In-Service Teacher Training Needs in Hong Kong

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Paper presented at the Annual Conference of the Australian Association for Research in Education, Sydney, Australia, 2005. We thank Stephen Chin Wang Kong for assisting in the data analysis and Rachel, Y. H. Hon and Amanda, W. M. Li for constructive comments. Enquiries concerning this paper should be directed to Alexander Yeung, Division of Continuing Professional Education, The Hong Kong Institute of Education, 10 Lo Ping Road, Tai Po, N.T., Hong Kong or via email to ssyeung@ied.edu.hk

Abstract

Teachers attending a 5-week in-service retraining course completed a survey asking them to rate their current competencies and training needs in 24 variables (N = 210). Intuitively, teacher competencies and their perceived needs of retraining should be negatively correlated. However, the correlations between teacher competencies and perceived needs were found to be small and mostly not statistically significant. Teachers at various stages of their professional development were found to have varying competencies but they tended to have very similar needs. The results suggested that neither an analysis of the current teacher competencies nor that of their perceived needs alone would be adequate to guide the consideration of the contents of curriculum for in-service teachers. Instead, the teachers' current stage of professional development should be seriously considered in order to provide them with the most appropriate in-service training program.

Teacher development and in-service education of the teaching profession (INSET) have been acknowledged to be an increasingly important focus in the era of education reform (Centre for Education Research and Innovation, 1998; Department for Education and Employment, 2001; Department of Education and Science, 1990). Nevertheless, although policymakers are mostly aware that teacher education significantly influences teacher effectiveness, there is often a lack of systematic professional development for teachers (Darling-Hammond & Ball, 1999). To provide valuable INSET programs at various stages of their career development, we may need to first identify their strengths and weaknesses.

Stage theories of teacher development imply that teachers at different stages of their career may possess different strengths and competencies and may have different training needs (Huberman, 1995; Moyer & Husman, 2000; Pang, 2001), and there is an assumption of a close relationship between teaching competencies and the teachers' developmental needs. However, the relationship between teachers' competencies and their training needs is not clear and few studies have examined whether teachers at different stages of their career development differ in these

constructs. The present study examines the relationship between teachers' competencies and their training needs. We hypothesized that teachers' competencies and needs may not be well associated. If this is true, the small association would imply that the inclusion of contents for INSET should not be based solely on either teacher competencies or needs.

Teacher Competencies and Training Needs

For the successful delivery of INSET, it is important to first identify the most desirable retraining topics for them (Joerger, 2002). In identifying the desirable retraining topics, researchers have examined the teachers' strengths (i.e., their existing competencies) and their retraining needs. For example, Ross (2002) has emphasized that it is important to examine the teachers' feelings of competency in different variables associated with teaching and learning. In contrast, Williams (1982) emphasized designing programs on the basis of the teachers' needs. However, few studies have attempted to differentiate the saliency of teacher competencies from the teachers' perceived needs for designing an appropriate INSET program.

A differentiation between teachers' competencies and perceived needs is important because government-imposed in-service programs for teachers are often geared toward the enhancement of competencies that are required for a proper functioning of the teacher's role whereas the spontaneous choice of teachers in attending in-service programs is mainly based on their perceptions of their own needs. Hence, Day (2002) has suggested that models of teacher development adopted by policy-makers seldom address teachers' developmental needs and are unlikely to arouse the motivation and commitment that are essential to the enhanced standards of teaching. A vigorous study on the relationship between competencies and teacher perceived needs like the present study will therefore contribute to the understanding of the delicate chemistry that is required for a willing collaboration of all members of the learning community in the in-service teacher programs (Centre for Educational Research and Innovation, 1998).

Although perhaps assumed to be associated, teachers' competencies have never been proved to be really related to teachers' perceived needs for retraining. If these two constructs are closely associated, either of these constructs could be used to guide program design for teacher retraining programs. However, if these two constructs were not correlated, then the use of either of the constructs would be dubious in the program design. One of the objectives of the present study is to examine the relationship between teachers' competencies and their perceived training needs.

