Or if your priority is "I want to finish high school", maybe it's time you established your priorities (3.T2)*

The school principals' supervisors acknowledge the work done with their staff and the fact that their team is involved in the plan's followup as follows:

> *He regularly talks about his school's mission, the expectations of the school and the expectations of his staff. What he also does, with his experience, is be able, with a group of people, to analyse and dissect. He tries to develop new approaches that will help him maintain or improve the students' performance. This is what he does with his teams (1.DE)*

One principal emphasized that it is important to often remind staff of the goal of academic excellence as the following:

> *As a school director, you must understand that you will be criticized. You just have to keep reminding them. Our priority remains the students' achievement. This is what we are all working toward, and for this reason this is what I ask of you (1.SP)*

Another school principal pointed out the importance of often going over the plan with the staff to keep them informed as follows:

> *If I want my message to get through, if I want to make sure that they know where we are going, our plan is our bible. It's there to guide our actions. For teachers who have been here for 5, 7, or 10 years, I think they understand where we are going. The greater the rotation in the staff, the more you must keep working on your plan (5.SP)*

School principals must reply to their district, and the same holds true for teachers who must report on their students' scores on provincial exams. When teachers get the results, they seek to improve the situation. "I always get them [the results] in September, October. How did my students do? How can I help them to improve? We discuss this a lot" (3.T2).

5.1.4. Plan Adjustments. Throughout the year, the team evaluates the plan, and adjustments are made throughout this period. The plan is therefore considered as a guide that can be both questioned and improved as follows:

> *For me, as principal, this plan is an essential tool. I look at it a few times a year with my staff. We take a half-day to assess the situation and develop a new plan in May. From there, we get feedback and we make adjustments according to what worked and what did not (5.SP)*

> *I think we have developed a vision as well as clear goals to evaluate the factors that help our students learn. We also do regular reviews, which is the principal's job. Each time we look at it to see if we have reached our goals or if we need to proceed differently to do better (5.CO)*

5.2. Strategic Resourcing. Strategic resourcing involves staff selection, hiring, and mobilisation.

5.2.1. Staff Selection and Hiring. While school principals do not have that much to say as to the selection and hiring of their teaching staff, some strive to secure the best possible candidates. "I know that in terms of the recruitment of new teachers in past years, we made it a priority to get the best ones available" (5.SP). This participant added that in addition to selecting new staff, he does not hesitate to let go of those who are not up to par as follows:

> *When I arrived, I had to let some members of my staff go, which is not an easy process. I laid off a secretary who worked at my school for 30 years. This is the message I wanted to convey. If you are not up to the task, you will not remain on my staff. There are teachers who have worked at my school for six years and I refused to give them a B contract. I told them: "If you want to give a B contract to this person, you will have to send her to another school." If there are teachers from other schools who want to come here, I will screen them (5.SP)*

The principals emphasized that they surround themselves with a good team and delegate tasks to the right persons. "Among other things, you have to surround yourself appropriately, delegate appropriately, and make sure that the right persons manage the right issues" (1.SP). Parents also felt the same. Their children's principals select their staff well and know the importance of a strong support team. "Regarding his teaching skills, I think this is someone who knows how to be well-supported. He has been able to connect with the vice-principal, who was already at the school" (2.PA). The principals' superiors acknowledge their particular ability to optimise resources. For example, an education official explained that a school principal had to reduce from ten to four the number of administrative staff with responsibilities (PAR) in order to cope with the needs related to teacher supervision. "At that moment, the principal's role is certainly to support these people with what they have to do in their own sector. These principals are leaders who show that they are taking very good care of their school" (5.DE).

5.2.2. Staff Mobilisation. Leadership in effective schools uses four levers to mobilize their staff: information, power, knowledge, and recognition.

Information. In effective schools, principals continuously share information with the various contributors. For example, the staff is very well informed regarding every aspect of their work. "In the beginning, he did a presentation of the project. We were given that information…" (5.T4). By receiving the same training, or when one member gets training and shares it with their peers, everyone is on the same page and speaks the same language, which greatly facilitates communication. Another teacher remarked the following:

> *Our principal accumulates the information as the core source of reference, and there are teachers who will become multipliers with their peers. It makes it easier to share the message, and we have the same view. We will have different strategies (1.T5)*

Empowerment. Leadership in these effective schools focuses specifically on new teachers. The MDEs and DEs emphasized the fact that principals know how to help new teachers cope with their responsibilities and perform with greater autonomy.

Knowledge. Effective school leaders are able to guide their teachers to acquire knowledge related to their work. They encourage them to see out the appropriate training to improve their capabilities. In so doing, the teachers are better equipped to help their students improve their scores.

Recognition. The teachers mentioned that while their principals only rarely intervened with teachers who stray from the school's culture, they often took the time to acknowledge the quality of their staff's work as follows:

> *Yes, at this particular level, the principal remains available, although there is no formal evaluation. It's not just a slap on the hand, you could say. There is also the friendly little tap on the shoulder that means "Keep up the good work, you are doing well." We also get that and it makes you feel good (3.T3)*

Teachers appreciate the fact that their principals show their appreciation of their work. "The principal values these projects as well as my students" (5.T9).

> *I feel the principal believes in what I'm doing. He sees my commitment to my work and the tasks that I consider priorities. When they give me new duties, they always ask me… I'm entitled to have my say and I always get feedback on what I am doing, and vice versa (5.CO)*

5.3. Curriculum Management. Improving the curriculum is a team effort often supervised by the principal. When duties are delegated, the designated teachers receive the proper support. Any changes to the curriculum are preceded by a thorough student needs analysis.

5.3.1. Team Work to Improve the Curriculum. Principals and teachers work together on the curriculum. In one school that had begun integrating a guidance approach in its programs, the principal and teachers collaborated to initiate projects that involved in-class activities as follows:

> *We have a committee with ten teachers for this approach. I head this committee. Our goal is to move forward with this and to initiate projects. We are providing training and activities for the teachers which they can do in their class (5.SP)*

Effective principals also delegate duties pertaining to the curriculum and provide their teachers with the appropriate support. They focus on more than just the contents, for example, a new course on learning strategies for students who have failed some of their courses. The principals took the initiative with this new course and identified the material and human resources necessary to develop it. "They [the principals] decided to offer this new course. They initiated the project. The role they have to play remains important, in the sense that they asked me to teach this course" (1.T4). The principals therefore provided the appropriate support to the person responsible for this course. "But I've received a lot of support from the vice-principal. I can always see her and she helps me all the time. She gives me suggestions" (1.T4). "He was a bit my expert in this project and gave me one hundred percent support. He even came in the morning I had a class and observed me the entire period. He was really happy with the project" (5.T4). Moreover, the effective principal remains open to what is going on elsewhere and occasionally provides help for at-risk students from other schools as follows:

> *In our school, for a couple of years now, we've had courses for area students who are experiencing difficulties. The principal was very open to welcoming these students, searching for the services they needed, things like that, to set up (5.SP)*

5.3.2. Empowerment of Teachers. The teachers actively participate in the development of programs and various committees as follows:

> *Our staff is also involved in every possible committee at the provincial level, at the Department of Education level, as well as on the committee in charge of program development. At the high school level, we have just experienced reforms along with new programs (5.SP)*

5.3.3. Evaluating and Responding to the Students' Needs. Principals in effective schools propose changes and adjustments to adapt the curriculum to the students' needs to ultimately achieve better results. The participating principals enumerated many such actions, such as transforming a noncompulsory test into a test where the outcome counted

in order to motivate the students and creating a voluntary remedial class for 8th grade students with poor grades to help consolidate certain core concepts.

The principal's practice therefore centers on finding appropriate solutions to the inadequacies within their environment. Such is the case, for example, in regards to help with homework; the principal looks at the students' records, determines the needs, and introduces a new project to respond to these needs. The principals interviewed did acknowledge, however, that to a certain extent, help with homework is limited by the family context as follows:

> *Parents have trouble helping their children with homework, and all of that. So, as the principal, there is no question that we keep an extremely close eye on the students' record.... So we encourage a lot of remedial classes during lunchtime (2.ADE)*

To reach this goal, the community is invited to contribute to raising the students' level of competency. For example, the *Caisse Desjardins* provides financial support for students tutored by their peers. "We initiated with Desjardins its *Desjardins Mentoring Project*, whereby students from grades 4 and 5 are paid by Desjardins to help their younger peers who are experiencing difficulties" (2.ADE).

5.3.4. Integrating New Services. Principals do not limit their actions to reorganize weekly schedules but also introduce new services to help with students' needs in mathematics. "We have just introduced the Saturday school... Our focus is first and foremost in mathematics for this year. But it could be extended to other subjects later" (2.ADE).

5.3.5. Review and Improvement of Curriculum Schedules. Effective principals review course schedules for optimised results. One experience mentioned pertained to linguistic skills which were introduced gradually in chronological order to obtain better scores on the linguistic skills test as follows:

> *We were talking about the fact that we would like to see all of our 10th graders at least at a level equivalent to the beginning of their 10th grade course before they pass the test. We placed all of our French courses in the first semester for the 10th graders... so our students finish the 10th grade French courses before they do the test in March (1.SP)*

The approach is personalized to meet individual needs, such as, for example, with students who require assistance in mathematics as follows:

> *With the reforms, we also managed to maintain our support in mathematics for the 7th grade, which means that we took out two periods in arts for students with learning difficulties in mathematics in order to give them two additional periods in math. So, with these two additional math periods, remedial class at lunchtime, Desjardins mentoring.... We think the children have a better chance of succeeding (2.ADE)*

5.4. Teacher Coaching (Supervision). This aspect could be divided into two subtopics: differentiated teacher supervision (according to their needs) and professional development strategies. New teachers are a top priority. The interviewed teachers spoke of the support they received from the principal at the beginning of their career by helping them with in-class discipline or being present in the absence of any real social network. "When you first arrive and you're not from the region, you do not know this particular culture.... The principal meets you a bit more often to check on how the things are going" (3.T2).

> *Another teacher's account was similar to what was mentioned by some of the principals as follows:*
>
> *The teaching staff at X high school is also very, very young. Despite this situation, he has been able to provide coaching and supervision and has made sure that his staff is appropriately trained for what they have to do (1 and 5.MDE)*

5.4.1. Differentiated Coaching. As school principals do not have much say in the selection of their teaching personnel, they choose to focus on their teachers' professional development in both formal and informal training activities.

Supervision by the Principal. The teachers undergo a formative evaluation aimed at improving their skills. The teachers themselves identify their needs regarding supervision and base their requests accordingly as follows:

> *I won't call it evaluation. Let's say, I'll call it coaching. The door of the principal's office is always open for students and teachers who are having difficulties. But you know... This is not a formal evaluation. We do not get a paper with how to succeed. On the other hand, we do get good feedback (3.T2)*

The teachers emphasized the importance of their principal's feedback following in-class observations which enables them to put their actions into perspective. "I appreciated these suggestions because sometimes we get so stuck in our routine that we do not notice what we are doing wrong, or what we can improve" (1.T1). Some teachers mentioned that they made changes following their discussions. "I made a few changes, positive ones, small changes which I as a teacher would have never seen" (1.T7).

Self-Evaluation and Expert Training. Other types of evaluation are proposed. Teachers in effective schools are encouraged to identify their needs and convey them to the principal who then follows up with them. The teachers felt that their principal backed them up in their projects whenever possible. "I always got the support I needed for the activities that I wanted to do" (5.T5).

Another participant spoke of this support by the principal as follows:

> *At the beginning of the school year, each teacher has an individual plan. It's an annual plan, a sort*

of inventory of their training needs which they submit to us. From this, we can better identify some of their needs. But a lot of it is also informal. People come and talk to us (1.SP)

Effective leaders encourage their teachers to think about their practice (reflexive practices). In this regard, they are supported by the PAR as follows:

Myself, as school principal, to allow them to grow, I do a lot of reflexive activities at the personal growth level…. I have a team with me, pedagogical professionals with administrative responsibilities (PARs) who will help their respective team grow (5.SP)

Teachers seek training to help meet some of their students needs. They identify their needs, formulate them, and justify them before the principal to receive good feedback from them and obtain expert help from outside. "In other words, it's all about preparing teachers to meet the program's objectives in different ways. We found that this was a relevant way to do so" (4.SP). Various types of professional development are envisaged. When internal resources do not allow for training by peers, the principals welcome outside help. "In other words, we occasionally invite a guest speaker to come in for group discussions with our personnel, the teachers in particular" (3.SP).

On the other hand, the principals are encouraged by province heads to attend their teachers' training activities so as to train themselves regarding the various aspects that they must evaluate with their teachers. "Well, for me, I hope that our school principals participate in the same pedagogical training sessions as the teachers, to be better able to evaluate them" (2.MDE). This view is well received by both principals and teachers as follows:

The message gets across much better this way. And we also have the same vision. We are going to have different strategies. So as in this case, this is something that the principals here do a lot. It's really great (1.T5)

Peer Supervision. Teachers often present their training needs informally. In each case, the need for training may be addressed by internal resources (peers) or by external experts. "What we try to do is to provide training where staff members share their expertise with others" (1.SP).

5.4.2. Means Used for the Teachers' Professional Development. In general, several means are deployed to support professional development.

Resource Availability: A Prerequisite. Effective principals ensure the availability of resources to support their teachers with their proposed projects. "… the principal, when they know that a project is to be brought to fruition, is able to support it as long as it's clearly defined and well-presented" (5.T5).

Principals can occasionally lessen a teacher's workload for professional development purposes to enable the latter to reflect on the goals reached and the work ahead. This is highly beneficial as it encourages discussion and strengthens the bond between principal and teacher as follows:

We allowed teachers one full afternoon with me, and we talked about reform…. What was going well? What did they feel they should continue to work on? What was bothering them? What did they find tiring? What questions did they have? They really appreciated it (2.ADE)

Teachers are also allowed to attend training sessions that are tailored to their specific needs. The principals are aware that their teachers cannot train themselves if they are not relieved of their duties as follows:

I find that it is taxing for teachers when schools continue to function and they must leave for training…. In these cases, the teachers feel more relaxed, are ready to work harder, and do not have to worry about the whole question of their replacement (4.SP)

Supervising Supervisors. Although their teachers are peer-evaluated, the principal does the necessary followup with the supervisors to oversee their professional development as follows:

It's the role of the principal to see to it that their teachers are evaluated and that feedback is given in a reasonable amount of time, and that the follow-up be done later to see if the teacher has improved (4.T8)

The Department officials reiterated that the school principal was responsible for the whole aspect of supervision and that they remain in charge even when delegating duties to a third party: "People must certainly let him know what is going on. But each sector must see to providing the best quality in terms of the students' learning" (5.DE)

Collaboration between Teachers. During PD days, the principals train their teachers on the job using a collaborative approach by going over norms and procedures. Teamwork is encouraged as follows:

And so, we favour professional development days to enable teachers to meet. I have made presentations to each sector to familiarise them with what teamwork is, what work method should be used, the work norms and an order of the day model" (1.ADE)

Nonjudgmental support is provided. Teachers who express their difficulties do not feel judged, as one teacher testified, with regard to class principal as follows:

Mr. X helped me a lot, especially in the beginning. He is always available, we often see him in

> *the hallways. So when there is a matter we would like to discuss, he is available to meet with us. Because he knows the students well, if we have problems with discipline, we can talk to him about it. He encourages me (2.T3)*

In certain situations, the principal intervenes between the teacher and the parents. Because of the principal's support in problem situations, their teachers are able to motivate their students to perform better. "When we are supported, we know that we can push. We know that the parents support us, we know that our principal supports us and will intervene between the teachers and the parents if there are problems" (5.T3).

The teachers emphasized how important the role of their principal was for them. They mentioned appreciating the coaching and support because it respected their individual choices. "Principals have a huge part to play. It is absolutely crucial that the teachers feel that they are being supported by their principal. … It is important to get the message across that you support the teachers" (5.T3).

The principals support their teachers' projects, such as for example, pedagogical initiatives as follows:

> *We always feel that our principal is there to support us. Then it shows in the teachers' pedagogical projects. I find that this makes a big difference, particularly for new teachers who are in the process of integrating within the school. They do not always know how well to manage (1.T7)*

The support provided by principals for new teachers greatly contributes to their adaptation: "I think that here, in school *X*, it's easy to adapt because the principal is very present" (1.T7).

5.5. Ensuring Order and Support. The quality of life in a school is expressed through several interdependent components. We identified three themes based on our data: rules, communication, and interpersonal relations.

5.5.1. Rules: Supervision and Control. The rules most often evoked by our participants regarded attendance and discipline.

Attendance. Our participants stated that they demanded that students show up and be punctual, naming punctuality as an important value on the job market as follows:

> *If you say to your students, "You have to show up, and you have to be punctual" and all that. … Because in the workplace, if you want to be a good employee, well, you have to be on time (5.SP)*

Several effective schools have *zero tolerance* regarding all forms of unjustified absences. One participant stated that the school had a detention policy at lunchtime for all unjustified absences which were managed by a computerized system that transmitted the information to the teachers and principal via their laptops as follows:

> *There are detentions every noon hour with a supervisor. They even built up an easy laptop system in which the name of the student is entered and we can check the next day to see if the student was present. The principal does the follow-up. It's working like a charm this year (4.T2)*

In effective schools, the students also recognize that their school has a good absence and detentions system (1.S)

Discipline. Certain participants said that they liked rules that made it easy for them to manage discipline in school. "We have a little rule starting this year that has changed the atmosphere in the school" (4.T2).

Explained and Enforced Rules. The student participants stated that the school rules are clearly explained to them and that the principal is present during lunchtime to oversee security. "The principal sees to it that our integration and stay at the school is very safe. … We learn to become one big family" (1.S).

Individualised Consequences. The principal not only applies the rules regarding attendance and punctuality, but also adapts them to specific situations. For example, the rule regarding suspension after a certain number of absences does not apply to students at risk of dropping out. Suspensions are therefore applied according to the profile of each student as follows:

> *The policy of attendance and punctuality with recommendation for suspension used to be automatic after a certain number of absences. … When they leave once, even if they return, it's always more difficult to return. Because they find that they have fallen behind academically, and find themselves the next year with students younger than themselves. Then they look for a way to drop out (4.SP)*

Resolving Conflict: Means and Strategies. Several means are used to ensure the compliance with school regulations. Certain schools use a penalty system (two lessons not done equal one penalty). In this system, the goals and the rules are clearly explained to the students as soon as they miss the first time, which obliges them to conform to the system as follows:

> *Look, we are taking this seriously this year. We want this to work. And we have presented the system to students. Furthermore, the system is not complicated, has two quick stages, and already at the second slip-up there is a penalty. So the student is forced to wake up, to take responsibility. That is an indispensable form of support (3.T5)*

Support by the Principal in Applying Discipline in Class and Reducing Apathy. While recognizing that teachers are responsible for discipline in their class, the latter agree that it is a shared responsibility between all members of the school.

Teachers also reiterated the importance of the principal's support, particularly in social contexts where certain families are permissive as follows:

> *I know that the teacher has the primary responsibility for the atmosphere in his classroom, but I have the right to work in an atmosphere conducive to learning, in an acceptable climate. I can do my part and the students must do their part, with the support of the parents. But we also need the principal's support. We are in difficult times: Children rule the home (5.T10)*

Principals also intervene in cases of student apathy to "jump-start students who refuse to work." The teachers stated that in all of the schools, the principal supports them in cases of disrespect of the rules regarding discipline. "If we have a problem with a student, our principal takes the lead and backs us up" (2.T1).

The teaching and nonteaching staff, students, and principals in the effective schools all stated that their school's climate was both nurturing and safe. The teachers mentioned different situations where the principal helped them to establish a new class climate by solving violence issues, whether active or passive. For example, when a student refused to partake in class activities the following happens:

> *A student who does not want to work, participate and all that, we know that our principal is going to be behind us and support us, and the students know it. Therefore, I would say that yes, they do have an influence, and it helps us (3.T10)*

The students agreed that the principal's team played a big role in dealing with bullying at school. "They do all that they can to please everybody and everything within their power to stop the bullying" (1.S). They also reported that their principals were present on a daily basis to supervise at lunchtime. "They supervise most of the time, see to it that the school functions for the benefit of all of the students" (1.S). As for the various strategies used, one school principal (2) encourages the students to write one paragraph a month under supervision on the subject of the school atmosphere, to express what they saw, heard, or experienced with regard to bullying.

Accessible and People-Oriented Principals. Principals of effective schools have no qualms about losing control by being too close to their staff. To maintain control, no distance is created between themselves and others in their school because they know how to go from one style to another. Although they remain accessible, they know how to maintain their authority to resolve problem situations as follows:

> *Well, when I'm in the school at lunch hour, I chat with you, it's quite pleasant. We know each other. We learn to discover new things. On the other hand, I have another role to play. If you did something stupid in your class, I'll have to intervene and that's the way it is (2.ADE)*

The teaching and nonteaching staff underlined the availability of the effective principals; that it was easy to go and meet with them informally, without having to wait for official meetings or for serious problems to rise to do so. Problems were resolved on a day-to-day basis as follows:

> *Me, I go meet the principal. It's just like going to the cafeteria. I can go see him, he is available. I will go and talk to him about a student, "Here is such and such a thing that we could do for such and such a student". It does not have to be a student who is in major trouble. It's the same thing with the vice-principal; I spend lot of time on rounds and generating different types of solutions. The door is always open (5.PSY)*

Principals are equally close to students. Parents attested to this fact. "If they have comments, worries, or questions, they [the students] feel comfortable going to see [the principal] and talk to him" (1.PCM6).

Being Proactive. Effective principals establish not only proactive strategies (preventative measures), but also reactive ones. They use proactive strategies to minimize the opportunities for bullying and provide training in this regard. They use proactive strategies to apply consequences already detailed in the directives, and they adapt them to the situation. They do not wait for the problem to happen to act. In addition to resolving existing problem situations, they have a proactive attitude with respect to violence issues. The students stated that the principal's team raised their awareness concerning violence in the school. "The principal's team integrates courses on discipline, violence, or behaviour that encourages better behaviour" (1.S). An effective team also helps the students to manage their stress (1.S).

Ensuring a Supportive Environment. Principals provide the students with the best possible working conditions each day and also during exams. For example, they will establish schedules that take into account the particularities of different subjects to limit noise and create a more positive environment (1.ADE). The principal is attentive and looks after others. In these schools, the principal is described by his qualities. "At the principal's level, I would say humanist. That is a word which comes up often. I speak with other teachers and the word characterises our principal very, very well" (1.T2). As for the principal, the latter is conscious of the importance of the human element. "The human side of things is very important. Being a good listener and having respect, that's important" (1.SP).

The student participants spoke of the daily encounters with their principals who stop and enquire how they are doing. "He makes the rounds at the school. He takes the time to talk to us and to find out what's going on" (2. S). The principal also takes the time to ensure that everything is going well by participating in their discussions. "He really likes to have discussions with us, to find out if everything is going well" (1. S).

Effective principals are conscious of maintaining these interactions on a daily basis. With this closeness, the interviewed principals stated that they were able to communicate a message "to support them (the students) in their activities and to them that we are interested in them as persons at school as well as outside of school" (2.ADE). These principals do not limit themselves to a passive presence or simply discussions with the students, but occasionally participate in their students' activities as follows:

> *Despite my age, I regularly go to the gym with the students. I make incredible connections with them. I participate in the student-teacher hockey game. I participate in all of the trips that the graduates take. I'm at all of the shows that the graduates put on (3.ADE)*

Both the students and the teachers mentioned that the students appreciate their principal's interest in their activities saying: "… when the principal is there, when they get involved, is part of the various committees, the students like that" (5.T10).

5.5.2. Communication Methods. Principals in effective schools ensure quality communication and get involved when problem situations arise by maintaining the lines of communication open with all of their staff. Their staff and superiors agree. The teachers spoke of various teacher-student, teacher-parent, and teacher-teacher communication networks. "The first quality of a teacher is to communicate well with his students. Communicate with the student, with parents too, and with other teachers who also have your students" (1.T7). The principals added that communication must be established not only within the school, but also with the community (2.SP).

Solving Communication Problems. Effective principals resolve student-student conflicts by analyzing the situation and each student's profile. Different strategies are applied: punishment, peer mediation, and involving the family.

Positive Atmosphere, Friendly Relations. With this open communication comes a positive atmosphere which is conducive to collaboration. "Very positive, a lot of collaboration. It's always been there. It's not because we added collaboration teams that it makes a difference. There has always been a lot of collaboration between the teachers" (1.ADE).

Principals of effective schools say that their first priority is everyone's well-being. They consider the school climate as being the foundation as follows:

> *First of all, at the base of it, the message that I give to the students and to the staff is that we have to strive for everyone's well-being. For me, before anything else, the atmosphere at the school must be a positive one. When the students arrive here, they have to feel as good as the staff. That is my priority. I think the atmosphere in the school is at the heart of everything (5.SP)*

The principals we interviewed underlined the importance of keeping a close eye on the school climate, while maintaining high standards of achievement. They went further to say that the atmosphere is not an end unto itself; their role has evolved because they no longer limit themselves to the discipline factor, albeit it is considered as a prerequisite to any environment that is conducive to learning as follows:

> *One of the things that has changed is that there is perhaps more conversation between principals and teachers regarding student achievement. In the past, the teacher was responsible for that, and we [the principals] took care of the discipline aspect, the smooth functioning of the school, and so on. Well now, we have conversations to help everyone get ahead on the personal growth level and what is best for the student (1.SP)*

Nonteaching professionals, such as guidance counsellors and psychologists, are invited to intervene and voice their opinion regarding certain situations. "They really want to get our feedback" (1.CO1).