Strengths and Needs At Different Stages of Career Development

In a study examining the strengths and needs of special education teachers, Westat (2002) reported that the needs of the teachers included teaching diverse students and using technology in instruction. However, the report did not differentiate between the needs of teachers at their various stages of career development. In designing teacher retraining programs, there is often an assumption of a close relationship between teaching experience and the teachers' developmental needs. In particular, stage theories of teacher development suggest that teachers at different stages of their career may have different training needs (Moyer & Husman, 2000).

For example, one of the emerging needs in teachers' professional development is probably associated with the application of modern technology, including the computer (Ehman & Bonk,

2002; Reiser, 2002). Whereas the use of information technology may enhance student learning (Lee, 2002), it will not be surprising that experienced teachers are found to need help using computers and multimedia devices in teaching (e.g., Layfield & Dobbins, 2002). For those teachers who have taught over 20 years in Hong Kong, we may expect that at least some of them would need help in using information technology in their teaching. This expectation is reasonable because they did not have such training in their initial teacher education programs 20 years ago. Thus to encourage them to use the technology, it will be important to at least help these teachers appreciate the potential of information technology in enabling more effective learning (Lee, 2002).

Hence, for the less experienced teachers, whereas they may feel adequately prepared in terms of new approaches to teaching and learning through their initial teacher education programs, they may need more preparation in classroom management and working with special student populations (Ruhland & Bremer, 2002). Because they do not have adequate experience of teaching students from a diversity of backgrounds, they may doubt their competency in managing a class of diverse abilities and values. They may also be less competent in adjusting their teaching to special student needs and in handling parent queries and other unexpected events.

The difference in the needs for retraining for experienced and younger teachers in the application of technology and in teaching diverse students is a good example illustrating the contention of stage theories. In general, stage theories imply that because teaching in the modern times has become an increasingly complex job requiring high standards of professional practice to maintain an acceptable level of performance in the teacher's role (Hargreaves & Goodson, 1996), there may be a discrepancy between the teachers' existing competencies and their actual needs to perform well. For example, Huberman (1995) identified five stages of professional development. The Advisory Committee on the Supply and Training of Teachers (1994) described six stages of teachers' career development, suggesting varying retraining requirements for teachers of different experiences. Pang (2001) proposed a model for an in-service education ladder, suggesting four major stages, also in terms of teachers' experiences in the career. In essence, as suggested by Oosterheert, Vermunt, and Deneseen (2002), different teachers may need different support in their development, and the difference may diversify as the teachers proceed through the various stages.

Using these models of stage theory, we would expect that those teachers who have just joined the teaching profession would have a repertoire of new teaching theories and skills in modern technology but have induction needs of settling in whereas the more experienced teachers would have a range of competencies acquired through the years of teaching but would also have a range of updating and extension needs. Thus at the initial serving stage, the teachers' needs are likely to be related to putting theory into practice whereas at the later stages of professional development, the teachers' needs are likely to be related to the updating and extension of existing competencies.

Of course, there are other areas of development that may be equally essential for teachers in all stages. Surely, one of the most important areas of development for teachers is related to the enhancement of subject-specific knowledge and skills for better teaching, leading to improved student learning (Fickel, 2002). Thus numerous researchers have suggested the inclusion of innovative teaching strategies in teacher training programs (e.g., Hendrix, Gilbert, Valois, Austin,

Bradley, & Kozlowski, 2002; Lunsford, 2002). We would expect that the development in subject-specific pedagogy to be perceived as an important need by teachers in all stages of their career development.

The Present Investigation

Among various aspects of development in teacher retraining, Williams (1982) listed a list of significant factors to be included. They included important competencies such as subject knowledge, teaching development, management development, team development, relationship training, and pastoral care. In previous course evaluations and staff-student consultation meetings of the PRT conducted by the HKIEd, the participants have identified a number of important factors for retraining. They included (a) knowing the trend of the education reform, (b) sharing of experiences with other teachers, (c) knowledge of new instructional strategies, (d) opportunities of visits to various educational settings, (e) learning how to integrate information technology in teaching, (f) learning more about student guidance and discipline theories and practices so as to prevent or deal with the student problems, (g) getting trained in areas previously untrained, (h) school administration, (i) reflection in teaching and use of reflection for improving teaching, (j) a reorientation of the focus of teaching, and (k) understanding the role of teacher in education. This is a remarkably long list that reflects mostly new requirements and expectations of the current education reform. We might expect that teachers at whatever stage of professional development would find these elements essential in terms of professional enhancement.

Thus in the present study, we asked teachers about their perceptions of their competencies and needs in professional development. We anticipated that under the influences of the present education reform, many of the teachers' in-service retraining needs would be common among teachers at different stages of professional development. Thus separate considerations of teachers' existing competencies and needs would not provide us with a good insight in terms of the direction for designing an appropriate retraining curriculum. Any discrepancy found between the teachers' competencies and their needs may provide us with a better insight into INSET content designs for the profession.

Method

The sample

The teachers of the present sample came from over 150 different primary schools in different districts of Hong Kong (N = 219). Of these teachers, 76% were female. Due to missing data and because some teachers did not identify their teaching experience, the sample size varied when available data were used for each analysis. The teachers attended the primary teacher retraining (PRT) program provided by the Hong Kong Institute of Education (HKIEd), one of the few universities in Hong Kong that provide teacher professional development programs. The INSET program has been emphasized in the review of 9-year compulsory education in Hong Kong by the Board of Education (1997) and further reinforced by the Education Commission, Hong Kong (1997) in its report no. 7. In more recent documents on education reform (e.g., Advisory Committee on Teacher Education and Qualifications, 1998; Education Commission, 2000).

The PRT program was structured with specific objectives such as to acquaint participants with

modern theories and practices in learning and teaching, curriculum development, student guidance, school management and professional development, and to upgrade and update the participants' knowledge and understanding of subject-specific contents, processes of inquiry, and concepts and skills. All those registered primary school teachers who had at least five years teaching experience and had not attended the same course within the past five years were eligible to apply to attend if supported by their heads of schools.

Thus all of the teachers had previously received initial teacher education at least 5 years ago. Their teaching experiences ranged from a minimum of 5 years to over 20 years. For the purpose of the present study of teachers at different stages of professional development, we divided the teachers into three groups: (1) the greenhorns—having taught 5 to 10 years (50% of the total sample), (2) the experts—having taught 11 to 20 years (25%), and (3) the veterans—having taught over 20 years (25%).

The Instrument and Procedure

A survey was designed to ask the serving teachers taking the retraining course about their competencies and training needs. Section 1 asked the teachers for some personal information. In Section 2 of the survey, 24 pairs of items were used to ask the teachers about their perceptions of their current competencies and their perceived training needs in parallel. A pool of items was first collected from various sources from the literature and from the recent documents on reform in education (e.g., Education Commission, 2000, 2002). The pool of items was further expanded by collecting opinions and suggestions from a class of the primary retraining course in a pilot study. After selection by the research team, 24 parallel items were used in the present survey. The teachers responded to the items about their mastery of knowledge and skills in 24 areas on a 5-point scale (1 = not mastered to 5 = perfectly mastered). For their training needs, they responded to the same 24 areas also on a 5-point scale (1 = no such need to 5 = very much need). The teachers were asked to complete the surveys before the commencement of each of the five retraining classes of a 5-week duration. The researchers explained the purpose of the study and the teachers could choose not to complete the survey if they did not wish to. After completing the survey, the teachers put them in a box in the absence of the researchers. All the completed surveys were treated anonymously.

Statistical Analysis

Preliminary Analysis

The scores of items were coded such that higher scores reflected more favorable responses. Thus a high competency score would mean that the teacher had high competency whereas a higher need score would mean that the teacher had greater training need for that area. The analysis was conducted with SPSS (Nie, 1994; Norusis, 1994a, 1994b, 1994c). We first conducted a principal components analysis to test whether the 24 variables could be reduced to fewer factors. If they could be represented by some reasonable factors, then subsequent analysis would use the respective factor scores; otherwise, the 24 variables would be treated separately.

Relationship Between Competency and Need

We first examined the overall mean scores of the teachers' ratings on their competencies and the corresponding needs. A competency score higher than 3 on the 5-point scale could be

interpreted as indication of a favorable perception of their competencies. Likewise, a score higher than 3 for the needs could be interpreted as the teachers' perception of a strong need for that variable.