Bringing Teachers to Commit to the School's Culture. The students feel comfortable to go see their principal to report any abnormal behaviour, whether it is regarding another student or a teacher as follows:

> *Because he [the principal] closely follows the teacher-student-parent conflicts, because the students are very, very comfortable to go see the principal to tell them that there is something wrong with a teacher, the vice-principal will perhaps come see you and say: "Look, here the school culture is this" (3.T3)*

5.5.3. Interpersonal Relations. In the case of conflicts between teachers, the effective principal gets involved to reestablish communication and to resolve problem situations. Several scenarios are proposed.

Principal-Teacher Relations. Following up on certain cases requires open communication between the students and their principal. Such is the case, for example, of the principal's partnership with various regional associations for the funding of a football project involving a third of the boys in the school. The ultimate objective of the project was seeing that the boys all stayed in school and performed academically as follows:

> *Over 30% of our students are involved in school sports and regional associations in Québec City. I head this project. Therefore, I have to remain close to the students, and that's a win-win situation all down the line because there is always someone who comes to your office to chat with you—which is not something you see everywhere…. We communicate to them how we relate to our students, and our meetings with the students. So for sure, they are spoiled with respect to that (2.ADE)*

Good Listeners/Open to Suggestions. The effective principal is willing to listen and can put things into perspective to provide the best possible support for their staff. On various levels, the staff members say that they feel that they are being heard as follows:

> *As for the teachers, it's a question of being a good listener, because that's what we try to do a lot. What's more, it's what they tell us: that they are very, very satisfied of that. It's because we listen to them, and we also try to give them all that we are able to give with the means that we have at our disposal (2.ADE)*

As for the principals themselves, they are aware that being a good listener is of prime importance, and they invest both time and effort into that as follows:

> *Being a good listener. Because what I find is that when a school is happy and healthy, quote unquote, a school works well because people are listened to. And that means receiving information, taking the time to stop, to listen to people, and follow-up requests. Otherwise, there's dissatisfaction (3.SP)*

The principals described themselves as having the quality of being a good listener, of having a human side and respect of others. They are close to their staff and adopt attitudes that inspire confidence. "The principal is the principal. But at the same time, he is someone else with whom we can talk; maybe not as a friend... but someone whom we can trust" (2.ADE). These leaders qualified their relations with members of their team as being harmonious, where the people trusted each other and showed mutual support to each other to reach a common objective. One principal compared the members of the school to trapeze artists in the circus. "We support each other just in a circus. There is always someone in motion, like a ball that flies through the air. There is always someone who is falling, but we catch each other. Therefore, trust the team" (1.ADE).

6. Synthesis and Discussion

The goal of this study was to study the leadership practices in high-performing high schools located in socioeconomically disadvantaged areas in the Canadian provinces of Ontario, Québec, and New Brunswick. Our results enabled us to identify five underlying themes: (1) establishing goals and expectations, (2) strategic resourcing, (3) curriculum management, (4) teacher supervision and coaching, and (5) ensuring order and support.

6.1. Establishing Goals and Expectations. Our findings show that the school team does strategic planning, and specifically annual operations planning, to ensure its feasibility. This planning involves progress followups and necessary adjustments. Our results concur with the meta-analysis of Robinson et al. [14] and other writings on this subject. In fact, several studies have shown the leadership effect on students outcomes, and particularly the importance of academic and learning objectives [21–23]. The principal achieves this clarity by communicating their objectives and expectations to all of their staff and through a consensus with them regarding these goals [23, 24]. Effective school leaders involve their teaching staff in the decision making process [24, 27] and focus their attention on following up on the progress being made [3].

6.2. Strategic Resourcing. We divided the concept of strategic resourcing into two themes: staff selection and hiring and staff mobilisation. Our results show that the effective school leader focuses their efforts more significantly on staff mobilisation by using four levers: information, power, knowledge, and recognition. These principals make it a point to share information with their staff. For example, they communicate with total transparency and respect regarding each aspect of their teachers' work. They give their staff power by responding to their needs and proposing training activities. They take every opportunity to acknowledge and show appreciation for the work that it is being done. They constantly encourage their teachers to seek out the knowledge needed to do their job and invite them to pursue appropriate professional development in this regard.

While the question of human resources in high-performing schools has not been specifically addressed in the literature, several studies have shown that it is not as much the availability of resources that improves student performance as it is how these resources are managed [42]. Effective principals assign the best teachers to those students who are the most in need [43], provide the necessary assistance and intervention to fully support their teachers [44], offer frequent feedback [45], and participate alongside their teachers in professional development activities [46].

6.3. Curriculum Management. We found that effective principals collaborate with their staff to change, improve, and even create programs. They make their decisions by analyzing their students' needs and by always focusing on maintaining a high level of academic achievement. When delegating duties, they provide their teachers with the necessary support to take on the new responsibilities. These leadership practices are in agreement with many found in several studies on effective schools, which have shown the importance of collaboration between principal and teachers in work-related curriculum reforms [23, 24, 28]. Other authors have shown the importance of teacher empowerment in these effective schools. This empowerment and their involvement in joint decision making appear to be a given in both the school's improvement and student achievement [17].

6.4. Teacher Supervision and Coaching. Our results show that the leadership in effective schools ensures differentiated supervision for their teachers. They also prioritize beginning teachers. This coaching is undertaken according to different modes: the leader themselves, the teachers themselves (self-evaluation), and peer supervision. These leaders make

the necessary material resources available for their teachers, supervise the teachers' supervisors, and encourage collaborations with peers. Teachers in effective schools attest to their principal's involvement and active participation in their learning and professional development activities [21]. These teachers also say that their principals participate in informal discussions with them regarding teaching and its inherent challenges [23, 24]. The pole position of the principal in the school's communication network signifies that their advice is more likely to have an influence on the coordination of school activities [29].

6.5. Ensuring Order and Support. The effective principal lays down rules and regulations and condones all forms of violence and bullying. They are reactive but also proactive by raising awareness. They maintain open channels of communication between all of their staff members and keep a watchful eye on interpersonal relations at various levels. They are good listeners and are open to discussion [13].

Various studies show that the effective school leader establishes a safe and supportive environment, protects teachers from undue outside pressure [23, 30], and welcomes discussions with their teaching staff [23, 24]. They quickly and effectively resolve conflicts among the staff [31]. They are attentive and respectful in their interactions with their students [13, 17]. The atmosphere within the school is positive [13] which is good for morale [17]. These leaders are also appreciative of their staff's work, and they show it [17].

The theoretical model chosen for our study focuses on instructional leadership. While this choice is found to be largely documented by the meta-analysis of Robinson et al. [14], these observations are not new within the context of the three provinces. Such is the case more specifically in Ontario and New Brunswick, where the pedagogical role of principals was defined officially in 2002 and 1999, respectively, with the establishment of teacher evaluation programs. Québec's principals, on the other hand, do have pedagogical duties (the *Loi sur l'instruction publique* and the *Loi sur l'éducation LIP*, art.96.12/Chapter E-1.12, 1997), although teacher supervision in this province is reserved for new teachers. The three provinces may differ in this regard; however, one constant remains from the three contexts and pertains to the coaching provided through communities of practice initiatives. In fact, in all three provinces, research on effectiveness increasingly favours collective skills where leadership is a key factor [5, 8, 47].

Ontario's interest in effective schools is nothing new. Already, in 2001, a study group on effective schools [48] highlighted the importance of pedagogical skills. Among the ten most common denominators found in effective schools, they found seven to be related to the pedagogical dimension: superior quality teaching, schedules that facilitated learning, parents' participation in their children's education, teachers' professional development, established and respected achievement-oriented goals, and regular supervision and followup of the students' progress. This province based its study on that of Leithwood et al. [4] and is strongly committed to school leaders who support their teachers and to research on the phenomenon of effective schools.

7. Conclusion

We used several data sources to triangulate the information and collect specific data on leadership practices. Some longitudinal studies facilitate the study of the process used by effective school leaders to achieve better student outcomes. These studies formalise the process of these practices and, as a result, constitute a basis on which to encourage other schools to perform better. Finally, larger-scale quantitative studies provide an interpretation of the results according to certain sociodemographic characteristics, the environment, the school, and the staff.

School principals exercise their duties with a relative amount of freedom. To reach the goals established by the school, they choose certain practices and use different strategies with their staff, their students, and the community. The question remains: to what point do these choices enable them to stimulate student achievement and eradicate failure?

Examining the daily routine of effective school leaders, and in particular instructional leaders, brings us to better understand their effect on student achievement. Many factors in fact contribute to favouring this academic performance: daily interactions in the school; school climate; leadership practices with superiors, staff, students, and community; the staff's daily practices. These practices, however, cannot be transposed as such without considering the particular context of each school.

Acknowledgment

This work was supported by the Social Sciences and Humanities Research Council of Canada (Grant no. 410-2006-0716).

References

[1] J. A. Alston, "The many faces of American schooling: effective schools research and border-crossing in the 21st century," *American Secondary Education*, vol. 32, no. 2, pp. 79–93, 2004.

[2] I. Bogotch, L. Mirón, and G. Biesta, "Effective for what, effective for whom? Two questions SESI should not ignore," in *International Handbook of School Effectiveness and School Improvement*, T. Townsend, Ed., pp. 93–110, Springer, Boston, Mass, USA, 2007.

[3] D. U. Levine and L. W. Lezotte, "Effective schools research," in *Handbook of Research on Multicultural Education*, J. Banks and C. McGee, Eds., pp. 525–547, MacMillan, New York, NY, USA, 1995.

[4] K. Leithwood, K. S. Louis, S. Anderson, and K. Wahlstrom, *How Leadership Influences Student Learning: Review of Research*, The Wallace Foundation, New York, NY, USA, 2004.

[5] Ontario Ministry of Education, "Réforme à grande échelle de l'éducation par le perfectionnement des enseignantes et des enseignants et le développement du leadership dans tout le système," 2008, http://www.edu.gov.on.ca/fre/research/leadershipCSSE_fr.pdf.

[6] Ontario Ministry of Education, "Diriger la réussite des élèves," 2009, http://www.curriculum.org/LSA/aboutf.shtml.

[7] New Brunswick, Department of Education, "Province takes action in literacy, numeracy and science for francophone students," 2008, http://www.gnb.ca/cnb/news/edu/2008e0571ed.htm.

[8] Québec Ministère de l'Éducation, du Loisir et du Sport, "Launch and integration of elementary schools and new secondary schools participating in the New Approaches," New Solutions intervention strategy in 2007–2008, 2008, http://www.mels.gouv.qc.ca/agirautrement/FeuilletSIAA_a.pdf.

[9] P. Hallinger and R. H. Heck, "Reassessing the principal's role in school effectiveness: a review of empirical research, 1980–1995," *Educational Administration Quarterly*, vol. 32, no. 1, pp. 5–44, 1996.

[10] D. Reynolds, B. Creemers, S. Stringfield, C. Teddlie, and G. Schaffer, "World class schools," in *International Perspectives on School Effectiveness*, Routledge-Falmer, London, UK, 2002.

[11] T. Waters, R. J. Marzano, and B. McNulty, "Balanced leadership: what 30 years of research tells us about the effect of leadership on student achievement," Mid-continent Research for Education and Learning, Aurora, Colo, USA, 2003, http://www.mcrel.org/.

[12] K. Leithwood, C. Day, P. Sammons, A. Harris, and D. Hopkins, "Successful school leadership: what it is and how it influences pupil learning," Tech. Rep., DfES and Nottingham, London, UK, 2006.

[13] K. Leithwood, "The emotional side of school improvement: a leadership perspective," in *International Handbook on School Effectiveness and Improvement*, T. Townsend, Ed., pp. 615–634, Springer, Dordrecht, The Netherlands, 2007.

[14] V. M. J. Robinson, C. A. Lloyd, and K. J. Rowe, "The impact of leadership on student outcomes: an analysis of the differential effects of leadership types," *Educational Administration Quarterly*, vol. 44, no. 5, pp. 635–674, 2008.

[15] K. Leithwood and B. Levin, "Assessing school leaders and leadership programme effects on pupil learning," DfES Research Report 662, DfES, London, UK, 2005.

[16] J. B. Anderson, "Principals' role and public primary schools' effectiveness in four Latin American cities," *Elementary School Journal*, vol. 109, no. 1, pp. 36–60, 2008.

[17] H. Silins and W. R. Mulford, "Leadership and school effectiveness and improvement," in *International Handbook of School Effectiveness and Improvement*, T. Townsend, Ed., pp. 635–658, Springer, Dordrecht, The Netherlands, 2007.

[18] N. Engels, G. Hotton, G. Devos, D. Bouckenooghe, and A. Aelterman, "Principals in schools with a positive school culture," *Educational Studies*, vol. 34, no. 3, pp. 159–174, 2008.

[19] K. S. Crum and W. H. Sherman, "Facilitating high achievement: high school principals' reflections on their successful leadership practices," *Journal of Educational Administration*, vol. 46, no. 5, pp. 562–580, 2008.

[20] P. Hallinger and R. Heck, "Next generation methods for the study of leadership and school improvement," in *Handbook of Research on Educational Administration*, J. Murphy and K. S. Louis, Eds., pp. 141–162, Jossey-Bass, San Francisco, Calif, USA, 2nd edition, 1999.

[21] J. D. Bamburg and R. L. Andrews, "School goals, principals, and achievement," *School Effectiveness and School Improvement*, vol. 2, pp. 175–191, 1991.

[22] D. J. Brewer, "Principals and student outcomes: evidence from U.S. high schools," *Economics of Education Review*, vol. 12, no. 4, pp. 281–292, 1993.

[23] R. H. Heck, G. A. Marcoulides, and P. Lang, "Principal instructional leadership and school achievement: the application of discriminant techniques," *School Effectiveness and School Improvement*, vol. 2, no. 2, pp. 115–135, 1991.

[24] R. H. Heck, T. J. Larsen, and G. A. Marcoulides, "Instructional leadership and school achievement: validation of a causal model," *Educational Administration Quarterly*, vol. 26, no. 2, pp. 94–125, 1990.

[25] E. B. Goldring and R. Pasternak, "Principals' survival with parental involvement," *School Effectiveness and School Improvement*, vol. 7, no. 4, pp. 342–360, 1996.

[26] V. M. J. Robinson, "Embedding leadership in task performance," in *Leadership For Quality Schooling: International Perspectives*, K. Wong and C. Evers, Eds., pp. 90–102, Falmer, London, UK, 2001.

[27] K. Leithwood and D. Montgomery, "The role of the elementary principal in program improvement," *Review of Educational Research*, vol. 52, no. 3, pp. 309–339, 1982.

[28] H. M. Marks and S. M. Printy, "Principal leadership and school performance: an integration of transformational and instructional leadership," *Educational Administration Quarterly*, vol. 39, no. 3, pp. 370–397, 2003.

[29] N. E. Friedkin and M. R. Slater, "School leadership and performance: a social network approach," *Sociology of Education*, vol. 67, no. 2, pp. 139–157, 1994.

[30] R. H. Heck, "Principals'instructional leadership and school performance: implications for policy development," *Educational Evaluation and Policy Analysis*, vol. 14, no. 1, pp. 21–34, 1992.

[31] R. W. Eberts and J. A. Stone, "Student achievement in public schools: do principals make a difference?" *Economics of Education Review*, vol. 7, no. 3, pp. 291–299, 1988.

[32] B. Berg, *Qualitative Research Methods for the Social Sciences*, Allyn & Bacon, Needham Heights, Mass, USA, 4th edition, 2001.

[33] E. Chambers, "Applied ethnography," in *Handbook of Qualitative Research*, N. F. Denzin and Y. S. Lincoln, Eds., pp. 851–869, Sage, Thousand Oaks, Calif, USA, 2000.

[34] C. Marshall and G. B. Rossman, *Designing Qualitative Research*, Sage, London, UK, 3rd edition, 1999.

[35] S. B. Merriam, *Qualitative Research and Case Study Applications in Education*, Jossey-Bass, San Francisco, Calif, USA, 1998.

[36] C. Werthe, "Élaboration et formalisation de l'expérience professionnelle: l'instruction au sosie," *Dialogue*, vol. 86, pp. 41–42, 1997.

[37] P. Vermersch, *L'entretien d'Explicitation*, ESF, Paris, France, 1994.

[38] P. Vermersch and M. Maurel, Eds., *Pratiques de l'Entretien d'Explicitation*, ESF, Paris, France, 1997.

[39] J. M. Van der Maren, *Méthodes de Recherche pour l'Éducation*, les Presses de l'Université de Montréal, Montréal, Canada, 1995.

[40] R. E. Boyatzis, *Transforming Qualitative Information: Thematic Analysis and Code Development*, Sage, Thousand Oaks, Calif, USA, 1998.

[41] M. Miles and M. Huberman, *Analyse des Données Qualitatives*, De Boeck Universiteé, Bruxelles, Belgium, 2003.

[42] D. M. Daley and M. L. Vasu, "Supervisory perceptions of the impact of public sector personnel practices on the achievement of multiple goal putting the strategic into human resource management," *American Review of Public Administration*, vol. 35, no. 2, pp. 157–167, 2005.

[43] K. Haycock, "Closing the achievement gap," *Principal*, vol. 82, no. 2, pp. 20–23, 2002.

[44] V. Myers and C. Kline, "Secondary school intervention assistance teams: can they be effective?" *The High School Journal*, vol. 85, no. 2, pp. 33–42, 2002.

[45] M. D. Chester and B. Q. Beaudin, "Efficacy beliefs of newly hired teachers in urban schools," *American Educational Research Journal*, vol. 33, no. 1, pp. 233–257, 1996.

[46] D. Fisher and N. Frey, "Five lessons for leaders," *Principal Leadership*, vol. 3, no. 3, pp. 53–55, 2002.

[47] New Brunswick, Department of Education, "When kids come first. A challenge to all New Brunswickers to built Canada's best education system new vision for public education in New Brunswick," 2007, http://www.gnb.ca/0000/kidsfirst-f.asp.

[48] Ontario Ministry of Education, "Bien faire mieux faire!," Rapport du Groupe sur les Écoles Efficaces Groupe D'Étude sur les Écoles Efficaces, Ontario, Canada.

Hindawi Publishing Corporation
Education Research International
Volume 2012, Article ID 654154, 6 pages
doi:10.1155/2012/654154

Research Article

Information Updating in Working Memory: Its Effect on Teacher Efficacy

Jun Tao

Department of Psychology, Harbin University, 109 Zhongxing Avenue, Nangang, Harbin 150086, China

Correspondence should be addressed to Jun Tao, tjkevin@hrbu.edu.cn

Received 29 October 2012; Accepted 19 November 2012

Academic Editor: Hoi Yan Cheung

Teacher efficacy has a great impact on effective teaching and has been studied in various perspectives. The updating information ability in working memory is always related with many capabilities of cognition. An experiment of N-back task and a questionnaire of teacher efficacy were conducted in this study to test the effect of the ability of information updating in working memory on the teacher efficacy. A significant difference was found in the reaction time between high teacher efficacy group and low teacher efficacy group. The results showed that teachers who scored higher in the teacher efficacy scale tended to react faster than those who scored lower based on the same accuracy. And the updating information ability could serve as a predictor of teacher efficacy.

1. Introduction

The concept of teacher efficacy was proposed by RAND Corporation in the year of 1976 [1], referred to the confidence that teachers hold about their individual and collective capability to influence student learning and was considered to be the key motivation beliefs influencing teachers' professional behaviors and student learning [2]. While Tschannen-Moran et al. (1998) believed that teacher efficacy was the teacher's belief in one's capability to organize and execute courses of action required to successfully accomplish a specific teaching task in particular context [3].

Teacher efficacy is believed to play an important role in teaching situation. Previous researches show that teacher efficacy has great impact on both teaching behavior [4–7] and the student achievements [6–9]. Statistically significant relation was found between professor self-efficacy in enthusiasm, breadth and teaching effectiveness regarding enthusiasm and breadth, respectively [10]. The teacher efficacy effects on teaching situation in various ways. Tschannen-Moran and Hoy proposed the constructs of teacher efficacy were efficacy in student engagement, efficacy in instructional strategies, and efficacy in classroom management [11]. These three components serve as the mediator for a teacher to influence the student, in which the inner cognitive process decides the proper behaviors that would be taken based on the inputting information from the teaching environment.

Researchers are also interested in the sources of teacher efficacy from which they can predict the level of a teacher's efficacy. Bandura [12] postulated four sources of teacher efficacy: mastery experiences, physiological and emotional cues, vicarious experiences, and social persuasion. Actually, these four sources do not influence the level of teacher efficacy directly according to Tschannen-Moran et al. [3]. The sources of efficacy information are analyzed and evaluated under the control of a cognitive process. Tschannen-Moran et al. [3] believed that cognitive process played an important role in the creation of efficacy beliefs. It is the cognitive process that determines how the sources of information will be weighed and how they influence the analysis of the teaching task and the assessment of personal teaching competence. The interaction of task analysis and competence, in turn, shapes teacher efficacy. They have introduced a model to illustrate how central cognitive process interacts with other sources of teacher efficacy.

As illustrated in Figure 1, the cognitive process has a close relationship with teacher efficacy and influences the teaching performance both directly and indirectly by raising cognitive effort which would arouse more resources needed for better cognition. Many evidences show that working memory plays

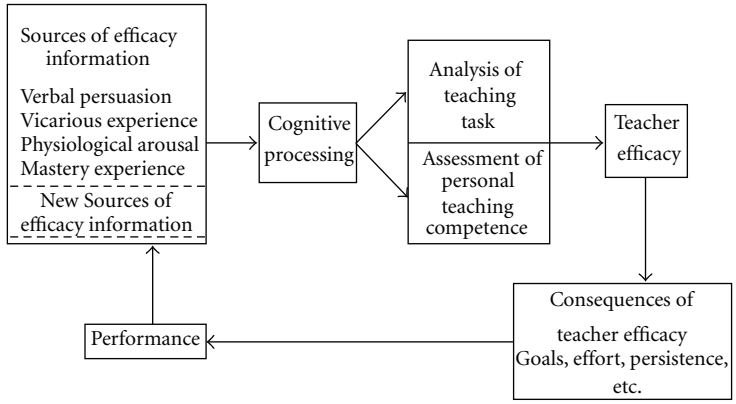

Figure 1: The cyclical nature of teacher efficacy [3].

a very important role for individuals to perform in an effective way, because it influences the cognitive process [12], such as perception [13], attention [14], reasoning [15], and decision making [16] which are necessary for teachers to perform in the teaching situation. The teaching situation is changing all the time, and it is important for a teacher to perceive the information from the environment and to react in a proper way. Thus, the teacher efficacy is regarded as an outcome of the cognitive process which is based on the inner information processing between the perception and reaction. The teaching information is processed and updated with the changing of teaching situation and then interacts with teacher efficacy together to influence the teaching behavior and the students achievement. Obviously, an ability of information updating is needed to deal with the changing information at a high speed of central executive process which is the core component of working memory.

Working memory is more like a processor rather than a storage in which information is temporarily stored and maintained in performance of complex cognitive processing [17]. Baddeley and Hitch suggested working memory was comprised of three components: a phonological loop, a visuospatial sketch pad, and the central executive [18]. The phonological loop is known as "articulatory loop" in Baddeley's early model of working memory and now is regarded as a relatively modular system comprising a brief store together with means of maintaining information by vocal or subvocal rehearsal. The visuospatial sketch pad keeps the visual and spatial information in a relatively short time in memory for further processing. Baddeley regarded the central executive as the most important component of working memory. He was criticized for saying nothing about it in his early research and suggested that the central executive needed to be able to focus on attention, to divide attention between two important targets or stimulus streams, and involved in tasks switching [19].

The working memory construct is a strong predictor of general fluid intelligence and a weaker predictor of domain-specific reasoning, and the reverse is true for the short-term memory construct. The findings support a domain-general view of working memory capacity, in which executive-attention processes drive the broad predictive utility of working memory span measures, and domain-specific storage and rehearsal processes relate more strongly to domain-specific aspects of complex cognition [20].

Previous studies show that the updating abilities are closely linked with performance on both verbal and visuo-spatial working memory span tasks [21]. Working memory updating is the ability to maintain accurate representations of information changing over time, and it has been successfully used in individual differences research to predict higher cognitive abilities [22]. Working memory updating and working memory capacity may make independent contributions in predicting higher mental abilities.

The teacher efficacy maybe has a close relation with the cognitive process. It is influenced by the information processing ability in which the ability of updating would help individuals to perceive the environment and react to it in a proper way. The updating information ability in working memory was selected as a predictor to test its impaction on teacher efficacy in this study. An experiment of N-back working memory task and a questionnaire of teacher efficacy were used in this study in order to test the effect that the information updating ability had on the teacher efficacy. The subjects were supposed to score higher for the teacher efficacy scale if they performed faster in the N-back working memory task.

2. Method

2.1. Subjects. 30 teachers from Harbin University were involved in this study via an instant message group. 3 teachers quitted at the beginning of the experiment, and 2 teachers gave up during the experiment. The rest 25 teachers (6 males and 19 females) composed the valid participants in this study. Their average age was 35.56 (SD = 6.92) and 11 (SD = 8.66) years of average teaching years.

The hypothesis of this study is to test whether the low and high teacher efficacy subjects also differ in their updating information ability. Therefore, data for a total of 25 subjects

were divided into three groups according a traditional way that 27% of the top scores and the 27% of low scores composed the higher group and lower group, respectively. The high teacher efficacy group in this study is defined as the subjects who rank the top 7 that scored from Teachers' Sense of Efficacy Scales with a mean score of 168.43 (SD = 5.62). The low teacher efficacy group is defined as the last 7 subjects whose scores are ranked the bottom 7 with a mean score of 123.71 (SD = 14.02). The rest 11 subjects are defined as the middle group of teacher efficacy with a mean score of 152.91 (SD = 7.35). ANOVA analysis shows that there is a significant difference between these three groups ($F = 41.96$, $P < 0.01$) (see Table 2), and the Tukey HSD test shows the differences between each group are also significant with mean differences of -29.19 ($P < 0.01$), -44.71 ($P < 0.01$), and -15.52 ($P < 0.01$) by low-middle, low-high, and middle-high comparison, respectively. No sex differences were found in teacher efficacy, reaction time, and accuracy in this study.

2.2. Procedure. There were two stages in this study. Subjects were asked to operate an N-back working memory task in the first stage. In the N-back task paradigm, subjects are asked to monitor the identity of a series of stimuli and to indicate whether the currently presented stimulus is the same as the one presented in N trials previously. For example, subjects would compare the current stimulus with the previous stimulus in 1-back task and compare with the stimulus appeared before the previous one in 2-back task. As N-back task requires online monitoring, updating, and manipulation of remembered information and is therefore assumed to place great demands on a number of key processes within working memory [23]. In this study, the experiment of N-back task aimed to identify how well the subjects would perform in dealing with the updating information. As the new stimuli come into their working memory and caused the old stimuli to be expelled from working memory, the central executive of cognitive process must maintain at least N+1 items at a time and make comparisons between the old and new stimuli till the decision is made and responded.

In the second stage of the study, subjects were asked to complete a Teachers' Sense of Efficacy Scale (long form) after they finished the N-back task. The scale (TSES) was developed by Tschannen-Moran and Woolfolk Hoy and was translated into simplified Chinese by an English-Chinese translation expert. The reliability of this scale is 0.94 of alpha in Tschannen-Moran's original research [11] and 0.885 of Cronbach's Alpha with reliability analysis in this study.

All the subjects were invited individually to the Cognitive Psychology Laboratory of the Psychological Department of Harbin University where they took the N-back task experiment and finished the scales.

2.3. Experiment Design and Material. The experimental program of N-back task was produced with E-prime 2.0 and presented by a HP notebook. Sixteen simplified Chinese words were selected to be the items subjects need to remember and identify in the experiment.

The 2-back task was used in this study in which participants were asked to respond to the words they saw on the screen and to judge whether the word was the same or not with the one he/she saw two words before (see Figure 2). Participants were instructed to press "F" button if he/she judges this word was the same as the one two trails previously and press "J" button if the judgment is not the same. Before the formal experiment, there was a practice phase in which subject should be familiar with the progress and required 90% accuracy to be the criterion to go to the formal experiment. Subjects received feedback of being right or wrong when they responded to the current stimulus in the practice phase but no feedback in the formal experiment phase. There is no time restriction for subjects, and the stimulus disappears as the subjects respond to it before the next stimulus appears on the screen. Data were collected and analyzed by using SPSS 13.0.

Table 1: The general analysis of teacher efficacy, reaction time, and accuracy.

	N	Mean	Std. deviation	Std. error
Teacher efficacy				
Low	7	123.71	14.02	5.30
Middle	11	152.91	7.35	2.22
High	7	168.43	5.62	2.13
Total	19	149.08	19.57	3.91
Reaction time				
Low	7	2094.32	840.47	317.67
Middle	11	1521.72	426.73	128.66
High	7	1277.96	273.90	103.53
Total	19	1613.80	612.66	122.53
Accuracy				
Low	7	94.44	4.08	1.54
Middle	11	92.04	3.31	0.99
High	7	95.07	1.24	0.47
Total	19	93.56	3.33	0.67

3. Result

3.1. The General Analysis of Reaction Time and Accuracy. The reaction time and accuracy are the most important measures in this task. The general reaction time and accuracy for all subjects are 1613.80 (SD = 612.66) ms (millisecond) and 93.56 (SD = 3.33) percent, respectively. The reaction time of the low teacher efficacy group is 2094.32 ms (SD = 840.47) and 1277.96 ms (SD = 273.90) for the high teacher efficacy group. The reaction time of middle group is 1521.72 ms (SD = 426.73). The mean accuracy of the low teacher efficacy group is 94.44% and 95.07% of the high teacher efficacy group which are much better than the middle teacher efficacy group of the 92.04% accuracy (see Table 1). There is strong tendency that the reaction time reduces as the teacher efficacy increases.

Table 2: The ANOVA analysis for teacher efficacy, reaction time, and accuracy.

	Sum of squares	df	Mean square	F	Sig.
Teacher efficacy					
Between groups	7285.79	2	3642.90	41.96*	0.000
Within groups	1910.05	22	86.82		
Total	9195.84	24			
Reaction Time					
Between Groups	2499088.14	2	1249544.07	4.22*	0.028
Within groups	6509432.26	22	295883.29		
Total	9008520.40	24			
Accuracy					
Between groups	46.91	2	23.45	2.36	0.118
Within groups	218.61	22	9.94		
Total	265.52	24			

* $P < 0.05$.

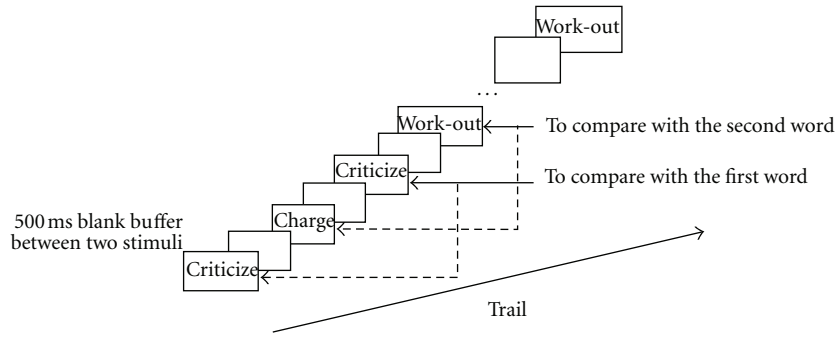

Figure 2: The procedure of 2-back task experiment.

3.2. The ANOVA Analysis for Teacher Efficacy, Reaction Time, and Accuracy. The one way ANOVA analysis was conducted to examine the relationship between teacher efficacy and updating ability in working memory. The results show that there is a significant difference of reaction time between groups ($F = 4.22$, $P < 0.05$). But no significant difference is found in accuracy among three groups ($F = 2.36$, $P > 0.05$) (see Table 2).

Further analysis by Tukeys HSD found that there was a significant difference in reaction time between the low teacher efficacy group and high teacher efficacy group (the mean difference is 816.36, $P < 0.05$), but no significant difference was found in accuracy between these two groups.

3.3. Correlation of Teacher Efficacy, Reaction Time, and Accuracy. Significant negative correlation was found between teacher efficacy and reaction time ($r = -0.491$, $P < 0.05$), but no significant correlation was found between the teacher efficacy and accuracy ($r = -0.203$, $P > 0.05$) while the reaction time and accuracy are correlated in the positive way but still not significant ($r = 0.361$, $P > 0.05$). The subjects tend to perform faster but with more mistakes in the N-back task if they have higher score from the Teachers' Sense of Efficacy Scale.

4. General Discussion

This study investigated the effect of updating information in working memory on teacher efficacy at levels of reaction time and accuracy. The hypothesis was tested that higher teacher efficacy need more cognitive effort which stated that the working memory updating made independent contributions in predicting higher mental abilities which consisted the ability of teacher efficacy sources from an evaluation of the inputting information. Although previous research established a clear relationship between teacher efficacy and cognitive process, few studies have investigated the details of how cognitive process interacted with teacher efficacy. This study hypothesized that the updating information ability had effect on the performance of teacher efficacy when reaction time of high teacher efficacy group was faster than low teacher efficacy group.

Results in the experiment and the scale supported the hypothesis of better updating information lead to higher teacher efficacy (see Figure 3). The mean of three groups of reaction time had a significant difference with the analysis of ANOVA and differed significantly between high teacher efficacy group and low teacher efficacy group with Tukeys HSD test. The high group and low group revealed nearly identical accuracy for N-back task but faster reaction time

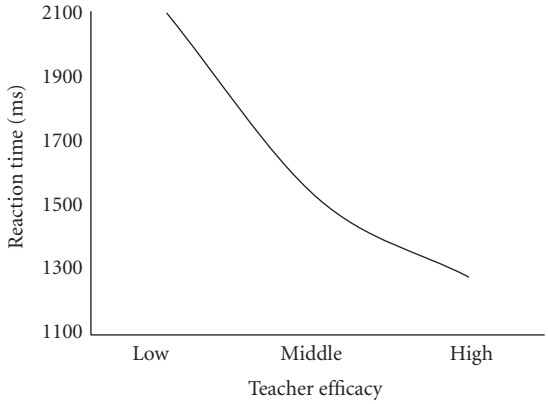

Figure 3: The relationship between updating information and teacher efficacy.

with increasing teacher efficacy. And negative correlation was also found between reaction time and teacher efficacy serving as evidence that the ability of updating information in working memory does affect the teacher efficacy.

The teacher efficacy was constructed by three components which would be mediators of cognition effect on teacher efficacy. The efficacy of student engagement depended on the ability to motivate students by the proper behavior [24] that was generated on the basis of the interaction of new and old information. The efficacy of instructional strategy needs effective expression that could be predicted by the updating information ability of working memory proposed by Morris and Jones who found that the updating memory affects the performance independently of the effects of irrelevant speech and suppression [25].

Walczyk et al. proposed that individuals with higher levels of self-efficacy may be more resourceful in the allocation and adaptations of alternative strategies compared to those individuals with lower levels of self-efficacy and thus solve problems with greater accuracy and efficiency [26]. The resources of cognition are limited. The allocation strategy would be an alternative explanation for the results of this study.

Serving as one of the sources of teacher efficacy, the high speed of updating information leads to a higher teacher efficacy. Due to the fact that teaching situation is changing all the time, the high-speed response to the teaching situation is necessary for a teacher to perform in a proper way during their instruction, classroom management, and interactions with students. Teachers are required to integrate and evaluate the current information that comes from the environment in order to adjust their behavior that is suitable for the teaching situation. This is done with the working memory—especially the central executive. Besides the storage of information, working memory is a functional component that is in charge of the information processing. There will be a more effective information processing ability if the inputting information from the teaching situation is processed at a higher speed. Teachers with high speed information updating ability will adjust their teaching behavior rapidly with the changing outer environment, and therefore they will have higher teacher efficacy.

Finally, the level of teacher efficacy was measured by the scale, and subjects completed it based on their beliefs about teaching episodes. As were identified artificially by the scores of the subjects responded in the scale, the three groups of low, middle, and high teacher efficacy did not mean their sense of efficacy is low or high absolutely but relatively within the sample of this study.

Appendix

Materials Used in the Experiment

鼓励 (encourage) 赞扬 (commend) 批评 (criticize) 提问 (ask questions) 解答 (answer questions) 备课 (prepare lessons) 激励 (motivate) 授课 (instruction) 缴费 (charging) 计算 (calculate) 购物 (shopping) 健身 (work-out) 聊天 (chat) 旅游 (travel) 促销 (promote) 印刷 (print).

References

[1] D. Armor, P. Conroy-Osequera, M. Cox et al., "Analysis of the school preferred reading programs in selected Los Angeles minority schools," Report no. R-2007-LAUSD, Rand Corporation, Santa Monica, CA, USA, 1976.

[2] R. M. Klassen, V. M. C. Tze, S. M. Betts, and K. A. Gordon, "Teacher efficacy research 1998–2009: signs of progress or unfulfilled promise?" *Educational Psychology Review*, vol. 23, no. 1, pp. 21–43, 2011.

[3] M. Tschannen-Moran, A. W. Hoy, and W. K. Hoy, "Teacher efficacy: its meaning and measure," *Review of Educational Research*, vol. 68, no. 2, pp. 202–248, 1998.

[4] G. Ghaith and K. Shaaban, "The relationship between perceptions of teaching concerns, teacher efficacy, and selected teacher characteristics," *Teaching and Teacher Education*, vol. 15, no. 5, pp. 487–496, 1999.

[5] G. Ghaith and H. Yaghi, "Relationships among experience, teacher efficacy, and attitudes toward the implementation of instructional innovation," *Teaching and Teacher Education*, vol. 13, no. 4, pp. 451–458, 1997.

[6] A. E. Woolfolk, B. Rosoff, and W. K. Hoy, "Teachers' sense of efficacy and their beliefs about managing students," *Teaching and Teacher Education*, vol. 6, no. 2, pp. 137–148, 1990.

[7] S. Gibson and M. H. Dembo, "Teacher efficacy: a construct validation," *Journal of Educational Psychology*, vol. 76, no. 4, pp. 569–582, 1984.

[8] A. Mojavezi and M. P. Tamiz, "The impact of teacher self-efficacy on the students' motivation and achievement," *Theory and Practice in Language Studies*, vol. 2, no. 3, pp. 483–491, 2012.

[9] M. T. Brownell and F. Pajares, "Teacher efficacy and perceived success in mainstreaming students with learning and behavior problems," *Teacher Education and Special Education*, vol. 22, no. 3, pp. 154–164, 1999.

[10] E. M. Balam, *Professors' teaching effectiveness in relation to self-efficacy beliefs and perceptions of student rating myths [Ph.D. thesis]*, Auburn University, 2006.

[11] M. Tschannen-Moran and A. W. Hoy, "Teacher efficacy: capturing an elusive construct," *Teaching and Teacher Education*, vol. 17, no. 7, pp. 783–805, 2001.

[12] A. Bandura, "Perceived self -efficacy in cognitive development and functioning," *Educational Psychology*, vol. 28, no. 2, pp. 117–148, 1993.

[13] S. J. Luck and E. K. Vogel, "The capacity of visual working memory for features and conjunctions," *Nature*, vol. 390, no. 6657, pp. 279–281, 1997.

[14] D. Fougnie, "The relationship between attention and working memory," in *New Research on Short-Term Memory*, N. B. Johansen, Ed., pp. 1–45, Nova Science Publishers, New York, NY, USA, 2008.

[15] S. Krumm, L. Schmidt-Atzert, M. Buehner, M. Ziegler, K. Michalczyk, and K. Arrow, "Storage and non-storage components of working memory predicting reasoning: a simultaneous examination of a wide range of ability factors," *Intelligence*, vol. 37, no. 4, pp. 347–364, 2009.

[16] P. Whitney, C. A. Rinehart, and J. M. Hinson, "Framing effects under cognitive load: the role of working memory in risky decisions," *Psychonomic Bulletin & Review*, vol. 15, no. 6, pp. 1179–1184, 2008.

[17] A. Baddeley, "Is working memory still work," *European Psychologist*, vol. 7, no. 2, pp. 85–97, 2002.

[18] A. Baddeley and G. Hitch, "Working memory," in *The Psychology of Learning and Motivation: Advances in Research and Theory*, G. A. Bower, Ed., pp. 47–89, Academic Press, New York, NY,USA, 1974.

[19] A. Baddeley, "Working memory: theories, models, and controversies," *Annual Review of Psychology*, vol. 63, pp. 1–29, 2012.

[20] M. J. Kane, S. W. Tuholski, D. Z. Hambrick, O. Wilhelm, T. W. Payne, and R. W. Engle, "The generality of working memory capacity: a latent-variable approach to verbal and visuospatial memory span and reasoning," *Journal of Experimental Psychology*, vol. 133, no. 2, pp. 189–217, 2004.

[21] H. L. St Clair-Thompson and S. E. Gathercole, "Executive functions and achievements in school: shifting, updating, inhibition, and working memory," *The Quarterly Journal of Experimental Psychology*, vol. 59, no. 4, pp. 745–759, 2006.

[22] U. K. H. Ecker, S. Lewandowsky, K. Oberauer, and A. E. H. Chee, "The components of working memory updating: an experimental decomposition and individual differences," *Journal of Experimental Psychology*, vol. 36, no. 1, pp. 170–189, 2010.

[23] A. M. Owen, K. M. McMillan, A. R. Laird, and E. Bullmore, "N-back working memory paradigm: a meta-analysis of normative functional neuroimaging studies," *Human Brain Mapping*, vol. 25, no. 1, pp. 46–59, 2005.

[24] E. A. Skinner and M. J. Belmont, "Motivation in the classroom: reciprocal effects of teacher behavior and student engagement across the school year," *Journal of Educational Psychology*, vol. 85, no. 4, pp. 571–581, 1993.

[25] N. Morris and D. Jones, "Memory updating in working memory: the role of the central executive," *British Journal of Psychology*, vol. 81, no. 2, pp. 111–121, 1990.

[26] J. J. Walczyk, M. Wei, D. A. Griffith-Ross, S. E. Goubert, A. L. Cooper, and P. Zha, "Development of the interplay between automatic process and cognitive resources in reading," *Journal of Educational Psychology*, vol. 99, no. 4, pp. 867–887, 2007.

Hindawi Publishing Corporation
Education Research International
Volume 2012, Article ID 184640, 16 pages
doi:10.1155/2012/184640

Review Article

Reviewing Teacher Evaluation of Rewards and Punishments: The Overview of Chinese Teacher Evaluation Research

Wang Jiayi and Cheng Ling

School of Education, Northwest Normal University, Gansu, Lanzhou 730070, China

Correspondence should be addressed to Wang Jiayi, wangjy@nwnu.edu.cn

Received 17 September 2012; Accepted 24 October 2012

Academic Editor: Hoi Yan Cheung

The authors chose the teacher evaluation pieces literature of Chinese academic studies as the research object, analyzed the domestic dynamic and the views of some experts in this field, and summarized and compiled the research approaches and research methods of the UK and USA. The study found that whether at China or abroad, the study route is basically along the reward and punishment evaluation, from developmental evaluation to the performance evaluation, and compared to the foreign study, the Chinese studies, whether in theory or in practice, are relatively backward. Combined with the domestic situation, this study proposes a number of constructive suggestions.

1. The General Situations of Research

Teacher evaluation is an important way to identify the performance of teachers and improve teacher quality, improving the work of teachers and schools. With the power of pull-driven education reform and teacher professional development theory, and as the Government's efforts to teacher construction increase, combined with social cares and supports of public education, teacher's role is undergoing a positive change in the common effect of the various internal and external forces. Therefore, teacher evaluation has also became one of the hot issues in the current domestic academia and the education sector. This study is based on the CNKI literatures, through information search, arrangement, analysis, and summary, and obtained results are as follows.

The first literature retrieved form CNKI of the explicitly put forward "teacher evaluation" was *Teacher Evaluation* published in the *Journal of Xuchang Teachers College* in December 1985 written by Xu Gaohou, while the earliest introduction of foreign ideological experience was *American Teacher Evaluation in the Malady* written by Huang Zhicheng in March 1986, published in the *Foreign Education Information.* This study found that 1998 is an important point to jump in. Before 1998, domestic academic research on teacher evaluation was not particularly warm, and the annual amount of literature was about 10–20 articles, among these authors: Zhao Muxi from the Fengtai UNESCO, Chen Xiaoda from East China Normal University, and Wang Yuguang from Fujian Normal University, having more published articles. Since 1998, the academic study of "teacher evaluation" is becoming enthusiastic. In each year, the number of documents in the exponential growth represents the development trend of straight up as shown earlier. Although in the last century teacher evaluation domestic research progress was slow, early in May 1984, China has joined the International Association for Evaluation of Educational Achievement (IEA), and in May 1991, the first educational supervision meeting had promulgated Provisional Regulations of Educational Supervision, and this marked the formal introduction of teacher evaluation of official documents. However, this study found that the impetus for more research on teacher evaluation was led by the international trend of thought, and the role of policy and organization of the national level was a bit weak. The following is a simple introduction and summary of Chinese academic research in this area.

2. Introducing Two Key Persons

From Figure 1, it can be clearly seen that since 1998, the changing number of the relevant domestic teacher evaluation

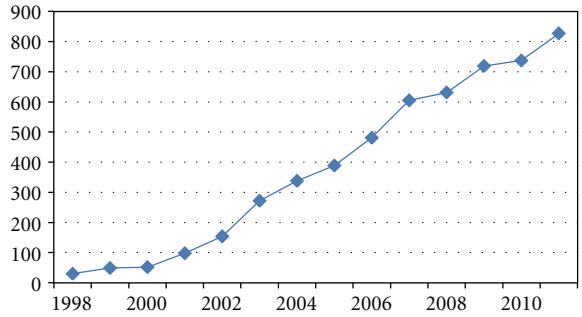

Figure 1: 1998–2011 CNKI related to "teacher evaluation" of the literature quantity change chart.

research articles present a linear rising trend. The number of articles had been changing from 30 in 1998 to 828 in 2011, it increased 27 times. If looking from the curvature of the curve, it can be seen that after 2000 the curvature is significantly greater than before. Analyzed it combined with the domestic education situation, it could be drawn the conclusion: the new round of education reform played an important role. All of the sudden outbreak appear after 1998. In addition to the increase of journals and the strengthening of the research groups outside, one of the most powerful in theory undoubtedly comes from the publication of the classic book *The System of Appraisal for Development* in 1998, which was written by Wang Binhua at East China Normal University (it is also his Ph.D. thesis). According to incomplete statistics, since then, among all the Chinese academic researches on teacher evaluation, the 1/3 outputs of the literature were affected (especially in 1999–2005, included in the research topic "teacher evaluation," in 372 literatures, there are 126 having the key words "development," "developing teacher evaluation" and "development of teacher evaluation mode," and those references in these works had been affected by his works). It puts forward "developmental teacher evaluation system" and the "teacher evaluation system of rewards and punishments" as two very different purposes of assessment system. The authors proposed their evaluation system from a social, political, economic, cultural perspective and therefore overcome the defect of "teacher evaluation system of rewards and punishments". Although some of these ideas and conclusions cause the academic question and debate, it, in a certain period of historical position of benchmarking, is of no objection. Analyzing all of the 5821 articles (expired on July 1, 2012) about "teacher evaluation," we found that Wang in this field is the most abundant. It can be said that in the long period of time inherent in this field, he has played the important role of navigator. Having early years of visiting fellow experience in the UK, Wang was also one of the earliest scholars to introduce the English teacher evaluation experiences (in 1995, he had published *the Teacher Evaluation System and the Major Initiatives of the British Educational Reform* in *Foreign Educational Material*, and before him, only Tu Yong had published *British Teachers Evaluation Review* in *Foreign Educational Material* in 1993). Meanwhile, since 2003, he had successively introduced a series of teacher evaluation models about "contract planning act," "principal colleagues assessment," "teaching portfolio," "microteaching evaluation," "elimination system," "performance evaluation method," "value-added assessment method," and so forth, in a number of educational journals [1–6]. In 2005 he had published this new book *Teacher Evaluation: Performance Management and Professional Development* in the field of teacher evaluation. It can be said that this classic book, in a short period of time, has caused great concerns of the academic studies of other researchers and played a good help.

Because professor Wang became famous earlier, he has been recognized to dominate the field by the academics, but around its accolades in the sky, there also has been a new star on the rise, this is the Beijing Normal University Professor Cai Yonghong. When it came to a new century,a statistical study on the teacher evaluation reveals that the highest citation frequency is Caiyong Hong and Huang Tianyuan published *the Origin of the Teacher Evaluation Studies: Problems and Development Trends in the Journal of Beijing Normal University* ([7], no. 1, cited 245 times). In addition, in the ranking of "citation frequency," there are three articles in the top 10 about Cai, which are *Review of Research on Teacher Performance Assessment and Reflection* published in *Higher Teacher Education* ([8], no. 5, cited 176 times, ranked no. 4), *Teacher Performance Evaluation Theory and Practice published in Teacher Education Research* ([9], no. 1, cited 121 times, ranked no. 6), and *Student Evaluation of Teacher Performance confirmatory factor analysis* published in *Acta Psychologica Sinica* ([10], no. 5, cited 103 times, ranked no. 10). Statistics found that Cai has 9 articles in "teacher evaluation," especially about "teacher performance evaluation," and has the innovative concept of "relationship performance" [9]. In addition, Cai's doctoral thesis *Teachers' Job Performance: The Structure and Its Influencing Factors* also had won the 2004 National Excellent Doctoral Dissertation. Between 2001 and 2006, Cai had continuously presided over the more important issues of teacher evaluation. For example, in 2001, she had presided over the structure of Beijing Normal University Youth Fund *the Teachers' Job Performance and Its Influencing Factors*. In 2002, as the second host to participate in teacher evaluation method of the Beijing "10th Five-Year Plan" key project *Quality Education*; June 2002–June 2005, she had presided over the completion of the Beijing Yucai School cross-cutting project *Teacher Evaluation Methods*; December 2003–December 2006, and she had presided over the National Education Science "10th Five-Year Plan" key project *Growth of Innovative Teachers and Teacher Performance*. Although Wang had published the book *Teacher Evaluation: Performance Management and Professional Development* in 2005, but compared with Cai in "Teacher Performance Evaluation," Wang's article had been published later. In this field, the impact force and research benefits of Cai are larger, and Cai projects were earlier than 2005. So, Cai became another expert in the field of teacher evaluation after Wang.

3. Evaluation of Rewards and Punishments, Evaluation of Development, and Performance Evaluation

The foregoing data have shown that, before 1998, the annual number of literature in China was not much about the evaluation of teachers, Chinese academic research on teacher evaluation was still in the initial stage, and the subject of the study was still stuck on the basic theory. After we have had statistics on "citations," we found the top 3 articles. In addition to Cai's article, the other two are *Developing Teacher Evaluation Theories and Models* which was published in *Educational Theory and Practice* ([11], no. 12) and written by Liu Yao, Zhejiang Normal University, (cited 234 times, ranked no. 2) and *Overseas Development of the Trend of Development of Teacher* Evaluation published in Comparative Education Research ([12], no. 1) and written by Zhao Xibin, Beijing Normal University, (cited 208 times, ranked no. 3). The analysis showed that in addition to Cai's article, the other two are "developing teacher evaluation," pieces of literature. Then, statistical analysis on the key words of the articles found in 1999–2005 period and "developmental evaluation" and "reward and punishment evaluation" of the content closer to the key words had the highest proportion, while after 2005, a substantial surge in the number of articles with the keywords "performance evaluation," could also say that the country of the basic theory on teacher evaluation was basically carried out among these three theories. The following study is to do a brief summary.