We then examined the correlation between the existing competency and perceived need in each of the 24 variables. A high correlation between competency and need would imply that the design of curriculum for the in-service course could consider either the teachers' existing competencies or their perceived needs. A low correlation would imply that when designing the in-service course, the consideration of only the competencies or only the needs could be misleading.

Competencies of Teachers at Different Stages of Career

The teachers were categorized into three groups: (1) those teachers who have taught for 5 to 10 years, (2) teachers who have taught for a period of 11 to 20 years, and (3) those teachers who have taught for over 20 years. We conducted a one-way analysis of variance (ANOVA) to examine whether any differences existed between teachers of various stages of their career. To the extent that the between-group difference was significant, we conducted a posthoc Scheffe range test to examine how the groups differed. We hypothesized that some significant differences would exist but for most of the variables, the differences would be trivial. Specifically, we expected that those teachers at an earlier stage of professional development would be more competent in those areas related to some recently introduced measures in the education field due to the education reform whereas those teachers who were more experienced would be more competent in handling complex matters that are school-wide or that involve other people within or outside the school.

Needs of Teachers at Different Stages of Career

Similar to the analysis for the competencies, in examining the teachers' needs at different stages of their career, the teachers were categorized into three groups. Again, we first examined the mean score for each variable. Then we conducted a one-way analysis of variance (ANOVA) to examine whether any differences existed between teachers of various stages of their career. We hypothesized that although there may be some subtle differences between groups, the differences would be trivial. In general, we expected that the teachers would perceive strong needs in most of the variables examined here.

Results

Preliminary Analysis

Principal components analysis found that neither the 24 competency items nor the 24 need items could be reduced to less than 12 factors for further analysis. Even for those items that could be grouped together, none of the factors had three or more items with factor loadings equal to or larger than .5. Thus, subsequent analysis used 24 items separately.

Relationship Between Competency and Need

The overall mean scores and standard deviation of the teachers' ratings on their competencies and the corresponding needs are presented in Table 1. An examination of the mean scores found that for all the variables, the mean scores for need were high (all Ms> 3 on the 5-point scale). However, for the competencies, although most of the scores were high (Ms > 3), 6 out of the 24

variables had ratings lower than 3. Thus, the teachers did not find themselves good at (a) school-based curriculum design, (b) handling students' special learning needs, (c) integrative subject design, (d) whole-person development, (e) curriculum adaptation, and (f) educating the new immigrants.

Table 1. Means, Standard Deviations of and Correlations between Current Competencies and Perceived Needs

		Competency		Need		
		Mean	(SD)	Mean	(SD)	Correlation
1.	School-based curriculum design	2.88	(0.84)	3.96	(0.84)	.00
2.	Application of IT in teaching	3.15	(0.82)	3.84	(0.85)	-.26**
3.	Communication with colleagues	3.88	(0.66)	3.15	(1.10)	-.28**
4.	Handling students' special learning needs	2.99	(0.83)	3.79	(0.90)	-.13*
5.	Teaching of subject-specific knowledge	3.90	(0.54)	3.76	(1.06)	-.09
6.	Innovative teaching methods	3.16	(0.74)	4.12	(0.77)	-.05
7.	Guidance for student growth	3.38	(0.64)	3.88	(0.89)	-.10
8.	Effective evaluation of student progress	3.34	(0.63)	3.79	(0.87)	-.12
9.	Alleviation of work-related stress	3.38	(0.80)	3.57	(1.07)	-.40**
10.	Conducting project learning	3.14	(0.70)	3.86	(0.82)	-.18*
11.	Integrative subject design	2.84	(0.76)	3.85	(0.81)	-.07
12.	Whole-person development	2.92	(0.72)	3.91	(0.81)	-.18*
13.	Curriculum adaptation	2.96	(0.74)	3.86	(0.84)	-.02
14.	Time management	3.50	(0.70)	3.22	(1.07)	-.39**
15.	School administration	3.10	(0.79)	3.58	(0.91)	-.02
16.	Classroom management	3.95	(0.64)	3.25	(1.15)	-.38**
17.	Moral and civic education	3.43	(0.61)	3.49	(0.91)	-.09
18.	self-evaluating and perfecting	3.45	(0.62)	3.36	(0.91)	-.21*
19.	Parent-school cooperation	3.22	(0.69)	3.41	(0.88)	-.08
20.	Educating the new immigrants	2.65	(0.80)	3.39	(0.95)	-.20*
21.	Nurturing student value judgments	3.45	(0.64)	3.73	(0.88)	-.09
22.	Risk management in the school	3.06	(0.66)	3.71	(0.90)	-.04
23.	Extra-curricular activities	3.41	(0.75)	3.49	(0.89)	-.11
24	Teacher's role	3.71	(0.59)	3.39	(0.96)	-.09