3.1. Reward and Punishment Evaluation. Some "reward and punishment evaluation" studies are also known as "traditional evaluation," "normative assessment," "judgment evaluation," "management evaluation," or "summative evaluation," considered to be as a "top-down" evaluation mode. The aim is to approve the effectiveness of teaching, and the purpose is to reward, punish, and sort [13] and focus only on the results of a summative, historical, and utilitarian evaluation. Also evaluation of the screening, with emphasis, plays a supervisory role, through the incentive mechanism for managers to teachers to make the appointment, promotion, demotion, and salary, or increase bonuses and other decision making procedures to provide convincing basis [14, 15]. This evaluation is considered to be able to mobilize the enthusiasm of the teachers, and to promote the qualities of teachers' groups. This study suggests that this is the understanding of the limitations of both historical time and space constraints, but also not only the limitations of personal thoughts. In the evaluation of the development of the discussion, more researchers had proposed different views.

3.2. The Development of Evaluation. "Developmental evaluation" is to promote the future development of the teachers for the purpose of facing the future, and not only focusing on a formative evaluation of the results of the process-oriented, besides,it is also an expectation evaluation and incentive [14, 15]. It is an evaluation system since the 1980s originated in the United Kingdom. It does not only focus on the performance of individual teacher, and it pays more attention to the future development of teachers and school development, as in the book *The System of Appraisal for Development* written by Wang, in which the theory origin was being affected by the influence of British ideas. In the book, he pointed out that the main features of the development of evaluation are (1) school leaders to focus on the future development of the teachers; (2) emphasis on the authenticity and accuracy of teacher evaluation; (3) focus on the teacher's personal values, ethical values; (4) implementation of teacher evaluation among colleagues; (5) to promote the future development of teachers by the evaluators and teachers; (6) to play the enthusiasm of all teachers; (7) to improve the awareness of the participation of all teachers and enthusiasm; (8) to expand the channels of communication; (9) evaluation plan for the development of evaluators and teachers recognized by the evaluation of the two sides shared responsibilities to achieve development goals; (10) focus on long-term goals [16]. The new type of teacher evaluation is to evaluate the advantages and disadvantages of each other for teachers and to provide an opportunity to formulate future development goals for evaluators and evaluation of object, with educational and informational effectiveness [17]. The purposes of the evaluation are the following: (1) to promote the professional development of teachers; (2) to advocate the teachers of individualized teaching; (3) to stressed on teachers' own teaching behavior analysis and reflection; (4) to take the initiative to motivate teachers to meet the needs of the development of modern education. The evaluation principles are active orientation principle, the principle of redevelopment rather than reutilitarian principle, the overall target and timeliness, and process principles [18]. The most obvious difference with the traditional evaluation and the development of evaluation has actively promoted a wide range of evaluation subjects: teacher self-assessment, peer-to-peer assessment, expert evaluation, the evaluation of students participation and the community, as well as the promotion of teachers to actively participate in evaluation of changes in the roles of the evaluators which is very important. The evaluator and teacher must look at change from high equality listener and interlocutor so as to create an atmosphere of good communication, so that teachers speak their minds [12]. Developmental evaluation pays more attention to the evaluation of the ethical: Prior to the formulation and design of the evaluation program,there must be an investigation on the needs of teachers and teachers' decide to participate; some communications between the evaluators and the object in front of the classroom observation establish the context, ascertain the teacher's aims and expectations, share the lesson plan, identify potential difficulties and constraints, agree the observation style and the focus, and contract for debriefing [13]. The researchers believe that "developmental evaluation" enables teachers to produce effective internal incentive, self-motivation, arousing in the individual a strong sense of accomplishment, thus fueling self-evaluation and achievements awareness and willing to work hard and eventually produce a certain amount of the incentive effects [19]. At the same time, the assessment of development emphasizes the value of the teachers in

the school. I believed that individual teachers have the ability to make the right judgments while recognizing the developmental needs of individual teachers and school developmental needs. Therefore, development of evaluation is to promote teacher development, and school needs an effective strategy of unity and integration [11]. Some commentators believed that although the development of evaluation is a more desirable trend of development, its effectiveness also needs strong external support. (1) The strong policy support is an important prerequisite for developing teacher evaluation. (2) It is the necessary condition led by experts for the smooth implementation of developing teacher evaluation. (3) To withstand the test of practice is the touchstone of the development of teacher evaluation to be acceptable for the majority of teachers [20]. That debate has not only led to more of our thinking, but we need the field to make some research and experiments for further verification.

3.3. The Dispute of Development Evaluation and Reward and Punishment Evaluation. Some researchers had very different views for the "reward and punishment evaluation" and "developmental evaluation" implementation of the pros and cons with the aforementioned points of view [21]. The researchers believed that our implementation of the development of teacher evaluation in the context of the rewards and punishments of the teacher evaluation system that cannot be canceled, in the implementation of the development of teacher evaluation, cannot completely deny or evade the rewards and punishments of teacher evaluation system [22], the key to the implementation of developmental teacher evaluation is not whether but how to get it linked with rewards and punishments; Simply against each other, the development of evaluation and reward and punishment evaluation represent the lack of combination of education reality dialectical thinking [23]. The researchers believed that the development of evaluation was not irreconcilable with the "incentive" teacher evaluation, but the reward and punishment evaluation was the inheritance and development of teacher evaluation. In theory, incentive teacher evaluation and development of evaluation are split for the purpose of evaluation, and to explore the adversarial relationship is inappropriate, because the purpose of teacher evaluation originally developed and reward and punishment is only a means of evaluation [24, 25]; Commentators have suggested that the incentive evaluation is educational administrators on teacher supervision and management of services, and the emphasis is on incentives and constraints. However, developing teacher evaluation for the teachers' personal development services, education, guidance, and assistance functions, the two are not in relationship to what western scholars had said, for the conflict between the two was not adjustable. The development of evaluation and reward assessment is not irreconcilable. They can coexist and complement each other under certain condition, form the long-term interests and teacher professional development. Their fundamental purpose is the same and their results of the development itself is the best reward [22]. There were commentators who have made it clear that the two can be combined, researchers with the formula "the motivating force = Σf (substances stimulate + spirit stimulation)" [14, 15], and that the combination of the two "composite evaluation of the teacher evaluation is a rational choice" [26]. There are commentators clearly developing teacher evaluation system to build a combination of evaluation development and reward of the teacher evaluation system and implementation of a 360-degree feedback evaluation and the whole process of teacher performance management and assessment [27]. So, commentators had drawn on the basis of field research that both analysis and combination of the two were entirely feasible to have great significance for the depth of the reform of teacher evaluation [28]. As for the study abroad on the relationship between the two, different commentators draw a different conclusion. Someone said: "UK, US, and other Western countries have tried to "combine"' the two teacher evaluation systems and the results were a stricken failure, receiving no expected effect" [21]. Some commentators have claimed that "the reason why combined use of the attempted incentive teacher evaluation system and developing teacher evaluation system was "almost to the brink of collapse" in the developing teacher evaluation in UK and USA, of course, for all of Chinese academic circles, there is a long journey line to go.

3.4. Performance Evaluation. For the definition of performance, Cai has borrowed Murphy's definition—individual's organization or group goals related to behavior [8]. In fact, teacher performance evaluation is only a stage in the evaluation of teachers' career; the evaluation also includes teacher competence evaluation for the preservice teachers and the ultimate effect of teacher effectiveness evaluation. Due to the later start of Chinese academic teacher evaluation researches, the teacher performance was slightly weak. There was no strict distinction between researchers of different types of evaluation, resulting in a mix of different types and functions of teacher evaluation. Thus, teachers validity studies were difficult to draw the correct conclusions. Even for the evaluation of teacher performance, the content did not have unity, the structure was not clear, and, in the formulation of research tools or a simple list of some of the factors or random summarized some of the projects, the lack of a solid theoretical basis was clear [8]. With further research and the introduction of foreign ideas, Cai also complements the definition of performance, the performance of the structure including the provisions of the act and the individual spontaneous role behavior. The former is called the task performance, while the latter is relationship performance [9]. This is the first relationship performance in the country. Cai and Lin through a series of studies, found that the quality of teachers structure theory is the basis of the structure theory of teacher performance, and they defined the quality of teachers as being the sum of the teachers in the educational and teaching activities, to determine their education effect, with a direct and significant impact on the psychological quality of students' physical and mental development. It includes career aspirations, level of knowledge, concepts of education, teaching and monitoring capabilities, as well as education and teaching

behaviors and strategies. The eventual adoption of qualitative research methods reached the six dimensions of teacher performance: professional ethics, professional dedication, assisting and cooperation, the effectiveness of teaching, teaching values, and teacher-student interaction [9]. For the use of teacher performance evaluation process, some commentators believed that it depends on the theoretical basis, the purpose of the evaluation, the evaluation, the evaluation procedures, and frequency differences to distinguish between teacher performance evaluation and teacher competency evaluation. Then, it evaluated teacher performance implementation of the various stages of effective management, including the management of the preparation phase and implementation phase of the management. Finally, it is the implementation of management, prudent interpretation, and identification of application teacher performance evaluation information [29]. Some commentators believed that in the performance evaluation, it must want to adhere to the principle of "people-oriented": (1) the performance evaluation criteria to set up and choose to adhere to the "people-oriented"; (2) performance evaluation to adhere to the "people-oriented"; (3) performance feedback to adhere to the "people-oriented"; (4) the use of performance evaluation results must adhere to the "people-oriented"; (5) the relationship between treatment evaluators and evaluators should adhere to the "people-oriented" [30]. Guidance of this theory in practice is both beneficial to the development of individual teachers, but it is also favorable for the development of the school.

4. China Academic Thinking and Critical to the Teacher Evaluation

4.1. On In-Depth Thinking of the Teacher Evaluation. From the etymological point of view, the Latin original intent of the "evaluation" refers to "strength" and "empowerment"; in other words, the purpose of the evaluation "is not in order to prove, but in order to improve." The most fundamental and one of the direct aims is to promote the professional development of teachers, especially in the professional development of autonomy [31], and evaluation in essence is the formation of a "consultation" and "psychological construct," which adhere to the belief of "value pluralism" and oppose the tendency of "managerialism" [32]. For the reality of teacher evaluation, there had been two opposing points of view: a "locus of control," the typical representative of this view was the emphasis on evaluation of teaching performance of teachers' responsibility system; another was a "noncontrol concept," and it emphasized that teacher evaluation should not value the decisive pressure from superiors, principals, students, parents, and colleagues but should be concerned about the progress and improvement of teachers in teaching [7]. In teacher evaluation, some commentators had suggested that teacher evaluation were not along with ones' thinking, student test scores was not equal to teaching effectiveness, and quantification was not equal to the scientific and comprehensive and may not be fair [33]. In our country for teacher evaluation there are mainly two kinds of orientation: one looked on evaluation of teachers as a measurement and identification of a teacher; another looked on evaluation of teachers as a teacher management means [34].

From the point of philosophical view, different theorists have different thinking perspectives, and commentators from the perspective of hermeneutics assessment believe that the "understanding" and "dialogue" and "showing intersubjectivity" are the basic criteria of teacher evaluation. At the same time, from the philosophical category, the value orientation of the teacher evaluation from one direction to diversities, from the relationship between areas of view, and the evaluation of the two sides from the opposition should be between the subjective and objective towards intersubjectivity; Some commentators after the modernist perspective, to critique and understand the evaluation of teachers, suggest that the postmodern orientation of the teacher evaluation research has great significances. The current teacher evaluation is often evolved into mechanical, meaningless activities, many teachers in fear, suspicion, and hostility eyes to look at for the teacher evaluation. The root cause of this phenomenon is the separation of the main object of the evaluation of modernist orientation, evaluation of the "tool man" hypothesis, as well as quantitative evaluation methods. We need to borrow postmodern ideology, with full respect for the dominant position of teachers in teacher evaluation, and establish a humane view of the evaluation. We could not only just see the evaluation in the promotion of teachers to improve the quality of education "tool," but also go beyond the limitations of this narrow vision of "tools," recognizing that the evaluation should not only need, but also must promote teachers' professional development and personal growth, publicity to promote teachers' personality, and the value of life. At the same time, we focus on the use of qualitative evaluation methods in teacher evaluation [35]. Of course, only he who has a thoughtful understanding of this basic theory can really grasp the principles and methods of the teacher evaluation.

4.2. Evaluation of Teacher Evaluation Methods and Models. The findings in China and abroad have shown that a variety of methods can be applied to teaching evaluation, such as teachers' self-assessment, evaluation of teachers files, parent evaluation, teaching evaluation, classroom observation and interview, informal observations, peer review, or peer assessment, capacity test, indirect measurement of student academic achievement, and written materials collection. Another classification can be summarized as classroom observations, clinical supervision, teaching videos, research-oriented checklists, written tests, goal management, job analysis, students' academic achievement, anecdotes, diary, file evaluation of growth, responsibility and theoretical orientation, self-evaluation, peer-to-peer assessment, student evaluation of teacher questionnaires and interviews, and meta-evaluation. East China Normal University's Wang Binlin believed that what was frequently used in our country was the following ten: (1) classroom observations, classroom observations can generally be divided into the classroom

observations, teaching videos, and teaching observing; (2) evaluation of classroom performance, making teacher-rating scales as a benchmark, and then judging the behavior of teachers' classroom performance; (3) students' academic achievement, also known as value-added method, the main variable is the application of students in a certain period of learning progress time, such as to compare two test scores and their academic achievement, such as employment rates and employment conditions, contest winners, and so forth; (4) growth appraisal; (5) the student/parent evaluation; (6) peer review/assistance, peer review/assistance have counterparts in pairs (inter-professional support relationship, and help each other succeed, and to solve the problem and the lifting of frustration), peer guidance (among mentoring relationship initiative by the expert teachers and new teachers share their teaching expertise), peer discipline (groups of experienced teachers in collaborative reflection, discussion, and reporting, in access to learning new teaching skills and techniques), and other forms; (7) teachers' self-assessment/action; (8) written test/test; (9) questionnaire and interview; (10) metaevaluation [36]. Some commentators had proposed a "345" model, including: three-dimensional evaluation criteria, namely, quality, responsibilities, and performance; three types of evaluation method: evaluation of the relative standard absolute criteria for evaluation of intraindividual difference evaluation; third-order evaluation method: diagnostic assessment, formative assessment, and summative assessment; four categories of evaluation results: quantitative interpretation, the hierarchical interpretation of descriptive explanation, and attribution analysis; five evaluation subjects: education administrators, peers, teachers, oneself, students, parents [37]. However it should have been noted that the evaluation methods and models which have different applications to the subjects needed to make a choice to be used in the evaluation.

4.3. Analysis to Evaluation of the Principal Part. The main differences of teachers' evaluation lie in the role, status, abilities and their experience. At this stage, in the discourse world of the teacher evaluation, in general, there are three types of discourse systems. One is issued by the administrator of the power evaluation of discourse. The second type is manufactured by the experts and scholars from a variety of academic discourse, to convey a rational "logic of power." The third is a class issued by the teachers themselves in individual words; it is really the way to convey their personal lives on the value of the work relationship and the value of the phenomenon in a specific organizational context holism and practice, as reflected by the power of a metaphor [31]. At this stage, Chinese and foreign scholars are fully aware of the necessity and importance of the diversification of the principal to participate in teacher evaluation. In addition to the traditional leadership evaluation, expert evaluation, administrative staff evaluations, more discussion of self-evaluation, peer evaluation, and student evaluation, the following is a brief analysis of the latter three. The first is the self-evaluation, which is a reflection of the self-evaluation [32]; it is an important foundation for teachers' professional development [38, 39]. Commentators have suggested that self-assessment skills enable teachers to get insight, understanding, and interpretation from the other aspects of materials, and conducive to the role of teachers internalized, intrinsic motivation to inspire teachers, to encourage teachers to actively participate in the evaluation process, a sense of ownership and democratic atmosphere, you can broaden the evaluative information collection channels, improve the reliability of evaluation results and effectiveness, improve teachers' self-evaluation, to enhance teachers' professional standards. But for good self-evaluation, it must firstly resolve the following issues: (1) self-evaluation in the reference standard; (2) psychological concerns in the self-evaluation; (3) self-evaluation skills and the self-fantasy problem; so, evaluation before the training is very important. Second, peer review includes school teachers-school teachers or expert evaluation [40]. Peers as professionals, they understand the nature of the profession and the problems in the evaluation of academic standards of teachers and capabilities, peers at the most advantageous position; they are more familiar with classroom activities, teaching materials, as well as the requirements for teachers evaluators; most teachers improve their teaching duties by specific and practical advice. But others questioned the reliability and validity of peer review to solve this problem from two points to spare paper: first, to make peer evaluation activities organized to provide appropriate evaluation criteria and scale, carefully composed of a balanced assessment of the panel of experts; second is to broaden the channels and methods of evaluation. The third is student evaluation. The students are the direct consumers of educational products and teaching achievements firsthand. The student evaluation of the teaching process and its effects is important and unique. If we make appropriate and better organized evaluation criteria (such as a description of the purpose of evaluation, anonymous, etc.), evaluation of the students can reflect part of the real situation of the teaching process. Student evaluation should also pay attention to four issues: (1) to overcome the contradictions and conflicts that exist in the evaluation; (2) the scientific design of the scale of student evaluation of teaching; (3) the analysis of a number of factors that affect the results of student evaluation of teachers; (4) the timing of the student evaluation of teaching [41]. Also, someone had worked out the structure of the theoretical framework of student evaluation: professional ethics, dedication to duty, assisting and cooperation, the effectiveness of teaching, and teaching the value of teacher-student interaction [10]. Besides, the others can also be called to evaluate the difference between self-evaluation and student evaluation. Some researchers believed that others' evaluation can reduce the separation and that self-evaluation is a pathological cause of the existing educational evaluation [42]. This study suggests that the judgment of others or the self-evaluation is the application of environmental random application only to produce counterproductive results.

4.4. Critical to the Development of Teacher Evaluation Standard Error Tendency. Wang believes that now there

is a number of erroneous tendencies in the process of developing teacher evaluation criteria as follows: (1) copycat, in other words, some schools always want to find ready-made or the applicable teacher evaluation standards from foreign literatures; (2) the teacher evaluation criteria of "thousands of people a pattern"; (3) using "antiquated" teacher evaluation criteria. Teacher evaluation criteria should be changed with the times, fully reflecting the times and reality; outdated teacher evaluation criteria should have appropriate adjustment; (4) "unrealistic" teacher evaluation criteria. Teacher evaluation criteria should be accept, and after efforts one should achieve the standard; (5) purpose of the teacher evaluation criteria. In the development of teacher evaluation criteria, be sure to first clear why the evaluation is made, fully embodying the purpose and relevance of every teacher evaluation; (6) "overly soft" teacher evaluation criteria. "Overly flexible" teacher evaluation criteria must be further decomposed and refined, until you could operate [43]. Some commentators have suggested that the current implementation of teacher evaluation in China, often with the administration tendency, one-sided emphasis on one mode, step in step, and without considering the differences in areas, units, and subject categories, the system is too stiff. Definition is as follows: (1) indicators are too far in pursuing a comprehensive and difficult-to-differentiate level of the evaluation object; (2) deliberate pursuit of the quantitative evaluation of the information is difficult to effectively reflect the essential characteristics of the evaluation object; in the teacher evaluation, it had been filed, and criticism was the number of indicators, which was too much emphasis on the utilitarian and practical value [44]; (3) evaluation methods in the indicators, quantifiable mode, too much emphasis on redistribution, ignore the evaluation standard [45]. Therefore, teachers in the implementation of the constructive or developmental evaluation should master the following three principles: (1) evaluation and not that the person can protect teachers' self-esteem, enabling teachers to lay down their psychological burden, calm face of the gain and loss of education, and have a normal state of mind; (2) the evaluation process around specific issues for communication and discussion to ensure that the interaction between teachers promoted and improved work together, causing the formation of a good school atmosphere; (3) evaluation is not confined to the established standards, to avoid the closed and rigid standards, conducive to the development potential of teachers, to encourage teachers to reform and innovate [34]. From the evaluation process, standardized operating procedures of the teacher evaluation are not enough; it is difficult to achieve the established evaluation goals. The lack of dynamic track evaluation could not provide effective feedback to teachers [46]. Of course, criticism is the driving force for development, and construction is the ultimate purpose of criticism. This study suggests that increasing the constructive elements of criticism is a more important research areas in the current teacher evaluation.

Table 1: Foreign literature numbers in the teacher evaluation.

Nation	Number	Percentage	Nation	Number	Percentage
USA	313	62.98	Germany	8	1.61
UK	94	18.91	France	6	1.21
Japan	28	5.63	Singapore	6	1.21
Canada	13	2.62	Russia	2	0.40
Australia	12	2.41	Finland	2	0.40
Korea	12	2.41	India	1	0.20

5. Studying and Introducing UK and USA Theories

Throughout the history of the development of Chinese education, there are many theories originated in the introduction of foreign theory, and the same was true in the area of teacher evaluation. Sun He, Liaoning Normal University, for example, introduced the theory of the United States, Britain, Finland, and other countries in the field of teacher evaluation. At the same time, Cai Min, Liaoning Normal University, has played an important role in the introduction of the theory of the United States and Canada; they are the top scholars in this field. In this study, through statistical analysis, we finally listed the number of literatures table of study abroad in teacher evaluation.

From Table 1, it can be clearly seen that in the promotion of teacher evaluation on foreign experience and theory, UK and USA are overwhelmingly dominating; so in this part, we want to make a brief summary in theory and experience of UK and the United States.

5.1. The UK. UK's formal teacher evaluation was not a long history, from the literature informed, from the 1970s onwards. Some schools had voluntarily carried out some tests, and the evaluation of this period was a control evaluation system; the British Federation of Teachers before the government developed its own evaluation of the various measures of teachers and reward criteria. Former British Prime Minister James Callaghan Ruskin had given a speech in Ruskin College, and the content was also relevant. The rewards and punishments evaluation policy continued until the 1980s. However, the teacher evaluation of official government was proposed in *Teaching Quality* of the 1983 White Paper on Education and in 1985 the book *Make School Better*, soon after the United Kingdom Education and Science seriously paied attention to the teacher evaluation report submitted by the 1986 Advisory, Conciliation, Arbitration and Services Working Group (ACAS), and six counties in the United Kingdom in 1987-1988 had been tested [47]. The summary report submitted after the trial has become the prototype of British 1990s teacher evaluation guidance document. This report was not only one of the important theoretical basis to *1989 Education Reform Act*, it was also one important theoretical basis of the July 1991 *Education (School Teacher Evaluation) Ordinance* released by the Ministry of Education and Employment (the latter required across

England to establish a teacher evaluation system in public elementary and secondary schools).

The clear purpose of this guidance document proposed by the teacher evaluation is abandoning the judgment of teacher performance that is not based on rewards and punishments for the purpose of teacher evaluation system, but the diagnosis and the purpose focus on supporting teachers' professional development, the schools' progress, and improvement of teaching quality [48]. This evaluation was a combination of qualitative and quantitative rating processes [38, 39]. This evaluation process was divided into three phases: preparation, implementation, and results. (1) During the preparation phase, it would be clear that the evaluation process is open to the evaluators and the establishment of mutual understanding on the basis of the evaluation process; it should be an important part of the school's overall teacher development strategy. Also, it requires the personnel qualifications and evaluation methods in evaluation, as well as formal training to the evaluation and assessment staff. (2) In the beginning of implementation, the two sides together determine the evaluation purpose, the scope, the calendar, and so on. In the implementation of the evaluation, self-evaluation, personal evaluation, and classroom observation are all important parts, but the formal implementation began from the conversation, the first assessment of teachers to conduct self-assessment and classroom observation, followed by evaluation of the object leadership, colleagues, students, and parents to conduct a survey to complete the evaluation report of a paragraph [49]. The talks of evaluation involve teachers in both teaching and supervision duties, job performance, and professional development requirements and recommendations of the school. The contents of the evaluation report should also include the addition to the summary of individual results and also include the establishment of the teachers to achieve developmental goals, noting the principles of confidentiality. (3) The complete report is not the end of the evaluation. In the evaluation, finding problems is more important, maintaining the continuity of the relationship between the evaluators and assessment of teachers, then holding several fixed talks after mutual agreement, professional development, and training, and giving appropriate support and encouragement. In the middle of the first and the second year after the first evaluation, also two reevaluations also are needed, those are midterm reevaluation and the overall objectives of the reevaluation.

The development of teacher evaluation policy described in the previous paragraph was implemented by the British Conservative Party in the early 1990s, but the later of 1990s, as the Labor Party took place in a larger reform in December 1998, the Labor government made an implementation of Performance Related Pay that was a "compromise" evaluation policy, and the Green Paper published in that month the English teachers' professional modern PRP policy linked to the salaries of teachers and principals or chief instructor and performance. The Labor government claimed that this evaluation system has a "dual function": first, the decision in accordance with the quantitative indicators of teachers' salaries was to promote the personal and professional development of teachers [38, 39]. Its purpose was the appropriate reward to those who have made important contributions to school success principals, to maintain the teaching profession sufficiently attractive to talented young people, reward excellence, and promote professional development. The PRP's ultimate goal was to improve the level of education. The PRP staff includes the government officials, external supervisors, principals, teacher team leaders, and teachers. The evaluation process was divided into three steps: planning, and assessment, operational monitoring, and discussion and review. In short, the aim was to improve management efficiency through management by objectives, scientific management, and emotional management, and to achieve good results in a period of time. The PRP supporters believe that such an evaluation system should achieve such objectives: (1) to better stimulate the teachers' sense of responsibility; (2) enhance the impetus to the development of teachers; (3) the teachers' job satisfaction; (4) to strengthen the teachers' personal goals with the school overall objective of integration; (5) to maintain high-quality teachers' structure [50]. However, some negative impacts appeared: (1) this evaluation system was destructive of cooperation between the teachers; (2) it brought a greater controllability of the school bureaucracy. Later, this evaluation system has been suspected as a performance-based evaluation system.

However not lasting long, in 2000, the United Kingdom Ministry of Education and Employment issued a circular performance management in the primary and secondary schools; it introduced a new evaluation system—Performance Management evaluation system, the system which was rapidly promoted in 2001. The system core was through the teacher evaluation law which was institutionalized and standardized to provide the necessary supports and helps for teachers, improving teachers' teaching ability and level, thus achieving the promotion of the school's efficiency and raising the level of ultimately improving student which wasthe purpose of academic achievement [51]. The system was an organic integration of the reward and punishment evaluation systems and the development assessment system. It also further improved the evaluation system of PRP. The British government attached great importance to the new evaluation system, since the Education Bureau of Standards (OFSTED) (responsible for the evaluation and supervision of the primary and secondary schools) and the following set up a three-tier responsibility of institutions around the public schools: local education authorities, the board of directors of each school, and schools, and cleared the respective responsibilities [52]. The new evaluation system placed more emphasis on the science of teaching of teachers and learning of students, concerned about the organization of classroom teaching and student interaction and exchange. For effective classroom teaching, the British government proposed eight criteria as the basis as follows: (1) effectively plan for teaching to develop clear goals understandable; (2) have good subject knowledge and understanding; (3) use of teaching method which can lead all students to learn effectively; (4) to organize the students to maintain a high level of interaction; (5) give a comprehensive evaluation of students' academic; (6) allow

students access to a wealth of learning outcomes as much as possible; (7) effective use of time and resources; (8) effective use of homework to reinforce and expand learning [53]. The new classroom teaching evaluation system was based on the school as the basic unit. The teacher group leaders and teachers jointly participate in the evaluation mode. It persist in people-oriented development at its core, focusing on teachers' personal value and professional development, to cash a methodological pluralism and individual differences.

So, after the study summarized the history of the English teacher evaluation system, the researchers had believed that the main line was from reward and punishment evaluation to the development evaluation and then to performance management evaluation process [54]. In fact, the whole world in the field of teacher evaluation was similar.

5.2. USA

5.2.1. The Development Path of USA Teacher Evaluation. Compared with the UK, the formation of the teacher evaluation system in the United States was much earlier. It can be traced back to the colonial period in the 19th century, having the management authorities in the school system to appoint a specific leadership or full-time management for teacher evaluation. In 1925, the school system of the nation's major cities had been beginning to carry out a variety of teacher performance assessment [55]. In 1952, the US government established the National Teachers Identified Council, and in 1954, established the Teacher Education Accreditation Board, so as to unify requirements to the state teachers. The evaluation in the 1950s was a "performance pay system." It was the basis for performance evaluation to determine teachers' salaries and allowances. Since 1977, the United States began to have the ability test for teachers, launched in most states, in addition to individual states to self-test the questionnaire. The majority of states have adopted the *National Teacher Examination* as the test standard.

Time into the 1980s, the US government has already made substantial progress understanding the teacher evaluation. Only the nurturing and protection of excellent teachers, could help the United States to solve the education crisis, which was written in the 1983 government report *Nation in Risk: The Imperative for Educational Reform.* In 1986, Carnegie report *State to Prepare Teachers in the 21st Century* created a national teachers' qualifications review bodies to develop a unified national eligibility criteria for high-quality teachers [56]. As the United States is purposing decentralization, it makes states, school districts formed different purposes, different methods, and different evaluation criteria for distinctive teacher evaluation system. After several years, the US government in the organization and implementation of teacher evaluation has been institutionalized and standardized [57]. Overall, in the early 1980s, the United States in the teacher evaluation system had focused on "developmental evaluation." It was a development in the formative evaluation on the basis of evaluation. It was also a performance-based developmental evaluation system (PBDES). The implementation of the program was divided into seven steps: (1) to discuss the purpose of the evaluation, the evaluation model, as well as related terms, and drafting the report of an evaluation purposes; (2) develop performance criteria and descriptors; (3) collection of teacher behavior information; (4) make the classification of information, sorting, the formative data form; (5) convening the formation of meetings; (6) a discussion of indicators to identify principals and teachers to develop a development plan; (7) make the formation of the summative evaluation [58]. The summative evaluation is a composite index based on work experience, degree and performance evaluation is used to determine the pay raise, promotion methods, designed as reward and punishment mechanism to motivate teachers to improve teaching quality [59]. Such an evaluation system falls in three main areas to evaluate teachers: national teacher examinations (tests could be divided into nationwide, statewide tests and the range of the school district tests) [57], student achievement test scores, and teacher performance in the classroom [55]. However this was biased towards a certain extent, while filling the teachers were in the care of their own remuneration, while ignoring the improvement of educational practice, and did not trust such an evaluation system, and did not solve the teacher shortage and improve the quality of teachers of the intended purpose, so the difference in promotion system was abolished in 1992.

Then, the states have put forward their own teacher evaluation systems, though that was formed of a better situation of flourishing. For example, Louisiana had established a learner-centered classroom evaluation system—teaching evaluation and assessment system (the system for teaching and learning assessment and review, STAR), while Florida had established a vocational assessment and evaluation system (the professional assessment and comprehensive evaluation system, PACES). At the same time, from 1987 to 1995, the National Board for Professional Teaching Standards (NBPTS) had successively implemented a series of detailed criteria to identify and certify skilled teachers in 27 disciplines. Its five core characteristics are as follows: (1) responsible for the students and their learning; (2) familiar with the subjects which they teach as well as guidance on how to impart knowledge to students; (3) responsible for managing and monitoring student learning; (4) to carry out their teaching practice systems thinking and learning from experience; (5) to become a learning team [60]. From 1995 to 2005, the NBPTS of the total number of teachers was 47,507 people. In 2007, application for a certificate had reached 99,300 people, including 63,800 ultimately approved [61]. In addition to the previously mentioned NBPTS, the institutions of the United States at this stage in the evaluation of teachers were the National Teacher Education Accreditation Council (NCATE) and the US Quality Teachers of the Credentials Committee (ABCTE). The former was established in 1954, aiming to develop and improve the standards of the accreditation of teacher education, in order to ensure the quality of teacher education providing the professional judgment standard that was mainly responsible to monitor the quality of preservice teacher training. The standards set in 2006 a new task entry certification of new

teachers to assess and promote its further development. The ABCTE was founded in 2001 and was set up jointly by the National Council on Teacher Quality (NCTQ) and Education Leadership Council (EIC). It is a new teacher certification organization. There are two of its certification objects: one is the entry of new teacher certification and quality certification, and the other is experienced teachers.

In 2001, the Bush administration signed the document "No Child Left Behind" (NCLB) to distinguish standards of new teachers and in-service teachers, corresponding to development of highly qualified teacher standards, while Interstate New Teacher Assessment and Support Consortium (INTASC) responsible for the new teacher standards of the developed stage of basic education had been formed [62]. US teacher evaluation at this stage presents characteristics of the "performance" system, focusing on student learning, with the overall objective to require all US primary and secondary students in reading mathematics and science achievement to reach the level of proficiency at the time of 2014 [63], and the introduction of NCLB makes the United States present the new changes in three aspects of teacher evaluation: (1) the expansion of the connotation of teacher performance, and the promotion of the Tennessee Value-Added Assessment System in the US (TVAAS) [64], and also set up systems of accountability between the states, school districts, schools, and teachers to implement the responsibility system, the signing of the assessment agreement; (2) to broaden the entry caliber of teachers and is committed to improving the quality of teachers; (3) states widespread use of individual monitoring and evaluation system, known as Addison the Central Supervisory Union (ACSU) and Maryland Montgomery County Teachers' Professional Growth System (PGS) [65]. NCLB can be regarded as an education reform bill which made the teacher evaluation theory have a full range of change as follows: (1) extending the purpose of the evaluation played a variety of teacher evaluation utilities; (2) absorption of multiple subjects involving the establishment of democratic consultation and evaluation mechanisms; (3) broadening the collection of information channels and scope of teaching materials, the ability of performance, professional achievement, professional development activities, student academic status to collect data, and evaluation of evidence of a more comprehensive objective; (4) paying attention to teachers' differences and establishing several categories of evaluation criteria; (5) strengthen the training of personnel, improving the professional standards of teacher evaluation [66]. From this, the promulgation of this bill has a positive historical significance.

This stage, the core content of the teacher evaluation system, was mainly reflected in two aspects: first, the public accountability of the teachers, and the other from teachers to improve the development needs of the professional level [55]. The teacher evaluation was characterized by rendering anti-specialization trend, evaluating teachers in accordance of their aptitude (e. g., with a different evaluation criteria to evaluate teachers in different levels of development, emphasizing diversification, value-added assessment, portfolio rating and individual supervision in a variety of ways), emphasizing on the developmental assessment (that is to say, the teacher evaluation is not for proving but for improving and is not for dealing with the teachers but for teachers) [67], integrating teacher evaluation and teacher organizations development with school improvement, developing the regional teacher evaluation standards, focusing on the combination of quantitative and qualitative evaluation. The ideas of evaluation like the British also attach great importance to teachers' classroom teaching and the center of the classroom observation from the teachers' teaching to the students' learning and establish the evaluation mode and evaluation system based on student-centered techniques. The System for Teaching and Learning Assessment and Review (STAR), implemented in Miami, Florida, and Professional Assessment and Comprehensive Evaluation System (PACES) were the famous systems [68]. Taken together, the evaluation model is mainly of seven kinds: (1) teacher trait model, (2) process-oriented model, (3) duties-based evaluation, (4) accountability model, (5) goals-based evaluation, (6) professional growth model, and (7) hybrid model [55]. We had summarized its characteristics: (1) require teachers with multidirectional and forward-looking timing; (2) concern the appropriateness between the teachers' teaching and student learning; (3) emphasize on teacher professional; (4) require teachers to shoulder the responsibility of the educational evaluation; (5) stress teachers shoulder on many responsibilities to the students [69].

For teacher evaluation, the United States at this stage had a clearly distinguished hierarchy. Even they clearly put forward a differentiated evaluation system, it is a system according to the reality situation and demand of different teachers to formulate explicit teaching standards, to use different evaluation procedure and to complete by professional evaluators. Its purpose is to evaluate the quality and job performance of teachers. The so-called "distinguish" is the "difference." The direct goal of the evaluation is not to compare the level of teachers, but to respect the value of diversity and individual differences in the evaluation, under the premise of the recognition of differences, to discriminate pros and cons of teachers' work to achieve the two assessment purposes of ensuring student academic achievement and promoting professional development of teachers [70]. There are different evaluation criteria for the newly recruited teachers and skilled teachers. For new teachers is to meet the *New Teacher Induction Program* (NTIP) standards. At the same time, with special emphasis on the new teachers' ability to use educational technology. U.S. Agency for International Society for Technology in Education (ISTE) belongs to the Title of Identification with the Professional Standards Committee had promulgated National Educational Technology Standards for Teachers (NETST), has mainly used to preservice teachers training and certification guidance. This standard encompasses 6 quality dimensions and the 23-level indicators. In 2008, ISTE also had promulgated NETST (2008 edition) for guidance training of the technical capacity of the education of new teachers in the situation and reducing the quality dimension and level indicators for 5 dimensions and 20-level indicators. Throughout the evaluation process, the National Council for Accreditation of Teacher Education (NCATE) had undertaken specific

work and the National Educational Technology Standards for Teachers Resources for Assessment as the guiding standard [61]. For a skilled teacher, in California in 2006, Performance Appraisal of Experienced Teacher (PAET) had promulgated. PAET provisions once in every five years, and the United States Professional Teaching Standards (NBPTS) provide contents in 5 areas: a sense of responsibility and contribution, knowledge and skills, teaching practice, teamwork, and professional development. The evaluation committee was composed of school principals, vice principals, educational supervisors, and experts. PAET implementation of procedures covers the following steps: classroom observation before the meeting, classroom observation, classroom observation after the meeting, the summative evaluation, and additional evaluation (second evaluation and third evaluation) [71]. From this, teacher's classroom teaching was the core content of the skilled teacher evaluation.

5.2.2. Teaching Portfolio Assessment. Currently, in the United States, there are a variety of methods for teacher evaluation, including teacher self-evaluation, peer evaluation, student evaluation, student achievement, assessment, teacher interviews, spot steering checklist assessment, written tests, job analysis, classroom observation, teaching video analysis, teaching log analysis, file analysis, and questionnaire survey [67]. However, the teaching portfolio is the most impressive. Also, our teacher evaluation methods most widely research about America in recent years, and the following is a brief description.

Selective collection of teaching information, teaching portfolio has been widely used at all levels of nationals, states, districts, and schools. NBPTS has looked on teaching portfolio as the basis for teacher license reissued. Many school districts are using teaching portfolios to identify outstanding teachers. As early as 1988, Lee Shulman had proposed that in the teachers' assessment, the portfolio should be used in conjunction with traditional written tests and classroom observation. Overall, the portfolio is the integration of forms of teaching. Its characteristics are as follows: (1) including the work of teachers and students; (2) structuring and purpose; (3) being able to display the time of teachers in the context of teaching and learning and experience; (4) having a reflective and collaborative approach [72]; (5) reflecting the authenticity and richness (6) showing a strong subjectivity [73]. If you want to build portfolios by different purposes, it can be divided into three categories: learning portfolio, assessment portfolio, and employment portfolio, but, in fact, the teacher's portfolios are two or three kinds of combination. According to their nature, it can be divided into process-based, results, and showcase [2–4]. The rules to follow for the development and utilization of the portfolio are as follows: (1) establish the purpose of the development portfolio, (2) collect materials, (3) organize materials, (4) write reflective description, and (5) show feedback and revise [74].

With the penetration of scientific and technological strength to education and the continuous support increasing, recent years electronic portfolio evaluation methods happened [75]. Compared with the traditional portfolio assessment, electronic portfolio's assessment information is more personalized, with presentation and display faster and more convenient and diversified, the more permeability of the evaluation, the evaluation of the subject and the way is a more diversified, more contribute to the sharing and exchange of information, more openness, more development potential.

Overall, the teaching portfolio can be used for summative evaluation and can also be used for formative assessment and self-evaluation. In practice, portfolio evaluations are the following: seminars, interviews, law, narratives, written evaluation, and answering the question. As a new evaluation concept and method, portfolio assessment shows the following unique advantages: (1) this is the best presentation of a teachers' teaching experience, fiting the concept of Connery educational narrative to explore; (2) make a good qualitative evaluation and quantitative evaluation fusion together; (3) a combination of diagnostic assessment, formative assessment, and summative evaluation of the characteristics; (4) a combination of teachers' self-assessment, others evaluation, and expert evaluation of the characteristics [76]. However, it also has more obvious shortcomings. The development portfolio is time-consuming, teaching equipment are higher, and it requires a large amount of costs for support.

6. Limitations, Conclusion, and Suggestions

The study has several limitations. This study is a generality summary of Chinese academic research in teacher evaluation at home and abroad in the past three decades. Even though we have gathered a lot of literature, there are still some valuable data which were not covered, especially those published in later writings we could not timely find, for which we deeply regret.

Here are some inspirations derived from the previous study and put forward in to some suggestions.

6.1. Clearing the Development Path and Trend of Teacher Evaluation in China and Abroad in the Future Is an Important Magic Weapon to Promote the Teachers' Evaluation of Research and Practice Development. Through the earlier discussion, we could see that domestic research process in the field of teacher evaluation has far lagged behind UK and USA; the main focus was still stuck in the quagmire in the theory of entanglement. In fact, the theory is only an assumption, an abstract of mimicry; in reality, the real evaluation model which should be fully in line with a theory does not exist. Moreover, there is no difference in choice of a mode good or bad, as the only distinction is being appropriate or inappropriate, just as what Maxwell said: "the assessment should be reasonable assessment instead of the correct evaluation." Theoretical model of the most questionable in the eyes of ordinary people in some environments is the most appropriate, and the best theoretical models could be not "one size fits all," so that there is no truly the most perfect theory. Blindly pursuing the most perfect theoretical model could only make themselves into the theory of entangled. In addition, according to the theoretical development of teacher

evaluation in UK and USA, it could make us realize that the development of the theory of teacher evaluation is a multidisciplinary work together to create the theory of crystallization. It is a complex integrated management, sociology, and systems disciplines thinking. Of course, in the case of focusing on individual differences, as an evaluator, he or she need to be aware and understand a certain amount of theories of various disciplines of the subject teachers, so that they are not "hollow" meaningless evaluations. Thus, the development of teacher evaluation system not only for teachers need a new subjects. It also needs evaluators and researchers to continue reinforcing their own knowledge to carve their own evaluation capacity and research capacity in practice, thus promoting the overall progress of the evaluation.

6.2. The Enlightenment to Chinese Teacher Evaluation from the Experiences about the Teacher Evaluation between Britain and the United States. From the paper it can be found that the British teacher evaluation has some distinctive features, the maturation of these practices could become our practice guide. (1) The correct purpose of evaluation is to stimulate teachers' teaching enthusiasm, to enhance teachers' development, promoting teachers' sense of responsibility and a sense of well-being, to promote the school resources integration, and maintain that the school has a vibrant personnel structure and so on. (2) The institutional of evaluation is that there should be a stable legal protection to teacher evaluation to form a standardized structure and operation mode, where all teachers understand the evaluation of positive significance and the responsibilities and rights of both sides. It also should have provisions' institutions in the evaluation staff hiring, training, and assessment. (3) The stages of evaluation are next. Evaluation on teachers is not accomplished at one stroke things and not put things right once and for all things, it is something ongoing and focused on long-term development. In the UK, the evaluation generally was divided to three stages of planning, implementation, and results processing, and each stage has a certain mode and principle. (4) The evaluation principles generally include the development, objectivity, comprehensiveness, democracy, scientific, and confidentiality. (5) The sustainability to evaluation is next. The teacher evaluation is not a complete thing. The followup, constant feedback and consultation, as well as the long-term cooperation and exchange are very necessary. The characteristics of persistence would also become the important support of teachers' professional development.

Of course, the experiences of America could also become our useful lessons. (1) Social organizations active participation is tackled. Compared with China, the United States has more social organization to fully participate in the teacher evaluation activities, such as NBPTS, NCATE, ABCTE, and INTASC. There are lots of human resources in Chinese education. It could set up many organizations of the specialized teacher evaluation and development, and after authorized, they could do continuous and comprehensive evaluation to various educational elements. These professional organizations to contribute ideas for the development of the national or local education, professional standards would reduce the number of mistakes, reducing unnecessary consumption and saving the cost of education which is more conducive to sustainable development. (2) The diversification of evaluation method is next. The teacher evaluation should be standardized and diversified. There should be classroom observation, face-to-face interview, ask the students, access to files and other forms, value-added assessment, portfolio rating, and individual supervision mode. Teacher evaluation should suit one's measures to local conditions; it differs from man to man, in the different stages to proper use of different methods. (3) Clear and detailed index is an important base to comprehensive evaluation. In the United States, the evaluation of teachers is to pay attention to the clarity of the index and operability, such as in a teacher file cover evaluation templates, which includes teaching responsibilities and goals, outline, readings, and assignment and exam, to the way of improving company evaluation, student evaluation materials, teaching video, student achievement, the teaching effect of evidence, and the future of the teaching goal of concreteness content; [75] (4) Pay attention to the service functions of evaluation. The basic purpose of American teacher evaluation is to help teachers improve. The core of the improvement is to increase teachers' knowledge, cultivate the teaching skills, increase their professional judgment ability, and create better ability to solve problems under the condition of fully grasp the situation. Based on teachers' current development levels, the purpose is to transcend current and to provide good service for teacher professional development. (5) Some summaries and guidance of the national level are highlighted. In the United States, there often promulgate periodic government education files or education reports; it would become the action guides to the next step education development, such as *A Nation Prepared: Teachers for the 21st Century*, *A Nation at Risk: The Imperative for Educational Reform*, *and No Child Left Behind*. These files contain both the policy proposals and the development goals; they are the programmatic documents of national education development. "Stones from other hills may attack the jade"; learning the mature experience of UK and the USA would let us work less detours, and it would provide good references and important enlightenments for the formation and development of Chinese experiences.

6.3. Pay Attention to the Cultural Differences at China and Abroad, Creative Construction "The Evaluation Model of Chinese Characteristic". History is a mirror, and the textual research and research for the historical facts would be a road direction for the future. However, the course of foreign history would not necessarily appear in the domestic again; because education is a factor of the national culture, national education obviously reflects cultural differences. The development of the education is the important base of the revitalization of the national culture, and these two are in complementary relationship. Education is not only to the development of the reform and innovation, but also to better inherit historical tradition and excellent cultural achievements. So, the reference of foreign experience at the same time must pay attention to the cultural differences and

historical condition, avoid appling it mechanically, or use impractical means to solve a problem. Of course, there exists a large number of common culture, and it would become the important nourishment for the mind in the construction of China's education experiences.

It can be seen from the development model of American teacher evaluation, in addition to individual "top-down mode," that there are many important modes, and the highlighted are the "bottom-up" forms. Over times, governments around the spontaneous formation "self-model" the ideology of "self-development characteristics," in stark contrast with some of our places by "mindset" models. The enlightenment for us is that Chinese teacher evaluation system should highlight the "local characteristics" and "school feeling characteristics" in construction with Chinese characteristics, teacher evaluation/methodology, and process/system, which requires the provinces, cities, counties, school educational administrators, and classroom teachers to have courage to stand up, to have courage to engage in innovation for practice, just like around the thriving economic model, and to strive to develop.

This study suggests that, from the overall speaking, we can start from the following two aspects. On the one hand, complement and perfect the education evaluation laws and regulations. The existing education laws, such as the *Education Law* and the *Law on Compulsory Education*, have a specific statement of educational evaluation, but the documents related to the teacher profession evaluation are few, and some rules of detailed provisions and local evaluation regulations have not been issued out. Comparing with Britain and the United States on education evaluation legal, China's is slightly rough. It needs to perfect and refine relevant policies and regulations and improve the guidance and operability of the education evaluation work. On the other hand, perfect the mechanism of evaluation personnel selection and appointment. From the part of the system, personnel is the most important factor. Reasonable selection of evaluators and appropriate appointments is a prerequisite to achieve a good evaluation effect. Detailed stated, it should be divided into set position, selection, hiring, training, evaluation, and dismissal. (1) Set position focused on the evaluation of personnel in the state system. The quality of evaluators outweighs the quantity, it will be better to have 1-2 persons in each discipline on the county-level and some school teachers and the community workers could be employed to attend the evaluation work. (2) Selectionid tackled. According to the law to the public members for the recruitment evaluation, it should choose talents who have both ability and integrity, the hard work, the courage to uphold truth, the pioneering spirit of the people. Choice of teaching and management of prominent persons strictly prevent opportunistic into the mix. The selection can be divided into two kinds of nominations and exams to fulfill the standardization propaganda, publicity, and reporting system. (3) Employment is next. To adhere to the principle of "who do not understand educators should not" It is adhere to the principle of that who do not understand education should not be involved. Learning from the agency selection mode of the national school inspectors, the national evaluators could work for five years every session, and it could serve two sessions; provincial, county-level evaluators could work for three years every session and keep three sessions. The evaluators' treatment should be done in accordance with the level of national civil servants. Proper complementary mechanisms should be established to supplement the temporary dismissal or loss of vacancies. (4) Training is important. It should conduct a pre-job training and regular in-service training. It should gradually establish comprehensive three evaluation staff training and the management mechanisms to maintain good operating condition. The professional construction of the evaluation organization should be strengthened, which includes the professionalization of ideas, the work process, the program, the skills and the system. (5) Assessment is crucial. It establishes evaluation system of staff professional quality appraisal and administrative qualities. All evaluation mechanisms must realize the duty and responsibility (the area of responsibility can be divided) and efficiency. It could exchange job or change treatment or change benefit according to the evaluation of benefit. Evaluation mechanisms should reflect the principles of democratic participation; there should be the first-line teachers and students and parents participation, evaluators may also implement a cross-evaluation mechanism. It should implement appraisal according to the development and change of one's responsibility. (6) Dismissal is next. It should dismiss the person of the failed, dereliction of duty, fraud, abuse of power, and bribery to combat retaliation evaluators. In short, the evaluation could not have a superior sense; it should be down-to-earth showing people's sense of responsibility, sense of mission, and improvement together.

6.4. Educational Administrative Departments Should Give Full Play to the Guiding Role in the Teacher Evaluation. In China, the main education implementation is based on the pattern of the national schools; therefore, the educational administrative departments would undoubtedly have the very important position in the field of education. Attention to its important position at the same time, its important role is the correct understanding of the way. (1) Evaluation is an activity which needs to emphasize the knowledge and ability, so it needs rigorous training to the evaluators (and their role is not only the teachers' evaluation, the most important is feedback and theoretical and technical guidance for teachers). In other words, the evaluation activities are not only to improve the ability of the teacher being evaluated, but also to improve the evaluation of the ability to exercise the evaluation of a number of highly qualified personnel. (2) As the intermediary of the contact, it needs to broaden the channels of communication theory class and practical class. The best way is to establish the US cooperation system, or to sign a "coaching agreement" under the arrangements of the executive branch, for research institutions further enhance the theoretical level and get a good practice for primary and secondary schools, so as to achieve a win-win situation. (3) For the education administrative departments, the specific sense of reward and punishment evaluation is also very

reasonable, for the entry evaluation of teachers, in line with the concept of the selection of talents, is to bring unqualified teachers to stop outside the door of the teacher groups, even in evaluation practice of beginning teachers, to be persuaded to "withdraw" a number of unqualified teachers. Of course, for the newly included teachers, ending an evaluation does not mean a historic task completed, but the stage to give a definition. The means of the evaluation has not only rewards and punishments, but also the development of the concept; in fact, this study believes that the performance management practiced in UK and USA also contains the ingredients of the rewards and punishments. "Lagging behind [sic]leaves one vulnerable to attacks" is a well-drawn truth by the history test, and the development of nondirectional would walk into anarchy. (4) Concerning evaluation guidance for teachers' professional development, educational administrative departments should play an important role to lead the road to the track of self-evaluation for teachers and focus on the individualized supervision, the establishment of expert evaluation team, feedback regulation, and the observation in the classroom which is of great importance [77]. Changes in guiding practice to independent practice through regular rating and occasional evaluation improves teachers' teaching skills and evaluation skills.