Note: N = 216. The teachers responded to the items on a 5-point scale. * $p < .05$. ** $p < .001$.

Table 1 shows also the correlations between the competency and need scores. Interestingly, all the correlations were small. Intuitively, the correlation should be significantly negative such that low competencies would be associated with high needs and vice versa. Nevertheless, the data show that for most of the variables (14 out of 24), there was almost no correlation between competency

and need. Even for the 10 variables that displayed significant correlations, the correlations were small (r = -.40 at best). These results indicate that the association between the teachers' competencies and their perceived training needs was weak. The results therefore cast doubt on using either the teachers' reported competencies or their perceived needs as reasonable indicators for considering the contents of the INSET program.

Competencies of Teachers at Different Stages of Career

The teachers were categorized into three groups: (1) greenhorns--those teachers who have taught for 5 to 10 years, (2) experts--teachers who have taught for a period of 11 to 20 years, and (3) veterans--those teachers who have taught for over 20 years. Table 2 shows the means and standard deviations of the competency scores in the three groups. One-way analyses of variance (ANOVA) found that out of the 24 variables, 9 variables showed between-group differences.

Strengths of the greenhorn. The groups differed in their competency in using information technology in teaching, $F(2, 207) = 4.42$, MSE = 0.64, $p < .05$. A post-hoc Scheffe test found that those least experienced teachers (having taught 5 to 10 years) found themselves more competent than those veterans (above 20 years) in using information technology to teach (Ms = 3.27 and 2.87, respectively). There were also group differences in using innovative teaching methods, $F(2, 207) = 4.38$, MSE = 0.53, $p < .05$. A post-hoc Scheffe test found that the greenhorns found themselves more competent than the experts (having taught 11 to 20 years) in using innovative teaching methods (Ms = 3.27 and 2.91, respectively). These results suggest some strengths of the greenhorn relative to the veterans and experts. The results may also reflect the effects of the recent education reform with an emphasis on the application of information technology in teaching and a diversity of teaching strategies (Education Commission, 2000).

Strengths of the more experienced teachers. The groups differed in their competency in effective communication with colleagues, $F(2, 207) = 3.59$, MSE = 0.43, $p < .05$. A post-hoc Scheffe test found that the veterans (teaching over 20 years) found themselves more competent than the greenhorns in communicating with colleagues. The groups also differed in (a) handling students' special learning needs, (b) guidance for student growth, (c) effective evaluation of student progress, (d) moral and civic education, (e) parent-school cooperation, and (f) risk management in the school, Fs(2, 207) = 4.08, 3.28, 5.74, 7.39, 9.07, and 4.52, respectively, $p < .05$ (see Table 2). Post-hoc Scheffe tests showed that the veterans found themselves more competent than both the greenhorns (5 to 10 years) and experts (11 to 20 years) in these six variables. These results suggest some strengths of the veterans relative to the experts and greenhorns. However, these strengths may not reflect that the veterans did not require or expect further strengthening in these areas. It would be important to also compare these competencies with their perceived needs to provide a clearer understanding of their training needs. Furthermore, the ANOVA found marginally significant group differences in self-evaluating and perfecting (Table 2). However, a posthoc Scheffe test did not find significant differences although the veterans also seemed to score marginally higher than the other groups.