Disclosure

W. Jiayi is the provincial superintendent of Education in Gansu, China, a Professor at Northwest Normal University's Research Center for the Development of Northwest Minority Education, and Vice President of the Chinese Society of Education. C. Ling is a P.H.D degree student at Northwest Normal University's Research Center for the Development of Northwest Minority Education.

References

[1] B. Wang, "Teacher evaluation model: contract plan method," *Forum on Contemporary Education*, vol. 5, pp. 5–8, 2003.

[2] B. Wang, "Teacher evaluation model: teaching portfolio," *Theory and Practice of Education*, vol. 7, pp. 24–28, 2004.

[3] B. Wang, "Teacher evaluation model:the microteaching evaluation method," *Global Education*, vol. 9, pp. 43–47, 2004.

[4] B. Wang, "Teacher evaluation: a review of the elimination system," *Global Education*, vol. 12, pp. 62–66, 2004.

[5] B. Wang, "Teacher evaluation: performance evaluation method," *Global Education*, vol. 5, pp. 47–51, 2005.

[6] B. Wang, "Teacher evaluation: value-added assessment method," *Theory and Practice of Education*, vol. 12, pp. 20–23, 2005.

[7] Y. Cai and H. Tianyuan, "The origin, problem and its development trend of teacher evaluation study," *Journal of Beijing Normal University*, vol. 1, pp. 130–136, 2003.

[8] Y. Cai, "Review and reflection on teacher performance assessment studies," *Teacher Education Research*, vol. 5, pp. 73–76, 2001.

[9] Y. Cai and C. Lin, "Theory and practice of teacher performance evaluation," *Teacher Education Research*, vol. 1, pp. 36–41, 2005.

[10] Y. Cai, L. Chongde, and C. Xuefeng, "Confirmatory factor analysis of students' evaluations on teacher performance," *Acta Psychologica Sinica*, vol. 35, no. 3, pp. 362–369, 2003.

[11] Y. Liu, "The theories and models of developing teacher evaluation," *Theory and Practice of Education*, vol. 12, pp. 28–32, 2001.

[12] X. Zhao, "The development trend of the overseas development of teacher evaluation," *Comparative Education Research*, vol. 1, pp. 72–75, 2003.

[13] L. Wu et al., "Developing teacher evaluation exploration," *Exploring Education Development*, vol. 4-5, pp. 169–172, 2003.

[14] Q. Li, "The development teacher evaluation and teacher growth," *Education Review*, vol. 3, pp. 44–46, 2002.

[15] Q. Li, "The comparative of two teacher evaluation systems research," *Journal of Teaching and Management*, vol. 8, pp. 23–25, 2002.

[16] B. Wang, *The System of Appraisal for Development*, East China Normal University Press, Shanghai, China, 1998.

[17] Y. Zhao, "Traditional teacher evaluation and development of teachers evaluation comparative study," *Liaoning Education Research*, vol. 10, pp. 45–46, 2001.

[18] Y. Liu and Z. Weixin, "A study of developing teacher evaluation," *Journal of the Chinese Society of Education*, vol. 10, pp. 55–56, 2002.

[19] W. Chen, "Play the incentive function of development teacher evaluation," *Theory and Practice of Education*, vol. 10, pp. 17–18, 2003.

[20] B. Chen and X. Bingou, "Build development teacher evaluation system—teacher professionalism perspective," *Theory and Practice of Education*, vol. 5, pp. 50–53, 2006.

[21] B. Wang, "The comparison of rewards and punishments and developing teacher evaluation system," *Shanghai Research on Education*, vol. 12, pp. 39–41, 2007.

[22] J. Yang and W. Zhuo, "On the relationship between the development evaluation and reward and punishment evaluation of teachers," *Journal of the Chinese Society of Education*, vol. 1, pp. 46–48, 2003.

[23] J. Yang and W. Zhuo, "On the essence of China's development of teacher evaluation," *Education Science*, vol. 2, pp. 14–16, 2005.

[24] Q. Zhang, "Examination and Consideration of developing teacher evaluation—a dialogue with Professor Wang Binhua," *Educational Research and Experiment*, vol. 1, pp. 61–64, 2005.

[25] Q. Zhang, "Review of one conclusion of the system of appraisal for development—a dialogue with Professor Wang Binhua," *Comparative Education Research*, vol. 4, pp. 86–90, 2005.

[26] R. Li, "Composite evaluation: a rational choice of the teacher evaluation," *School Management*, vol. 3, pp. 16–18, 2003.

[27] W. Guo and D. Zhiming, "Exploration and research of the domestic teacher evaluation system," *Theory and Practice of Education*, vol. 9, pp. 39–41, 2007.

[28] X. Zhu, *Jiangchengxing Jiaoshi Pingjia he Fazhanxing Jiaoshi Pingjia de Zhenghe Yanjiu*, Shandong Normal University, Jinan, China, 2005.

[29] X. Zeng, "Combing of primary and secondary teacher performance evaluation process," *Teacher Education Research*, vol. 1, pp. 47–51, 2004.

[30] L. Duan and Y. Limin, "On the, "people-oriented" teacher performance evaluation," *University Education Science*, vol. 4, pp. 64–67, 2003.

[31] F. Hu, "Aphasia and noise—the discourse phenomena in teacher evaluation practice," *Theory and Practice of Education*, vol. 12, pp. 30–34, 2002.

[32] C. Hou, "Teachers' reflective self-evaluation," *Theory and Practice of Education*, vol. 4, pp. 27–32, 2003.
[33] Y. Xu, "On the "good teacher"-"teacher evaluation" evaluation," *Curriculum, Teaching Material and Method*, vol. 11, pp. 45–51, 1997.
[34] J. Yu, "The positioning and the basis of the teacher evaluation reform," *Curriculum, Teaching Material and Method*, vol. 9, pp. 67–70, 2001.
[35] X. Zhang, "Three basic questions of the current teacher evaluation critique: postmodern perspective," *Theory and Practice of Education*, vol. 10, pp. 32–35, 2004.
[36] B. Wang, "An analysis of teacher evaluation methods and main application," *Teacher Education Research*, vol. 1, pp. 42–50, 2005.
[37] X. Liu, "On the construction and operating strategy of the teachers' development evaluation model," *Journal of Education Development*, vol. 12, pp. 42–44, 2004.
[38] J. Wang, "Professional development of teachers and teachers' self-evaluation," *Teacher Education Research*, vol. 3, pp. 26–31, 2002.
[39] X. Wang, "The new progress of the teacher evaluation system in the United Kingdom -and PRP system plan commentary," *Comparative Education Research*, vol. 3, pp. 43–47, 2002.
[40] P. Ying and F. Guorui, "A case studies on teacher evaluation model," *Theory and Practice of Education*, vol. 3, pp. 22–25, 2001.
[41] B. Ou and L. Junju, "An analysis of the main in diverse teachers evaluation," *Journal of Chongqing University*, vol. 2, article 129, 2004.
[42] J. Li, "Study the combination of self-evaluation and others-evaluation in the education evaluation activities," *Education Review*, vol. 1, pp. 36–38, 1999.
[43] B. Wang, "Teacher evaluation criteria research," *Teachers Education Research*, vol. 11, pp. 53–57, 2009.
[44] J. Zhang, "Teacher evaluation and academic moral construction," *China University Teaching*, vol. 9, pp. 8–9, 2002.
[45] H. Yang, "Problems and solution strategies of China's teacher evaluation methods," *Journal of Liaoning Normal University*, vol. 9, pp. 55–56, 2001.
[46] J. Shen, "A lot of problems in the teacher evaluation system need to urgent reconstruction," *China Education Daily*, vol. 14, article 6, 2009.
[47] Y. Tu, "British teacher evaluation summary," *Studies in Foreign Education*, vol. 5, pp. 54–57, 1993.
[48] B. Wang, "Teacher evaluation system—the major initiatives of the British educational reform," *Foreign Education Data*, vol. 1, pp. 28–34, 1995.
[49] F. Mu, "Teacher evaluation system in British," *School Management*, vol. 4, pp. 44–45, 1998.
[50] A. Tang et al., "The impact analysis of British PRP teacher evaluation system for teachers' professional development," *Global Education*, vol. 10, article 80, 2005.
[51] K. Wang and Z. Wenhua, "Yingguo jichu jiaoyu jiaoshi pingjia zhidu gaige pingjian," *Studies in Foreign Education*, vol. 12, pp. 68–72, 2006.
[52] M. Xu, "Evaluation system and the characteristics of the British primary and secondary school teachers," *Studies Foreign Education*, vol. 12, pp. 45–49, 2002.
[53] B. Cai and C. Yanwei, "The new system of British teachers' classroom teaching evaluation: concepts, standards and the effect of implementation," *Global Education*, vol. 1, pp. 67–71, 2008.
[54] W. Che, *The Experience and Enlightenment of Performance Management Teacher Evaluation System in British Primary and Middle Schools*, Northwest Normal University, Lanzhou, China, 2009.
[55] B. Sun and S. Jiliang, "The history and models of teacher evaluation in US," *Comparative Education Review*, vol. 5, pp. 73–76, 2009.
[56] Q. Zhan, "The comparative of teacher evaluation system in UK and US," *Elementary and Schooling Abroad*, vol. 1, pp. 18–20, 1998.
[57] Y. Wang, "Test method in the U.S. teacher evaluation," *Foreign Education News*, vol. 3, pp. 42–43, 1990.
[58] A. Tian, "Evaluation system of the United States based on the teachers' behavior," *Studies in Foreign Education*, vol. 4, pp. 15–18, 2003.
[59] X. Lu and B. Wuyun, "The reform and development trend of the teacher evaluation system in America," *Education Research*, vol. 10, article 93, 2002.
[60] C. Xiang, "The course of development of the latest reform movements of the teacher evaluation," *Studies in Foreign Education*, vol. 9, pp. 63–65, 2006.
[61] R. Miao and Z. Xiaolei, "From teacher education technology capability assessment to senior teacher certification," *China Educational Technology*, vol. 10, pp. 11–15, 2010.
[62] Y. Xiao and G. Jun, "Contemporary American exploration of teacher evaluation criteria," *Education Exploration*, vol. 3, pp. 142–143, 2008.
[63] W. Wang, "Reform of teacher evaluation in the context of the performance system and its implications," *Elementary and Secondary Schooling Abroad*, vol. 10, pp. 27–31, 2011.
[64] W. Pang, *The Research on American Value-Added Assessment of Teachers in the Elementary and Secondary Schools*, vol. 4, Southwest University, Chongqing, China, 2009.
[65] D. Hou, L. Gu, and Z. Wang, "The new trends of the reform of teacher evaluation in America," *Global Education*, vol. 10, pp. 72–75, 2005.
[66] M. Cai, "The useful experience of the teachers evaluation reform in American primary and secondary schools," *Journal of the Chinese Society of Education*, vol. 7, pp. 65–68, 2007.
[67] C. Zhou and J. Yongtao, "The three themes of the teacher evaluation study in American," *Studies Foreign Education*, vol. 1, pp. 1–6, 2007.
[68] M. Luo, "Teacher evaluation and school effectiveness research in America," *Heilongjiang Researchs on High Education*, vol. 3, pp. 65–68, 2010.
[69] H. Sun, Z. Dan, and G. Hui, "Comparison and enlightenment of the evaluation index system of teacher of China and America," *Exploring Education Development*, vol. 20, pp. 54–58, 2008.
[70] N. Yang, *American Differentiated Teacher Evaluation System—Experience and Enlightenment*, Capital Normal University, Beijing, China, 2007.
[71] S. Li and C. Min, "American skilled teachers performance evaluation and its implications," *Studies in Foreign Education*, vol. 11, pp. 81–84, 2008.
[72] S. Liu and L. Xingfa, "An exploration of teaching evaluation method in the new curriculum concept—review of the United States teaching portfolio," *Studies in Foreign Education*, vol. 5, pp. 30–34, 2002.
[73] S. Yin and C. Fu, "American teachers teaching portfolio assessment on the revelation of our kindergarten teacher evaluation," *Studies in Preschool Education*, vol. 9, pp. 50–53, 2008.
[74] H. Ma, "Teaching portfolio development—a new path for teachers' professional development and evaluation," *Theory and Practice of Education*, vol. 1, pp. 11–16, 2010.

[75] A. Xie and L. Xiao, "Electronic portfolio in teacher evaluation," *Global Education*, vol. 11, pp. 76–80, 2005.
[76] H. Ma, "Review of the U.S. teaching portfolio assessment," *Comparative Education Review*, vol. 1, pp. 78–82, 2004.
[77] S. Xu and H. Qingxiang, "The inspiration to improve the quality of adult education about the American teacher evaluation system," *China Adult Education*, vol. 2, pp. 124–126, 2007.

Hindawi Publishing Corporation
Education Research International
Volume 2012, Article ID 265293, 6 pages
doi:10.1155/2012/265293

Research Article

The Study of Teacher Efficacy in Hong Kong Sub-Degree Sector

Wai-Hung Lam

Li Ka Shing Institute of Professional and Continuing Education, Open University of Hong Kong, 4/F, Shun Tak Centre, 168 Connaught Road Central, Hong Kong

Correspondence should be addressed to Wai-Hung Lam, carter@graduate.hku.hk

Received 15 October 2012; Revised 15 November 2012; Accepted 19 November 2012

Academic Editor: Hoi Yan Cheung

Introduction. Sub-degree sector is rising in Hong Kong. The number of enrolled students was over 50000 in 2011. Students' characteristics and teachers' roles in the sub-degree sector are different from other sectors. It was important to investigate the factors related with teacher efficacy of sub-degree teachers. *Method*. Sixty sub-degree teachers were surveyed, and 58 of them were valid (33 males and 25 females). The questionnaire contained three teacher efficacy scales: Teacher Efficacy Scale (TES) (short form), Bandura's Instrument Teacher Self-Efficacy Scale (TSES), and Teachers' Sense of Efficacy Scale (TSoES) and an instrument of self-rating's levels of concerns. *Results*. The teacher efficacy scales were found to be reliable in the sub-degree sector. The levels of education and educational trainings were not found to be related with any teacher efficacy scales. Level of concerns of teacher efficacy was found to be significant related with TSES' efficacy to influence parental involvement and ToSES's instruction strategies. *Conclusion*. This study found that educational trainings and levels of educations were not related with teacher efficacy and could persuade institutes not to view educational backgrounds as the most influencing factor in employment selections and design better staff developments instead of only sponsoring teachers to pursue further studies.

1. Introduction

In 1999, Hong Kong Education Bureau (HKEB) published the "Review of education system: Framework for education reform" to review the academic system and urged to engage full-time post-secondary colleges (i.e., institutes providing postsecondary courses and compensatory courses into life-long learning academic structure) into the system. It meant that students who graduated from secondary education can choose to continue their studies in either full-time postsecondary colleges or universities. Those post-secondary colleges are different from vocational training bodies and universities as they provide more academic-oriented and less vocational-oriented programs (e.g., diplomas, higher diplomas, Project Yin Jin, and associate degrees) which are qualified as lower level than bachelor degree level. Those programs prepare students to purse degree programs after graduation. Those institutes formed a new sector called subdegree sector which is different from "Technical Vocational Education and Training" (TVET) comprised of vocational training bodies and "Higher Education" comprised of universities. "Sub-degree" was defined as the comprising of both "the Higher Diploma of a vocational character and the Associate Degree, which is generally of a more academic nature" [1, page 30]. In 2000, HKEB published a consultation paper "Review of Education System Reform Proposals" which emphasized the importance of the sub-degree sector. In the past 10 years, Hong Kong government has given a lot of support such as interest-free loans and other subsidies to facilitate the development of the sub-degree sector [1]. Currently, there are 28 institutes providing sub-degree programs. The number of higher diploma and associate degree rose from 38 in 2001 to 311 in 2011. The number of students rose from 8895 in 2001 to 51796 [2]. The sub-degree sector became important in Hong Kong education. More and more teachers are serving in the sub-degree sector. Sub-degree teachers are assigned with both teaching duties and administrative activities such as student recruitment, programme development, and quality assurance. Some teachers do even participate in research activities. Teachers in the sub-degree sector had several roles and came from different backgrounds such as business world

and owned certain professional qualifications such as social workers, accountants, and nurses. Programs in sub-degree sector are required to be validated by Quality Assurance Committee [1]. Student learning performance is one of the key components in the validation. Some sub-degree teachers have not received educational trainings before joining the education sector. Most sub-degree institutes would provide staff development funds for their teachers to enhance teaching performance. Joyce and Showers [3] commented that trainings far from normal teaching environment could improve less than 5% instructional practices in the classroom. Teacher efficacy has long been viewed as one of the most important factors in student learning [4, 5]. Marzano [6] conducted a meta-analysis and found that effective and engaging teachers would significantly improve student achievements no matter the students' academic backgrounds. Most effective and engaging teachers would have an impact on student achievement 39 percentages larger than least effective and engaging teachers. This paper tried to study teacher efficacy of sub-degree teachers.

Teacher efficacy is defined as "the judgment of his or her capabilities to bring about desired outcomes of student engagement and learning" [7, page 783]. Teacher efficacy is one of few teachers' characteristics consistently linked with teaching and learning [4, 5]. The construct of teacher efficacy was firstly introduced by RAND Corporation [8] and developed with Rotter's [9] Locus of Control. Two dimensions of the construct are general teaching efficacy, the belief in the power of teaching to achieve results in the classroom and personal teaching and the belief in personal ability to achieve results [10]. In the RAND studies, the sum of two dimensions was the teacher efficacy. There was a debate whether teacher efficacy was unidimensional or multi-dimensional. Nowadays, due to complexity of teaching activities, teacher efficacy is always considered as multidimensional instead of unidimensional [7, 11].

The other perspective in teacher efficacy was developed by Bandura [12] with social cognitive theory. Social cognitive theory assumed that people expectations but not consequences are the main causes of the behavior. Expectations are influenced by observations, persuasion, and physiological arousal as well as the consequences of prior experiences [13]. One's belief in his/her capabilities to execute tasks or manage situations was influenced by mastery experiences, vicarious experiences, social persuasion and physiological or emotional feedback [14]. Teacher efficacy is the self-efficacy that teachers perceive their capability in teaching. Bandura [12] argued that teacher efficacy should be efficacy expectation instead of outcome expectations. Efficacy expectation is "the conviction that can successfully execute the behaviors required to produce the outcome" (page 193), and outcome expectations depends on the outcomes of the behaviors [15]. Bandura [12] stated that efficacy expectation should be situation specific and not a generalized expectancy. Bandura [12] further developed an instrument to measure teacher efficacy containing seven dimensions: efficacy to influence decision making, efficacy to influence social resources, instructional efficacy, disciplinary efficacy, efficacy to enlist parental involvement, efficacy to enlist community involvement, and efficacy to create a positive school climate.

Teachers' sense of efficacy has been shown to be positively correlated with effective student achievement [16, 17] and positive classroom management [14]. Tschannen-Moran and Hoy [7] developed Teachers Sense of Efficacy Scale (TSES) to measure three distinct but related factors on teacher efficacy: efficacy for classroom management, efficacy for student engagement, and efficacy for instructional strategies. TSES was one of the prevailing measures in teacher efficacy [11]. Because self-efficacy is context specific, teacher efficacy studies have been carried out in a lot of different teaching environments such as primary, secondary, and special education schools to both preservice and inservice teachers. Compared with primary and secondary schools, teachers in the sub-degree sector act dual roles of teachers and administrators. The roles of administrators were found to enhance teacher efficacy [18]. Lin and Gorrell [19] also suggested that the construct of teacher efficacy was very subject to the beliefs about the roles of teachers. There was a need to study teacher efficacy in the sub-degree sector. A meta-analysis of 218 teacher efficacy studies from 1998 to 2009 covered teachers of different levels and in different regions. However, no one was classified as post-secondary level [20].

Both outcome expectations and efficacy expectations were found to be correlated in certain extent [21]. Visser-Wijnveen et al. [21] proposed that teacher efficacy teacher efficacy shall contain personal efficacy, teaching efficacy and outcome efficacy. In each dimension, both general and contextual aspects should be considered together. Therefore, three teacher efficacy scales would be used to measure teacher efficacy in both general and contextual aspects.

Dunn and Rakes [22] based on Fuller's (1969) [23] concern-based theory argued that concerns and self-efficacy were linked. McKinney et al. [24] also found that self-efficacy and expressed concerns were related. People with higher efficacy tended to have higher stages of concern. Tschannen-Moran et al. [25] also added the attitudes to different dimensions of teacher efficacy as weights in calculating the teacher efficacy. Weiner [26] stated that attitudes influence behavior. In the present study, self-rated concerns of different domains in teacher efficacy would also be measured.

There are some personal characteristics that would also affect teacher efficacy. Ross [27] found that more experienced teachers tended to have greater teacher efficacy. Similar results were found by other studies [4, 5, 28, 29]. Ross [27] also found that female teachers have higher senses of teacher efficacy than male counterparts. However, this finding was not supported by other studies [30, 31]. Therefore, the relationship between gender and teacher efficacy is still inconclusive.

There were three aims in the study. The first one was to test whether teacher efficacy scales were still reliable in the sub-degree sectors. The second one was to test whether levels of education and educational trainings could predict teacher efficacy. The third one was to investigate the relationship between concerns of teacher efficacy and teacher efficacy.

2. Method

2.1. Participants. Sixty teachers from the sub-degree sector were surveyed, and 58 of them were valid (men = 33; women = 25). They were recruited from three institutes and an education course for sub-degree teachers. As questionnaires were distributed in face, the return rate is 100%. Their teaching experiences were distributed as 0 to 1 year (10.3%), 2 to 3 years (27.6%), 4 to 5 years (25.9%), 6 to 7 years (8.6%), 8 to 9 years (5.2%), and 10 or over 10 years (22.4%). Most of them got a Masters degree (77.6%). Some of them even got a doctorate degree (13.8%) he and rest of them only had a bachelor degree (8.6%).

2.2. Instruments. A self-report questionnaire with four sets was used for measurement: Teacher Efficacy Scale (Short Form) (TES; [32]), Bandura's Instrument Teacher Self-Efficacy Scale (TSES; [33]), Teachers' Sense of Efficacy Scale (TSoES, [7]) and self-rating importance of domains of teacher efficacy.

2.3. Teacher Efficacy Scale (TES). TES was firstly developed by RAND Corporation [8] based on the theory of locus of control, which consists of two items "When it comes right down to it, a teacher really cannot do much because most of a student's motivation and performance depends on his or her home environments" and "If I really try hard, I can get through to even the most difficult or unmotivated students" to measure both general teaching efficacy (GTE) and personal teaching efficacy (PTE). Gibson and Dembo [34] further extended these to a 30-item instrument in a 6-point Likert. Without significantly reducing reliability, Hoy and Woolfolk [32] developed a shorter version of TES with 10 items. In the present study, the short form of TES would be used.

2.4. Teachers' Self-Efficacy Scale (TSES). TSES was developed by Bandura (1997) [12] based on social cognitive theory and the construct of self-efficacy. In contrast with TES which measures efficacy expectation, TSES measures outcome expectancy. TES and TSES originated from two distinct conceptual frameworks on teacher efficacy [25]. TSES has 30 items to measure seven domains: efficacy to influence decision making, efficacy to influence social resources, instructional efficacy, disciplinary efficacy, efficacy to enlist parental involvement, efficacy to enlist community involvement, and efficacy to create a positive school climate. Each item was rated with a 7-point Likert scale.

2.5. Teacher Sense of Efficacy Scale (TSoES). TSoES was developed by Tschannen-Moran and Hoy [7]. It has both 24-item and 12-item short form instrument. Each item was rated with a 9-point Likert scale. TSoES measures teacher efficacy based on the roles of teachers and has three moderately correlated factors: efficacy in student engagement, efficacy in instructional practices, and efficacy in classroom management.

2.6. Self-Rated Importance of Domains in Teacher Efficacy. Based on the concerned-based theory from Fuller [23], teachers may be more willing to make a change or innovation when they are concerned with it. Measuring the teacher ratings of importance of various domains in teacher efficacy can help to understand teacher efficacy. Eleven domains were measured which are the subscales of three teaching efficacy scales in the questionnaire. Demographic information such as gender, teaching experience, teaching level, teaching area, education level, and educational training was also collected.

2.7. Procedure. Sixty sub-degree teachers were invited in a voluntary and anonymous basis to participate on this study. The designed questionnaire contained 5 parts and can be completed in 20 minutes. Participants can complete in site or in home. The aim of the study and confidentiality were informed before filling out the questionnaire. Fifty-eight of them were valid. One invalid case had a lot of missing items, and another invalid case provided a single response to all items. The processed data was analyzed with Statistical Package for the Social Sciences Version 19.0 (SPSS 19.0). After checking the reliability of the data with the Cronbach Alpha and Pearson correlation coefficients, univariate analysis of variances and hierarchical regression analyses were conducted to test the variables of the study.

3. Results

The results were organized based on the research questions. Firstly, the reliability of the data would be presented. Secondly, the relationship between different teacher efficacy scales would be reported. Finally, the predicting powers of both teachers' level of concerns on teacher efficacy and demographic information such as education level and teaching trainings on teacher efficacy were examined.

4. Reliability

All four scales were reliable and had good internal reliability. In TES, the Cronbach coefficients of GTE and PTE were good in the sample (.72 and .78, resp.). In TSES, the Cronbach alphas of all subscales are high ($.83 \leq \alpha s$). In TSoES, Cronbach coefficients of three subscales: efficacy in student management, instructional strategies, and classroom management, were good (.74, .74, and .84, resp.). In self-rated importance, the Cronbach alpha was very good ($\alpha = .89$). Considering intrarelationship among subscales, the correlation between GTE and PTE was insignificant ($r = .17$). It meant that two subscales in TES were not overlapping; the correlations between subscales in ToSES were highly significant ($.60 \leq r \leq .72$, $Ps < .001$). It meant that three subscales in ToSES shared a lot in the construct. In TSES, all 7 subscales were found to be intercorrelated with at least three other subscales. The instructional self-efficacy subscale was found to be significantly correlated with all other subscales ($.32 \leq r \leq .60$, $Ps < .05$).

4.1. Relationships between Teacher Efficacy Scales. All subscales, except TSES's efficacy to influence in school resources decision, was correlated with some other subscales. PTE were positively correlated with six subscales in TSES ($.29 \leq r \leq .50$, $Ps < .05$) and two scales in ToSES ($.36 \leq r \leq .53$, $Ps < .01$). Subscales of ToSES were also positively correlated with at least three subscales in TSES (see Table 1). As three teaching efficacy scales were significantly correlated, it meant that teaching efficacy scales derived from different theoretical frameworks were closely related.

4.2. Analyses of Variance. Both levels of education and educational trainings were the independent variable in univariate analyses. Different levels of education were found to be significantly different only in TSES's efficacy to influence parental involvement ($F = 3.49$, $P < .05$). Using Scheffe Method as a post hoc analysis, two homogenous subsets were formed. One subset was bachelor (Mean = 2.67) and master (Mean = 4.27). The other subset was master and doctorate (Mean = 5.29). It meant that teachers with higher levels of education tended to be more efficacious in involving parents. Educational trainings could not vary over any subscales of three teacher efficacies.

4.3. Regression Analysis. Hierarchal regression analyses were conducted to test whether levels of concerns of teacher efficacy could predict teacher efficacy. After controlling other variables, levels of concerns of teacher efficacy could positively predict TSES's Efficacy to enlist parental involvement and student discipline management and ToSES's instruction strategies efficacy. It meant that in some dimensions of teacher efficacy, levels of concerns played significant roles. Gender was found to significantly predict TSE's personal teacher efficacy and TSES' efficacy to enlist to parental involvement. Female teachers generally had higher personal teacher efficacy and higher efficacy in engaging parental involvement than male counterparts. Experience was found to positively predict TSES' efficacy to influence decision making (see Table 2).

5. Discussion

This paper is the research to study teacher efficacy in the sub-degree sector in Hong Kong. Visser-Wijnveen et al. [21] stated that most existing instruments were designed for secondary or primary school teachers. The student characteristics in sub-degree sectors were more different from traditional school sectors. Tournaki and Podell [35] commented that student characteristics would affect teacher sense of efficacy. Firstly, the present study proved that the internal consistencies of all three teacher efficacy scales were high in the study. All three scales also were found to be correlated. It seemed that teacher efficacy scales were reliable in the sub-degree sector. Validity tests could be conducted in the future studies.

Secondly, the levels of education and educational trainings were found to be almost not related with teacher efficacy in both ANOVA tests and regression analyses. Levels of education were found to be only related with TSES's efficacy to enlist parental involvement. However, after controlling other variables, levels of education did not significantly predict TSES's efficacy to enlist parental involvement. The result contradicted to the finding from Hoy and Woolfolk [32] that educational level was the personal variable that predicted personal teacher efficacy. It challenged also the general view that people with higher level of education and educational trainings could have a stronger sense of teacher efficacy.

The levels of concerns were found to be significantly predicting TSES's efficacy to enlist parental involvement, TSES's student discipline management and ToSES's instruction strategies. This finding signified the importance of levels of concerns in predicting teacher efficacy, and this also supported that the inconclusive results in the studies related with the levels of concerns may be due to the choices of teacher efficacy. Different teacher efficacy scales focused on different domains of teacher efficacy. Some domains were more influenced by the levels of concerns and some were less, even though the causal link between concerns of teacher efficacy and teacher efficacy was not built, further intervention could be implemented to test whether any improvement in the concerns of teacher efficacy could enhance teacher efficacy. If the causal link was found, enhancing the concerns of teacher efficacy could be a way to improve teacher efficacy.

Lastly, gender was found to be associated with teacher efficacy. This finding was consistent with some other studies. However, Pas et al. [36] commented that most studies exploring the association between gender and teacher efficacy had relatively small sample sizes and included few male teachers [37, 38]. In the present study, the distribution between Male and Female teachers was quite fair (Male = 33; Female = 25).

5.1. Limitations. In the present study, the reliabilities of 3 teacher efficacy scales were studied. However, the validities of 3 teacher efficacy scales were not investigated. In the future study, some teaching outcomes can be measured together with invention to test the validity of teacher efficacy scales in the sub-degree sector. Moreover, no intervention was introduced and the causal link between teaching efficacy and consequence of teaching could not be established. Even though Hoy and Woolfolk [32] commented that most studies had assumed teaching efficacy as an independent variable in the link between efficacy and outcomes. According to Bandura's social cognitive theory, teacher efficacy could be enhanced through mastery learning, viscous learning, social persuasion, and physiological feedback. Giving some teaching trainings to teachers may enhance their sense of efficacy in teaching and teaching performance could be measured before and after-intervention. The samples size in the present study was quite small, and factor analyses have not been conducted. Using factor analyses can further test the number of dimensions of teacher efficacy in the sub-degree sector and can show a clearer picture of teacher efficacy. In the future study, a large sample size can help to develop a new teacher efficacy scale special for sub-degree sectors.

Table 1: Correlation between teacher efficacy scales.

TSES	TES		ToSES		
	GTE	PTE	Student engagement	Instructional strategies	Classroom management
Decision making	.08	.29*	.36**	.01	.10
School resources	.18	.23	.17	.12	.24
Instructional efficacy	.39**	.50***	.74***	.33*	.55***
Disciplinary efficacy	.28*	.35**	.53***	.45***	.83***
Parental involvement	.06	.46***	.58***	.13	.36**
Community involvement	−.07	.41**	.40**	.04	.12
Create a positive climate	.26	.50***	.70***	.31*	.52***
TES	GTE		.38**	.19	.33*
	PTE		.53***	.12	.36**

Note: $^{*}P < .05$, $^{**}P < .01$, $^{***}P < .001$.

Table 2: Hierarchal regression analysis on predicting variables of teacher efficacies.

	TSE				TSES						ToSES	
	a	b	c	d	e	f	g	h	i	j	k	l
	β	β	β	β	β	β	β	β	β	β	β	β
Gender	.17	.35	−.12	.08	.18	.08	.26	.20	.19	.21	.04	.11
Experience	.05	.12	.30*	.03	.12	.16	.27	.20	.07	.15	.10	.18
Education level	−.13	−.13	.22	1.9	.26	.15	−.01	−.12	.06	−.05	.02	−.09
Education training	.17	−.15	−.01	−.14	.10	.07	−.13	−.15	.04	.13	−.07	.04
ΔR^2	.07	.13	.18	.07	.16	.07	.12	.07	.05	.08	.01	.04
F value	0.88	1.87	2.77*	1.03	2.38	1.00	1.82	1.02	0.67	1.13	0.18	0.54
Gender	.18	.31*	−.12	.10	.24*	.10	,26	.21	.19	.19	.04	.09
Experience	.05	.08	.31*	.03	.16	.18	.27	.16	.05	.12	.07	.16
Education level	−.13	−.10	.23	.19	.15	.13	−.01	−.10	.06	−.04	.06	−.07
Education training	.17	−.13	−.01	−.14	.11	.04	−.13	−.08	.04	.12	−.06	.05
Level of concerns	.05	.17	.12	−.20	.46***	.24	.02	2.8*	.13	.22	.52***	.10
ΔR^2	.00	.03	.01	.04	.20	.06	.00	.07	.01	.05	.27	.01
F value	0.72	1.83	2.39	1.30	5.57***	1.50	1.44	1.76	0.70	1.48	3.95**	0.52

a: GTE, b: PTE, c: decision making, d: school resource, e: parental involvement, f: community involvement, g: instructional efficacy h: student discipline management, i: create a positive climate, j: student management, k: instruction strategies, and l: classroom management.
$^{*}P < .05$, $^{**}P < .01$, $^{***}P < .001$.

6. Conclusion

This study investigated whether teachers with teaching trainings and higher education levels would have higher teacher efficacy. Currently, some institutes would only employ those processing doctorate degrees. Some institutes would also set up staff development funds to subsidize the academic staff to pursue further educations. The finding that teachers with teaching trainings and higher education levels would not have higher teacher efficacy may indicate that teaching trainings and higher education levels shall not be one of the assessment criteria in employment. Ingvarson et al. [39] analyzed 4 studies which included 3,250 teachers in Australia, who participated in various development activities and stated that teaching developments allowing participants to share personal teaching practices, evaluate student learning, and develop ideas collaboratively can significantly enhance the teacher efficacy. The finding of present study could encourage institutes to use their staff development funds in an effective way not just supporting staffs to pursue further studies.

References

[1] University Grants Committee (UGC), "Aspirations for the higher education system in Hong Kong," Report of the University Grants Committee, UGC, Hong Kong, 2010, http://www.ugc.edu.hk/eng/ugc/publication/report/her2010/her2010.htm.

[2] Information Portal for Accredited Post-secondary Programme (IPASS), "Statistics on full-time accredited self-financing post-secondary programmes and students," IPASS, Hong Kong, 2012, http://www.ipass.gov.hk/edb/index.php/en/home/statheader/stat.

[3] B. Joyce and B. Showers, *Student Achievement Through Staff Development*, Association for Supervision and Curriculum Development, Alexandria, Va, USA, 2002.

[4] H. Y. Cheung, "Teacher efficacy: a comparative study of Hong Kong and Shanghai primary in-service teachers," *Australian Educational Researcher*, vol. 35, no. 1, pp. 103–123, 2008.

[5] H. Y. Cheung, "The measurement of teacher efficacy: Hong Kong primary in-service teachers," *Journal of Education for Teaching*, vol. 32, no. 4, pp. 435–451, 2006.

[6] R. Marzano, *What Works in Schools: Translating Research in Action*, Association for Supervision and Curriculum Department, Alexandria, Va, USA, 2003.

[7] M. Tschannen-Moran and A. W. Hoy, "Teacher efficacy: capturing an elusive construct," *Teaching and Teacher Education*, vol. 17, no. 7, pp. 783–805, 2001.

[8] D. Armor, P. Conroy-Oseguera, M. Cox et al., "Analysis of the school preferred reading programs in selected Los Angeles minority schools," Tech. Rep. R-2007-LAUSD, Rand Corporation, Santa Monica, Calif, USA, 1976, ERIC Document Reproduction Service No. 130 243.

[9] J. B. Rotter, "Generalized expectancies for internal versus external control of reinforcement," *Psychological Monographs*, vol. 80, no. 1, pp. 1–28, 1966.

[10] G. Barnes, "Self-efficacy and teaching effectiveness," *Journal of String Research*, vol. 1, pp. 627–643, 2000.

[11] L. C. Duffin, B. F. French, and H. Patrick, "A confirmatory factor analysis of pre-service teacher scores from the teachers' sense of efficacy scale," *Teaching and Teacher Education*, vol. 28, pp. 827–834, 2012.

[12] A. Bandura, "Self-efficacy: toward a unifying theory of behavioral change," *Psychological Review*, vol. 84, no. 2, pp. 191–215, 1977.

[13] D. Stipek, *Motivation to Learn: Integrating Theory and Practice*, Allyn and Bacon, Boston, Mass, USA, 4th edition, 2002.

[14] A. E. Woolfolk, *Educational Psychology*, Allyn and Bacon, Boston, Mass, USA, 11th edition, 2010.

[15] A. B. Dellinger, J. J. Bobbett, D. F. Olivier, and C. D. Ellett, "Measuring teachers' self-efficacy beliefs: development and use of the TEBS-Self," *Teaching and Teacher Education*, vol. 24, no. 3, pp. 751–766, 2008.

[16] E. M. Skaalvik and S. Skaalvik, "Dimensions of teacher self-efficacy and relations with strain factors, perceived collective teacher efficacy, and teacher burnout," *Journal of Educational Psychology*, vol. 99, no. 3, pp. 611–625, 2007.

[17] C. A. Wolters and S. G. Daugherty, "Goal structures and teachers' sense of efficacy: their relation and association to teaching experience and academic level," *Journal of Educational Psychology*, vol. 99, no. 1, pp. 181–193, 2007.

[18] D. M. Szal, "The relationship of administrative behaviors and characteristics with teachers' general and personal efficacy," *National Social Science Journal*, vol. 35, no. 1, pp. 145–152, 2010.

[19] H. L. Lin and J. Gorrell, "Exploratory analysis of pre-service teacher efficacy in Taiwan," *Teaching and Teacher Education*, vol. 17, no. 5, pp. 623–635, 2001.

[20] R. M. Klassen, V. M. C. Tze, S. M. Betts, and K. A. Gordon, "Teacher efficacy research 1998–2009: signs of progress or unfulfilled promise?" *Educational Psychology Review*, vol. 23, no. 1, pp. 21–43, 2011.

[21] G. J. Visser-Wijnveen, A. S. Stes, and P. V. Petegem, "Development and validation of a questionnaire measuring teachers' motivations for teaching in higher education," *Higher Education*, vol. 64, pp. 421–436, 2012.

[22] K. E. Dunn and G. C. Rakes, "Teaching teachers: an investigation of beliefs in teacher education students," *Learning Environments Research*, vol. 14, no. 1, pp. 39–58, 2011.

[23] F. F. Fuller, "Concerns of teachers: a developmental conceptualization," *American Education Research Journal*, vol. 6, pp. 207–226, 1969.

[24] M. McKinney, T. Sexton, and M. J. Meyerson, "Validating the efficacy-based change model," *Teaching and Teacher Education*, vol. 15, no. 5, pp. 471–485, 1999.

[25] M. Tschannen-Moran, A. W. Hoy, and W. K. Hoy, "Teacher efficacy: its meaning and measure," *Review of Educational Research*, vol. 68, no. 2, pp. 202–248, 1998.

[26] B. Weiner, "A cognitive (attribution)-emotion-action model of motivated behavior: an analysis of judgements of help-giving," *Journal of Personality and Social Psychology*, vol. 39, pp. 186–200, 1980.

[27] J. A. Ross, "The antecedents and consequences of teacher efficacy," in *Advances in Research on Teaching*, J. Brophy, Ed., vol. 7, pp. 49–74, JAI Press, Greenwich, Conn, USA, 1998.

[28] P. Wilson and G. C. I. Tan, "Singapore teachers' Personal and General Efficacy for teaching primary social studies," *International Research in Geographical and Environmental Education*, vol. 13, no. 3, pp. 209–222, 2004.

[29] M. J. de la Torre Cruz and P. F. Casanova Arias, "Comparative analysis of expectancies of efficacy in in-service and prospective teachers," *Teaching and Teacher Education*, vol. 23, no. 5, pp. 641–652, 2007.

[30] M. C. Tejeda-Delgado, "Teacher efficacy, tolerance, gender, and years of experience and special education referrals," *International Journal of Special Education*, vol. 24, no. 1, pp. 112–119, 2009.

[31] L. S. Yeo, R. P. Ang, W. H. Chong, V. S. Huan, and C. L. Quek, "Teacher efficacy in the context of teaching low achieving students," *Current Psychology*, vol. 27, no. 3, pp. 192–204, 2008.

[32] W. K. Hoy and A. E. Woolfolk, "Teachers' sense of efficacy and the organizational health of schools," *The Elementary School Journal*, vol. 93, pp. 356–372, 1993.

[33] A. Bandura, *Guide for Constructing Self-Efficacy Scales*, Stanford University, Standford, Calif, USA, 1990.

[34] S. Gibson and M. H. Dembo, "Teacher efficacy: a construct validation," *Journal of Educational Psychology*, vol. 76, no. 4, pp. 569–582, 1984.

[35] N. Tournaki and D. M. Podell, "The impact of student characteristics and teacher efficacy on teachers' predictions of student success," *Teaching and Teacher Education*, vol. 21, no. 3, pp. 299–314, 2005.

[36] E. Pas, C. P. Bradshaw, and P. A. Hershfeldt, "Teacher- and school-level predictors of teacher efficacy and burnout: identifying potential areas of support," *Journal of School Psychology*, vol. 50, no. 1, pp. 129–145, 2012.

[37] C. Maslach and S. E. Jackson, "The measurement of experienced burnout," *Journal of Occupational Behavior*, vol. 2, pp. 99–113, 1981.

[38] J. A. Ross, J. B. Cousins, and T. Gadalla, "Within-teacher predictors of teacher efficacy," *Teaching and Teacher Education*, vol. 12, no. 4, pp. 385–400, 1996.

[39] L. Ingvarson, M. Meiers, and A. Beavis, "Factors affecting the impact of professional development programs on teachers' knowledge, practice, student outcomes & efficacy," *Education Policy Analysis Archives*, vol. 13, pp. 1–28, 2005.

Hindawi Publishing Corporation
Education Research International
Volume 2012, Article ID 581352, 8 pages
doi:10.1155/2012/581352

Research Article

Enhancing the Inclusive Self-Efficacy of Preservice Teachers through Embedded Course Design

Lucia Zundans-Fraser and Julie Lancaster

School of Teacher Education, Charles Sturt University, Panorama Avenue, Bathurst, NSW 2795, Australia

Correspondence should be addressed to Julie Lancaster, jlancaster@csu.edu.au

Received 1 August 2012; Revised 21 September 2012; Accepted 22 October 2012

Academic Editor: Michael Bender

This study was an initial investigation into the effects of Embedded Design on the self-efficacy of pre-service teachers studying inclusive education. Forty-one participants completed pre- and postquestionnaires to determine differences in self-efficacy prior to and again at completion of an inclusive education course in an undergraduate teaching degree. A modified version of the scale developed by Hickson (1995), the "Self-Efficacy toward Future Interactions with People with Disabilities" (SEIPD) was employed for data collection. This data was supplemented by way of anonymous formal student feedback collected from the university. Findings indicate that the theoretically designed course did in fact significantly improve self-efficacy between pre- and postoccasions. Limitations of the present study are discussed as well as implications for future practice in the design of preservice courses for inclusive education.

1. Introduction

One of the major changes in the preparation of teachers for mainstream schools has been the need to prepare them for the diverse student populations they will be increasingly required to teach [1]. A number of studies have demonstrated that participation in a preservice course in special or inclusive education positively influences the attitudes and self-efficacy of preservice teachers [2, 3].

Despite positive effects, mandatory inclusive education courses have been subject to criticism for an overemphasis on knowledge acquisition instead of equipping preservice teachers with the practical skills required for teaching in an inclusive classroom [4–6]. This criticism reflects broader international concern about whether the preparation teachers receive for inclusion is adequate [1, 7–9]. A mismatch between preservice teacher education and the reality of working conditions for teachers has been identified as a major reason for high levels of attrition in inclusive education [10]. The limited exposure to inclusive education experienced by preservice teachers, and the gap between preparation and practice for inclusion, has created a context for the examination of course design [2].

Levels of self-efficacy that preservice teachers hold towards inclusive practice is an important key to addressing this situation. Bandura [11], a key proponent of self-efficacy, defines the concept as the beliefs an individual has about their ability to perform tasks which influence how they feel, think, and act. In the teaching context, self-efficacy is facilitated by mastery experiences, physiological and emotional cues, vicarious experiences, and verbal persuasion [12].

Studies to date have examined self-efficacy in the school context with teachers and students, although little has been focused specifically on the field of inclusive education [13, 14]. Numerous studies have looked at preservice teachers and their attitudes, sentiments and concerns about teaching children with disabilities [15–17]; but few have focused specifically on self-efficacy and its potential to direct preservice teacher beliefs in their own capabilities when working with these students [18, 19]. There are also unique issues relating to the theory transfer into practice in teacher education with often limited detail regarding what goes on in a session in order to try and prepare students for conditions that will be found in the field [2, 20, 21]. The following studies attempt to respond to these limitations and provide an impetus for the current study.

One study to provide details about course design was a study by Lancaster and Bain [22] who compared the growth in self-efficacy of preservice teachers under three different course design conditions. The results of this study influenced subsequent program design and moved course design away from the traditional categorical model used in inclusive education to a pedagogical approach. The benefits of such pedagogical approaches (including explicit teaching, cooperative learning, and task analysis) in inclusive education and the impact of self-efficacy were subsequently examined in further research done by these authors [2] in the elementary context.

The importance of various sources of self-efficacy within a science curriculum course for preservice teachers was examined by Palmer [20] in 2006. Palmer used the sources identified by Bandura: mastery experiences, vicarious experiences, visual persuasion, and physiological states as a starting point and then determined additional sources of content mastery, pedagogical mastery, and situated mastery as relevant to his findings. One hundred and ninety-third-year students in a preservice teacher education program took part in the research. Two formal surveys were administered with pre- and postquestionnaires specific to science. The informal surveys asked preservice teachers to describe what best assisted their learning about a particular topic of the week. Palmer found that the main source to enhance self-efficacy was cognitive pedagogical mastery. The relevance of the current study was the use of Bandura's sources as well as the additional three sources that Palmer proposed. Our intention was to apply this work to the field of inclusive education and utilise formal surveys in this field as pre- and postsources of data.

Field experiences of preservice teachers were examined by Lastrapes and Negishi [24] to determine if they had an impact on cultural consciousness and self-efficacy for teaching diverse learners. Forty-six participants were enrolled in an introduction to diversity course and given pre- and postquestionnaires. Content analysis of the reflections was used to determine the cultural awareness indicated by Bandura's sources of self-efficacy. Bandura's sources of self-efficacy were mentioned and linked to the analysis of the written reflections given by preservice teachers with the authors focusing on four sources of self-efficacy: performance accomplishment, vicarious experiences, verbal persuasion, and emotional arousal. Our intention was to similarly make links to Bandura's sources although these links would be made through quantitative data results rather than through qualitative reflections. Lastrapes and Negishi's [24] work ultimately found that self-efficacy was not directly enhanced by field experiences but we hypothesise that self-efficacy may be enhanced by a theoretically designed course. With this in mind, we did not incorporate a field experience but rather paid extensive attention to describing the theory behind the course and the course structure.

Risks to self-efficacy among special education intern teachers were investigated by Lee et al. [25]. The authors surveyed 154 preservice teachers using an adaptation of Gibson and Dembo's [26] scale. They included items of personal teaching efficacy (PTE) which were identified as the levels of teacher confidence in their ability to promote students' learning, general teaching efficacy (GTE), the levels of teacher confidence about the power of teaching, and added special education knowledge and competency skills based on Council of Exceptional Children (CEC) standards. The results demonstrated that the intern teachers had higher levels of PTE than GTE and that they rated highly on their knowledge and skills of CEC competencies. Although PTE and GTE were independent of each other, there were strong correlates of confidence in knowledge and skills relating to sense of control over major issues they faced in the classroom. The scale developed by Lee et al. [25] was designed specifically to address students with special needs and teachers that had already completed an undergraduate degree and were engaged in additional training in the field of special education. It is of interest to this study due to the focus on special education and the items that were incorporated in the scale to measure the construct of self-efficacy.

Forlin et al. [1] engaged in a study examining 603 preservice teachers' attitudes, sentiments, and concerns about inclusive education in teacher preparation programs in four countries: Australia, Canada, Hong Kong, and Singapore. All cohorts were comprised of preservice teachers intending to teach in mainstream classrooms in preschool, elementary, or secondary settings. The Canadian setting was unique in that inclusive education content was infused throughout the program rather than a "stand-alone" course looking at catering for the needs of children with diverse abilities. The data from the four countries was treated as one data set for the purposes of this particular paper which focused on the role demographic differences play in changing attitudes, sentiments, and concerns about inclusive education. The researchers found that previous involvement and contact with students with disabilities resulted in more positive attitudes and minimised levels of concern.

Forlin et al. [1] concluded that a primary aim of preservice teacher education courses in relation to inclusion needs to focus on improving the self-efficacy of preservice teachers in order to help them develop more positive attitudes, reduce their concern's and increase their understanding and confidence.

As noted in the studies above, the use of research-based practices for inclusive education is well established. What is missing is a theory base that holds these strategies together and allows for ongoing feedback and improvement in practice. Theoretically driven course design would allow a course to be developed based on the tenets of a theory; in this instance, the approach was based upon theoretical work related to self-organisation and complex adaptive systems [27–29]. Theories of self-organisation have particular application to the challenges of higher education course development as they explain how agents in systems work at all levels together to produce solutions. Those individual agents or participants generate collaborative solutions by working together and in doing so, they transcend their individual capacities. We decided to take one of the six theoretical principles of self-organisation, that of Embedded Design, and look at how this particular principle impacted the self-efficacy of students in an inclusive education course.

Embedded Design creates self-repeating patterns by expressing simple rules in design by embedding these design features in all others [30]. In the case of Bain's research, *Embedded Design* involved explicitly repeating the content of cooperative learning (or any other inclusive pedagogy selected) in all parts of the topic design. In practice, this meant that the roles and structures discussed in the lecture were created and modeled in the tutorial. Students were then required to practice the specific pedagogy, listen to feedback on their own practice, and provide feedback to others on theirs. This feedback was reflected upon and incorporated in their lesson design assessment submissions.

Embedding particular design principles throughout the course ensured cohesion in both content and delivery. Contemporary needs in education were also embedded through this process to ensure elements such as instructional differentiation were reiterated throughout the course design process. The design integrated common aspects such as peer feedback, authentic assessment, advance organisers, and concept mapping into the design framework.

The premise in this study was that the use of *Embedded Design* would assist in the maintenance of knowledge and skills required for successful inclusive practice. *Embedded Design* was utilised in this setting to incorporate well established research-based pedagogies of inclusion: explicit teaching, cooperative learning, and the use collaborative practice for problem solving. Instruction focussed on application of three pedagogies of inclusion in a course designed using the principle of *Embedded Design* and the effect this had on student-levels of self-efficacy.