Table 2. Means and Standard Deviations of Current Competencies in 3 Groups of Teachers by Teaching Experience

			5-10 years	11-20 years	Above 20 years	F(MSE)	Scheffe
		N	101	56	53		
1.	School-based curriculum design	M (SD)	2.98 (0.86)	2.88 (0.76)	2.72 (0.91)	1.68 (0.72)	--
2.	Application of IT in teaching	M (SD)	3.27 (0.79)	3.18 (0.81)	2.87 (0.81)	4.42 (0.64)*	1>3
3.	Communication with colleagues	M (SD)	3.78 (0.63)	3.84 (0.71)	4.08 (0.65)	3.59 (0.43)*	3>1
4.	Handling students' special learning needs	M (SD)	2.94 (0.80)	2.73 (0.77)	3.28 (0.89)	6.37 (0.66)*	3>1,2
5.	Teaching of subject-specific knowledge	M (SD)	3.91 (0.51)	3.80 (0.55)	3.96 (0.52)	1.33 (0.28)	--
6.	Innovative teaching methods	M (SD)	3.27 (0.66)	2.91 (0.84)	3.19 (0.74)	4.38 (0.53)*	1>2
7.	Guidance for student growth	M (SD)	3.34 (0.68)	3.27 (0.62)	3.60 (0.57)	4.35 (0.41)*	3>1,2
8.	Effective evaluation of student progress	M (SD)	3.27 (0.60)	3.23 (0.66)	3.58 (0.60)	5.74 (0.38)*	3>1,2
9.	Alleviation of work-related stress	M (SD)	3.45 (0.73)	3.23 (0.76)	3.45 (0.93)	1.52 (0.63)	--
10.	Conducting project learning	M (SD)	3.21 (0.73)	3.04 (0.66)	3.09 (0.69)	1.20 (0.49)	--
11.	Integrative subject design	M (SD)	2.82 (0.73)	2.82 (0.72)	2.94 (0.84)	0.52 (0.57)	--
12.	Whole-person development	M (SD)	2.88 (0.73)	2.88 (0.63)	3.04 (0.73)	1.01 (0.50)	--
13.	Curriculum adaptation	M (SD)	2.94 (0.66)	2.91 (0.77)	3.06 (0.80)	0.63 (0.53)	--
14.	Time management	M (SD)	3.50 (0.69)	3.50 (0.71)	3.51 (0.70)	0.01 (0.49)	--
15.	School administration	M (SD)	2.99 (0.81)	3.11 (0.68)	3.28 (0.82)	2.48 (0.60)	--
16.	Classroom management	M (SD)	3.89 (0.63)	3.93 (0.66)	4.11 (0.58)	2.28 (0.39)	--
17.	Moral and civic education	M (SD)	3.42 (0.57)	3.23 (0.57)	3.66 (0.62)	7.39 (0.34)**	3>1,2
18.	self-evaluating and perfecting	M (SD)	3.40 (0.60)	3.38 (0.62)	3.64 (0.62)	3.41 (0.37)*	--
19.	Parent-school cooperation	M (SD)	3.08 (0.72)	3.14 (0.55)	3.55 (0.67)	9.07 (0.44)**	3>2,1
20.	Educating the new immigrants	M (SD)	2.64 (0.78)	2.59 (0.68)	2.77 (0.87)	0.81 (0.61)	--
21.	Nurturing student value judgments	M (SD)	3.48 (0.66)	3.30 (0.60)	3.51 (0.67)	1.71 (0.42)	--
22.	Risk management in the school	M (SD)	2.98 (0.63)	2.96 (0.71)	3.28 (0.60)	4.52 (0.42)*	3>1,2
23.	Extra-curricular activities	M (SD)	3.42 (0.73)	3.29 (0.83)	3.57 (0.64)	2.00 (0.54)	--
24.	Teacher's role	M (SD)	3.70 (0.52)	3.64 (0.62)	3.79 (0.63)	0.93 (0.33)	--

Note: N = 210 after listwise deletion of missing data. * $p < .05$. ** $p < .001$. The df for the F-statistics was (2, 207).