The intention of the present study was to extend the work done in earlier research and look at self-efficacy amongst preservice teachers enrolled in an early childhood and elementary program. We hypothesised that levels of self-efficacy would increase from pre- to postoccasions following the application of the *Embedded Design* principle.

The research question addressed in the study was as follows.

(i) Does self-efficacy increase as a result of participation in a course utilising *Embedded Design* characteristics?

2. Method

2.1. Participants. A total of 41 preservice teachers participated in this study, all of whom were second year students enrolled in the early childhood and elementary education program in an Australian regional university. Of the total, 3 were males and 38 were females. The 3 males were removed from the analysis as this small number renders the male sample untestable. Thirty-two of the participants had no previous experience of individuals with a disability. One student had a disability themselves, two had direct experience through a family member, three had engaged in part-time and casual work where they had encountered individuals with disabilities and three others had incidental contact through various community activities.

2.1.1. Setting. The teaching sessions of the 14-week course were held in a lecture theatre for the lectures and a smaller teaching space for the workshops. Each workshop included approximately 20 preservice teachers.

2.1.2. Independent Variable. The Embedded Design of the inclusive education course served as the independent variable in this study. The following areas will be elaborated: subject content, assessment (quizzes and presentations), and lesson design in order to provide sufficient details about the course.

2.1.3. Course Content and Assessment. The topics covered during the course included legislation and policy, inclusive practice, family-centred practice, individualizing curriculum, early intervention, social interactions, communication, and transition. A key focus throughout the course was the application of three pedagogies of inclusion—collaborative practice, explicit teaching, and cooperative learning, to apply the concept of *Embedded Design* in an authentic manner. Lectures were utilised to present more of the theory base of these pedagogies and their relevance to inclusive education whereas in workshops, preservice teachers were required to build lesson designs using the inclusive pedagogies. All preservice teachers were required to complete prereading on the weekly topics in preparation for lectures and the workshop quizzes.

Three assessment types were embedded in the course structure—a weekly quiz, a presentation, and explicit lesson design. The quizzes provided a theoretical and practical basis for understanding and implementing inclusive classroom and centre practices. Each of the multiple choice quizzes related to content in the weekly readings and had been covered in the related lecture. The purpose of the presentations was to engage preservice teachers in gaining a deeper knowledge around topics of interest in inclusive education. They were encouraged to work on these collaboratively in line with the philosophy of the course, although they were permitted to complete individual presentations. The presentation was required to meet five key criteria: a definition of the chosen disability, causes and/or possible causes, key features of the disability, methods used for identification, and implications for inclusion.

The final assessment involved lesson design. Preservice teachers were taught how to build lesson designs using each of the pedagogies and then asked to differentiate these designs for an inclusive classroom or centre. In each case, the teaching approach that constituted the focus of the workshop was employed to teach the workshop. For example, preservice teachers learnt about collaborative practice by examining and discussing what factors made up a collaborative lesson and then using collaborative practice as their medium for learning and instruction throughout the workshop [9, 31]. The same approach was applied to the design and implementation of workshops on task analysis, explicit teaching and cooperative learning.

The *Embedded Design* principle was used in all aspects of the course [30]. This meant that organisational and assessment structures were determined at the beginning of

the course and were applied consistently throughout the session. This embedding was accomplished in the course design and implementation by using inclusive pedagogies such as collaborative practice and explicit teaching in all workshops to learn about these approaches. For example, in the first workshop, preservice teachers were placed in collaborative groups, were taught a collaborative problem-solving process based on work by Friend and Cook [31], and practiced with basic problems created by the instructor. The application of this process became more sophisticated and concrete through their work on lesson designs.

Preservice teachers worked collaboratively on their lesson designs and were expected to be prepared for each workshop. Unlike earlier work by Lancaster and Bain [2, 22], preservice teachers were not required to have a full lesson prepared prior to workshops or provide suggestions for improvement through a formal feedback process. This aspect of the workshops was a lot more fluid; but as the group was highly cohesive and a supportive and comfortable environment had developed, the provision of feedback naturally emerged.

2.2. Dependent Variable. The Self-Efficacy toward Future Interactions with People with Disabilities Scale (SEIPD) [23] was employed in this study. The scale is comprised of 15 items in three areas: willingness to initiate behaviour; willingness to expend effort in completing behaviour; persistence in the face of adversity [23]. The SEIPD employs a Likert 8-point scale, ranging from definitely false to definitely true with no midpoint as a format for responding; for example "I am able to plan and organise appropriate activities for my students" [25, page 111]. Scale items are included in Table 1.

Table 1: Self-Efficacy toward Future Interactions with People with Disabilities [23].

(Q1) I feel confident in my ability to be able to teach students with disabilities.
(Q2) I am able to provide individuals/students with appropriate programs.
(Q3) I can adapt my practices to suit individual needs.
(Q4) I do not feel in control of any unforeseen situation that may arise during any interaction.
(Q5) I am confident that I will quickly lose any fear or apprehension.
(Q6) I do not feel competent in relation to my skills in this area.
(Q7) When individuals make progress, it is due to the input I have made.
(Q8) When confronted with a challenging situation I would be likely to give up.
(Q9) I am able to plan and organise appropriate activities for students with disabilities in my class.
(Q10) I am able to attain any goals I set for myself in this area of work.
(Q11) I have a low expectation of my performance in this area.
(Q12) I do not look forward to the next time I teach students with disabilities.
(Q13) It is rare that I feel failure and frustration when working in this area.
(Q14) These students will benefit greatly from my interactions with them.
(Q15) I see my future interactions with students with a disability as successful.

The reversed items included items: 4, 6, 8, 11, and 12 and were reversely scored. At the time of development, Hickson reported reliability of the SEIPD using test-retest and alpha coefficients, employing a sample of 180 teachers and nurses. A mean alpha coefficient of 0.87 was reported for the SEIPD, whereas test-retest reliability produced a reliability coefficient of 0.8 over a 4-week interval and 0.68 over a 6-week interval [23]. Factorial validity was established using principal component analysis. Both orthogonal and oblique rotations gave identical results with only one factor extracted, indicating that items within the scale were measuring the same construct and accounting for an average of 55.1% of the variance [23].

In the current study, factor analysis was utilised to determine if more factors were present in the SEIPD scores. Using exploratory factor analysis, the following results were found. Kaiser-Meyer-Olkin measure of sampling adequacy provided the score of 0.823 which ranked very high to indicates there were sufficient responses in the data set to run the analysis.

The dimensionality of the 15 items from the Self-Efficacy measure was analysed using maximum likelihood factor analysis. Three criteria were used to determine the number of factors to rotate: the a priori hypothesis that the measure was unidimensional, the scree test, and the interpretability of the factor solution. The scree plot indicated that that the initial hypothesis of unidimensionality was incorrect. Based on the plot, two factors were rotated using the Oblimin with Kaiser normalization procedure. The rotated solution yielded two interpretable factors: personal teaching efficacy (PTE) and skill level. The PTE factor accounted for 48.12% of the item variance and the skill level factor accounted for 10.78% of the item variance. Only one item loaded on both factors (item Q6) and could probably be eliminated in future use of the questionnaire. Cronbach's Alpha was calculated to be $\alpha = 0.89$ for items selected above called "PTE." Tukey's estimate of 1.24 is satisfactory to generate a normal distribution of results. The factor "skills" resulted in $\alpha = 0.86$ and Tukey's estimate of 1.13. The items that fell within the PTE factor included items: 3, 5, 6, 7, 8, 10, 11, 12, 13, and 14. Those that fell within the skills factor included 1, 2, 4, 9, and 13.

Further data were also sourced from anonymous student feedback collected by the university prior to the end of session. This feedback was made available to lecturers following grade release and consists of 11 core items with Likert scale of 7 ranging from "very strongly agree" to "very strongly disagree." This is a standardised university teaching evaluation survey that is voluntarily and anonymously completed by students in all courses across the university. Examples of the items include: Clear guidelines were provided for all assessment tasks; I was given guidance on how to improve my work; Teaching was clearly directed

Table 2: Means overall at pre- and post-occasions.

	Total pre-SEIPD	Total post-SEIPD
Mean	84.95	97.82
Std. deviation	18.01	10.19

Table 3: Mean scores for SEIPD questions at pre- and post-occasions.

SEIPD scores	Before		After	
	Mean	SD	Mean	SD
Q1	5.05	1.987	6.54	1.027
Q2	5.02	1.753	6.44	0.896
Q3	5.78	1.605	6.83	1.181
Q4	5.02	1.753	5.95	1.499
Q5	5.80	1.600	6.51	0.898
Q6	4.90	1.934	6.24	1.670
Q7	5.27	1.342	5.9	0.831
Q8	6.80	1.418	7.17	0.919
Q9	4.88	1.763	6.78	0.852
Q10	6.10	1.158	6.66	0.855
Q11	5.61	2.011	6.68	1.128
Q12	6.46	1.704	6.98	1.475
Q13	5.23	1.847	5.53	1.633
Q14	6.12	1.364	6.63	1.090
Q15	6.53	1.467	7.20	0.872
Total	84.95		97.82	

towards the objectives of the subject. Additional positive or negative written comments could be made if the students chose to complete this section of the form.

3. Results

The paired sample t-test conducted to evaluate the impact of *Embedded Course Design* on Student's scores on the SEIPD at pre- and postoccasion revealed a statistically significant increase in SEIPD scores from time 1 ($M = 84.95$, SD =18.01) to time 2 ($M = 97.82$, SD = 10.19), $t(37) = -6.22$, $P < .001$ (two tailed). The effect size (Cohen's d) was 1.06 indicating a large effect size.

Table 2 presents the overall means and standard deviations for the SEIPD scores.

Further details are presented for individual questions in Table 3.

Table 3 summarizes the results for each question on the pre- and postoccasion.

Questions that scored the lowest at pretest included Q6 and Q9: "I do not feel competent in relation to my skills in this area; I am able to plan and organise appropriate activities for students with disabilities in my class."

Many of the preservice teachers had no prior experience with anyone who had a disability. It certainly indicates that the preparation they had completed to date in their university program had not prepared them for this area of teaching, which is supported by research mentioned earlier [1, 7–9]. By the posttest occasion, the mean scores for these items had shifted from less than 5 to scores of 6.24 and 6.78, respectively, indicating that the preservice teachers felt the course had enabled the skills they will need when working with diverse student populations.

The range of scores at posttest occasion was 5.90–7.20. The highest scoring items were items 8 and 15, "When confronted with a challenging situation I would be likely to give up." The negative slant of this item meant it was scored backwards so that a high score of 8 was gained from a "definitely false" response. Item 15 was "I see my future interactions with students who have a disability as successful." Both these items indicate a high personal teaching efficacy (PTE) for inclusive education from the scale.

Results from the anonymous university feedback data were analysed by university personnel by taking means of the core likert items and comparing similar course content areas across faculty teaching courses. Response rates from the feedback are very low and could not be analysed statistically. Data presented are given as an illustration.

Student feedback for the likert responses on the 11 core items concur with discussions of self-efficacy sources noted by Bandura [11] and Palmer [20]. In every instance of the 11 core feedback items included, the single course score rated higher than the entire teaching school mean with means scores ranging from 5.16–6.42 out of a possible 7. Further 6 items were customised and added to the 11 core including: "the… use of examples helped my understanding" and "the academic made clear and practical application of the subject." These additional items scored an average of 6.78 out of a possible 7.

Written student feedback provided as part of the anonymous course university feedback process indicate that the various student comments support Palmer's (2006) suggestion that cognitive pedagogical mastery was the most reported source of self-efficacy when looking at student's reflections on learning. Student comments that particularly focused on assessment and content were purposefully selected to illustrate this source in action: "*The assessments were helpful in understanding about inclusive education and that it isn't hard to adapt the curriculum, classroom, etc., as it would seem*" (Student x); "*The extra class on explicit learning design was very helpful*" (Student y) and "*Excellent teaching strategies used*" (Student z). Results suggest that these are two key aspects that are at the forefront of a student's engagement when completing a course—the assessments that they need to complete and the content of the course itself.

The students also touched on aspects of content mastery that was indicated by Palmer in 2006, and in a particular case mapped to the word itself: "*The weekly quizzes were good in keeping me keep up with the readings and my understanding of the subject*" (Student a) and "*As this subject covers a lot of content we could have quite easily become restless each week but we weren't!*" (Student b). The interwoven nature of the content and pedagogical mastery comments is not unusual as these two fields were inextricably linked as the delivery of course-specific content was reliant on pedagogy as a focus.

4. Discussion

We hypothesised that self-efficacy would increase through the application of the *Embedded Design* principle to a course that enabled preservice teachers to build mastery in inclusive pedagogies. A paired sample *t*-test indicated that there was a significant difference between pre- and postoccasion. The effect size of 1.06 is considered substantial.

Previous studies have found that self-efficacy increased following the completion of a course of study in inclusive education at undergraduate level [24, 25]. What has been lacking in many of the aforementioned studies is a clear description of what constituted the course structure and design in order to have such an impact on self-efficacy. Using *Embedded Design* principles employed in this course to match more closely the tenets proposed by Bandura as mediating factors for self-efficacy allowed for a closer insight into what worked and what did not. Caution must be exercised though as we were only able to report on pre and postdifferences based on a self-report of self-efficacy. It was not possible to make more substantial claims about where the actual differences came from. Disentangling the different facets in a more empirical way would be of interest and would certainly be an avenue for future exploration. Notwithstanding this caution when interpreting these findings, the following is a discussion of results incorporating possible avenues for future empirical exploration.

The design elements of this course have been carefully described and might be linked to Bandura's sources of self-efficacy. Enactive mastery experiences, vicarious experiences, social persuasion, and physiological indexes were incorporated into the course design in the following ways.

Enactive mastery was expected by way of the differing assessment items required with knowledge being expanded across the use of quizzes, presentations then finally culminating in lesson designs that incorporated the pedagogy of choice as well as iterations of differentiation that may be required in classroom. The mastery of the content was repeatedly embedded in the design. Vicarious experiences occurred through preservice teacher presentations and also the collaborative groups where preservice teachers were enabled to estimate their capabilities in comparison to others as they worked in their collaborative groups. Social persuasion was experienced through feedback given by peers as well as the instructor during workshop activities; physiological indexes were often commented upon prior to quizzes, during presentations in front of their peers and in the collaborative process of lesson design preparation. All of these sources were incorporated into the design of the course through the principles of *Embedded Design* which were woven throughout all aspects of the course.

The nature and characteristics of the *Embedded Design* course also captured the additional sources of self-efficacy identified by Palmer [20] in his science classes. We cannot empirically concur with Palmer that Bandura's sources can be extended to include content mastery, pedagogical mastery, and situational mastery; in this study those sources were not measured. However, based on the description given, the *Embedded Design* ensured that content mastery was enhanced by the weekly quizzes and the presentations. The content was presented in a way that mastery was ensured before moving on to the next assessment item. Pedagogical mastery was the key focus of content covered in the course and was scaffolded formatively via differentiated lesson designs. Preservice teachers also witnessed expert models during class with the instructor modelling pedagogies and followed by peers modelling them as well. Palmer [20] found cognitive pedagogical mastery to be the most reported sources of efficacy when analysing his student's reflections on their learning. This is the closest related source found in the structure of this current study. The preservice teachers were given instruction on how to develop lesson content using the research-based characteristics of various pedagogies. Cognitive content mastery (i.e., understanding the concepts behind differentiation of various topics taught) was also embedded in the requirement for differentiation using the various pedagogies.

Lastrapes and Negishi [24] were able to extrapolate percentages of perceived importance preservice teachers attached to the different sources of self-efficacy: 70% from their own mastery experiences, 20%, vicarious experiences and the remaining 10% from verbal persuasion. All of these elements were incorporated in the course through the use of *Embedded Design* principles even though it was a class-based course rather than a field experience. Large cohorts of preservice teachers do not always allow for field experiences to be tied to every course they complete. As Lastrapes and Negishi [24] and Lancaster and Bain [2] found, self-efficacy is not necessarily maximally enhanced by field experiences. A theoretically designed course has statistically more impact [2]. The common themes identified by Lastrapes and Negishi [24] might be investigated more empirically in future studies.

Ruys et al. [19] present findings about the impact of self-efficacy on conceptions towards using collaborative learning in classrooms. They found that even though it was a highly valued strategy, preservice teachers did not prefer to collaborate themselves during their own learning process. Results indicated that collaborative learning was only implemented once in a while in teacher education classes and preservice teachers did not feel that they were adequately trained in the use of collaborative learning pedagogies for their future practice. Although it is recognised that ideally instructional strategies would be embedded across a program, this research takes the first step of embedding inclusive pedagogies across a course. We embedded the collaborative learning throughout the course as a skill to be used in workshops and also mastered in terms of knowledge. We incorporated not only the research-based characteristics of collaborative learning, but also the means to differentiate the pedagogy.

This study made some interesting findings in terms of analysing the actual construct of self-efficacy when applied to preservice teachers studying inclusive education content. The original Self-Efficacy Scale developed by Hickson in 1995 [23] was administered to nurses and perhaps this is why only one factor was determined at that point in time. The nurses did not have the same vested interest in working with and teaching those who have a disability as did the group of preservice students studying to be teachers. The two factors

detected here can be related to the study conducted by Lee et al. [25], which may suggest the existence of other related sources that contribute to the self-efficacy construct. It makes sense that an improvement in skill level when considering inclusive pedagogies would have an impact on the efficacy preservice teachers feel about their ability to teach students with disabilities. The analysis of the separate factors was not carried out here but could form part of future empirical study into the area.

In spite of positive findings from this initial study, caution must be exercised with interpretations of the findings.

5. Limitations

Any findings must be taken cautiously as a result of the limitations in using a case study framework. The first and most notable is the lack of control group to compare the self-efficacy results. The data included was sought from a single cohort of preservice teachers. The case study framework does not necessarily address the issue of controls but seeks to evaluate a single case. Future studies could improve generalizability through use of quasiexperimental design that incorporates a control group that experiences the course design differently.

Other issues include the sample size and self-report that was involved with the use of the SEIPD questionnaire. Findings generated from self-report are difficult to generalise unless there are other data sources to support findings. Students were also predisposed to the same questions at pre- and posttest occasions so they were aware of what was expected of them. Having no control groups and self-reports severely limits the generalizability for the current findings.

There is no room to speculate about long-term effects of the embedded course design, and none were made. Nor are there any claims, about the actual ability to teach in inclusive settings. To make these sorts of claims a more experimental and longitudinal study is required. Data such as direct observations would be beneficial in future research as would additional sources of information such as narratives written by the students for coding analysis.

6. Conclusions

In conclusion, these initial findings suggest that courses using *Embedded Design* principles may support improvement of self-efficacy of preservice teachers. Further empirical testing is of course required. These findings are encouraging, especially given the importance of self-efficacy and its powerful influence on teacher effectiveness and also draws attention to the design issues associated with preservice teacher education courses in inclusive education. The theoretical drivers behind course design calls for a more thorough analysis in terms of the many variables that impact preservice teacher educators. As Sari et al. [14] suggest, perhaps additional inclusive education courses should be run for preservice teachers; or, as Forlin et al. [1] found with their Canadian cohort, the inclusive education content might be embedded across a whole program rather than a stand-alone course. Enactive mastery [20] could be linked into professional placements following the conclusion of an inclusive education course. Further research is required before more definitive conclusions can be made.

Given the high attrition rates experienced by teachers entering the inclusive education field of practice, more effort needs to be expended to assist preservice teachers gain the skills and confidence they need to work with the diverse populations of students they will encounter.

References

[1] C. Forlin, T. Loreman, U. Sharma, and C. Earle, "Demographic differences in changing pre-service teachers' attitudes, sentiments and concerns about inclusive education," *International Journal of Inclusive Education*, vol. 13, no. 2, pp. 195–209, 2009.

[2] J. Lancaster and A. Bain, "The design of pre-service inclusive education courses and their effects on self-efficacy: a comparative study," *Asia-Pacific Journal of Teacher Education*, vol. 38, no. 2, pp. 117–128, 2010.

[3] K. Purdue, D. Gordon-Burns, A. Gunn, B. Madden, and N. Surtees, "Supporting inclusion in early childhood settings: some possibilities and problems for teacher education," *International Journal of Inclusive Education*, vol. 13, no. 8, pp. 805–815, 2009.

[4] A. Ashman and J. Elkins, *Education for Inclusion and Diversity*, Pearson Education Australia, Frenchs Forest, NSW, Australia, 3rd edition, 2009.

[5] E. E. Boe, S. Shin, and L. H. Cook, "Does teacher preparation matter for beginning teachers in either special or general education?" *Journal of Special Education*, vol. 41, no. 3, pp. 158–170, 2007.

[6] A. Carroll, C. Forlin, and A. Jobling, "The impact of teacher training in special education on the attitudes of Australian preservice general educators towards people with disabilities," *Teacher Education Quarterly*, vol. 30, no. 3, pp. 65–79, 2003.

[7] M. C. Pugach and L. P. Blanton, "A framework for conducting research on collaborative teacher education," *Teaching and Teacher Education*, vol. 25, no. 4, pp. 575–582, 2009.

[8] U. Sharma, C. Forlin, and T. Loreman, "Impact of training on pre-service teachers' attitudes and concerns about inclusive education and sentiments about persons with disabilities," *Disability and Society*, vol. 23, no. 7, pp. 773–785, 2008.

[9] P. Foreman, *Inclusion in Action*, Cengage Learning, 2011.

[10] J. McLeskey and B. S. Billingsley, "How does the quality and stability of the teaching force influence the research-to-practice gap?: a perspective on the teacher shortage in special education," *Remedial and Special Education*, vol. 29, no. 5, pp. 293–305, 2008.

[11] A. Bandura, "Exercise of personal and collective self-efficacy in changing societies," in *Self-Efficacy in Changing Societies*, pp. 1–45, Cambridge University Press, Cambridge, UK, 1995.

[12] A. Bandura, "Self-efficacy," *Harvard Mental Health Letter*, vol. 13, no. 9, p. 4, 1997.

[13] J. Lancaster, "Is it really possible? Can students with learning difficulties ever achieve higher levels of self-efficacy?" *Special Education Perspectives*, vol. 14, no. 2, pp. 46–61, 2005.

[14] H. Sari, N. Celikoz, and Z. Secer, "An analysis of pre-school teachers' and student teachers' attitudes to inclusion and their self-efficacy," *International Journal of Special Education*, vol. 24, no. 3, pp. 29–44, 2009.

[15] E. Boling, "'Yeah, but I still don't want to deal with it'. Changes in a teacher candidate's conceptions of inclusion," *Teaching Education*, vol. 18, no. 3, pp. 217–231, 2007.

[16] N. Elik, J. Wiener, and P. Corkum, "Pre-service teachers' open-minded thinking dispositions, readiness to learn, and attitudes about learning and behavioural difficulties in students," *European Journal of Teacher Education*, vol. 33, no. 2, pp. 127–146, 2010.

[17] K. Hergenrather and S. Rhodes, "Exploring undergraduate student attitudes toward persons with disabilities: application of the disability social relationship scale," *Rehabilitation Counseling Bulletin*, vol. 50, no. 2, pp. 66–75, 2007.

[18] S. Romi and Y. Leyser, "Exploring inclusion preservice training needs: a study of variables associated with attitudes and self-efficacy beliefs," *European Journal of Special Needs Education*, vol. 21, no. 1, pp. 85–105, 2006.

[19] I. Ruys, H. van Keer, and A. Aelterman, "Collaborative learning in pre-service teacher education: an exploratory study on related conceptions, self-efficacy and implementation," *Educational Studies*, vol. 36, no. 5, pp. 537–553, 2010.

[20] D. H. Palmer, "Sources of self-efficacy in a science methods course for primary teacher education students," *Research in Science Education*, vol. 36, no. 4, pp. 337–353, 2006.

[21] J. N. Causton-Theoharis, G. T. Theoharis, and B. J. Trezek, "Teaching pre-service teachers to design inclusive instruction: a lesson planning template," *International Journal of Inclusive Education*, vol. 12, no. 4, pp. 381–399, 2008.

[22] J. Lancaster and A. Bain, "The design of inclusive education courses and the self-efficacy of preservice teacher education students," *International Journal of Disability, Development and Education*, vol. 54, no. 2, pp. 245–256, 2007.

[23] F. Hickson, *Attitude Formation and Change Towards People with Disabilities*, University of Sydney, Sydney, NSW, USA, 1995.

[24] W. Lastrapes and M. Negishi, "Foundational field experiences: a window into preserve teachers cultural consciousness and self-efficacy for teaching diverse learners," *SRATE Journal*, vol. 21, no. 1, pp. 37–43, 2012.

[25] Y. Lee, P. P. Patterson, and L. A. Vega, "Perils to self-efficacy perceptions and teacher-preparation quality among special education intern teachers," *Teacher Education Quarterly*, vol. 38, no. 2, pp. 61–76, 2011.

[26] S. Gibson and M. H. Dembo, "Teacher efficacy: a construct validation," *Journal of Educational Psychology*, vol. 76, no. 4, pp. 569–582, 1984.

[27] S. Kauffman, *At Home in the Universe: The Search for the Laws of Complexity and Self-Organization*, Oxford University Press, New York, NY, USA, 1995.

[28] I. Prigogine and I. Stengers, *Order Out of Chaos: Man's New Dialogue with Nature*, Bantam Books, New York, NY, USA, 1984.

[29] M. Waldrop, *Complexity: The Emerging Science at the Edge of Order and Chaos*, Simon & Schuster, New York, NY, USA, 1992.

[30] A. Bain, *The Self-Organizing School: Next Generation Comprehensive School Reform*, Rowman & Littlefield Education, Lanham, Md, USA, 2007.

[31] M. Friend and L. Cook, *Interactions: Collaboration Skills for School Professionals*, Pearson Education, Boston, Mass, USA, 4th edition, 2010.