Table 3. Means and Standard Deviations of Perceived Needs in 3 Groups of Teachers by Teaching Experience

		5-10 years	11-20 years	Above 20 years	F (MSE)
	N	100	55	55	
1. School-based curriculum design	M (SD)	3.90 (0.79)	4.18 (0.72)	3.89 (0.99)	2.40 (0.69)
2. Application of IT in teaching	M (SD)	3.82 (0.81)	3.89 (0.92)	3.89 (0.81)	0.19 (0.70)
3. Communication with colleagues	M (SD)	3.18 (1.06)	3.13 (1.07)	3.20 (1.18)	0.07 (1.20)
4. Handling students' special learning needs	M (SD)	3.87 (0.88)	3.84 (0.86)	3.65 (0.97)	1.07 (0.81)
5. Teaching of subject-specific knowledge	M (SD)	3.89 (0.96)	3.73 (1.03)	3.64 (1.25)	1.11 (1.13)
6. Innovative teaching methods	M (SD)	4.10 (0.76)	4.24 (0.72)	4.15 (0.83)	0.56 (0.59)
7. Guidance for student growth	M (SD)	3.97 (0.78)	3.93 (0.84)	3.76 (1.02)	1.04 (0.75)
8. Effective evaluation of student progress	M (SD)	3.85 (0.74)	3.76 (0.92)	3.80 (0.99)	0.19 (0.74)
9. Alleviation of work-related stress	M (SD)	3.50 (1.06)	3.67 (1.07)	3.60 (1.12)	0.48 (1.16)
10. Conducting project learning	M (SD)	3.83 (0.77)	4.00 (0.77)	3.85 (0.93)	0.81 (0.66)
11. Integrative subject design	M (SD)	3.88 (0.72)	4.02 (0.78)	3.65 (0.99)	2.84 (0.66)
12. Whole-person development	M (SD)	3.93 (0.74)	4.13 (0.75)	3.76 (0.90)	2.94 (0.62)
13. Curriculum adaptation	M (SD)	3.89 (0.74)	3.98 (0.85)	3.76 (0.98)	0.95 (0.70)
14. Time management	M (SD)	3.20 (1.07)	3.25 (1.17)	3.27 (1.01)	0.09 (1.18)
15. School administration	M (SD)	3.62 (0.84)	3.65 (0.89)	3.51 (1.03)	0.40 (0.82)
16. Classroom management	M (SD)	3.35 (1.09)	3.15 (1.16)	3.27 (1.28)	0.55 (1.35)
17. Moral and civic education	M (SD)	3.54 (0.86)	3.51 (0.88)	3.49 (1.02)	0.06 (0.82)
18. Self-assessment and improvement	M (SD)	3.39 (0.89)	3.36 (0.91)	3.36 (0.95)	0.02 (0.83)
19. Parent-school cooperation	M (SD)	3.46 (0.86)	3.38 (0.78)	3.42 (0.99)	0.15 (0.77)
20. Educating the new immigrants	M (SD)	3.51 (0.93)	3.25 (0.97)	3.36 (0.99)	1.34 (0.91)
21. Nurturing student value judgments	M (SD)	3.79 (0.84)	3.69 (0.84)	3.75 (0.99)	0.23 (0.78)
22. Risk management in the school	M (SD)	3.70 (0.86)	3.71 (0.98)	3.73 (0.93)	0.02 (0.83)
23. Extra-curricular activities	M (SD)	3.46 (0.92)	3.49 (0.86)	3.58 (0.90)	0.33 (0.80)
24. Teacher's role	M (SD)	3.37 (0.91)	3.38 (0.87)	3.51 (1.14)	0.40 (0.93)

Note: N = 210 after listwise deletion of missing data. * $p < .05$. ** $p < .001$. The df for the F-statistics was (2, 207).

Needs of Teachers at Different Stages of Career

Similar to the analysis for the competencies, the teachers were categorized into three groups. The means and standard deviations of the need scores are presented in Table 3. The one-way ANOVAs found that for all 24 variables, there were no between-group differences. An inspection of the mean scores revealed that all the teachers at the three stages of professional development perceived great needs in all the 24 aspects of the teaching career (all Ms > 3 on a 5-point scale). The highest score was found in using innovative teaching methods that was consistently high in all three groups (Ms > 4). More interestingly, even for the greenhorns who found themselves competent in using innovative teaching methods, they found a great need for further strengthening in this area. The differences in the patterns found in the teachers' competencies and needs suggest that the teachers' current competencies do not necessarily match their needs. It would be incorrect to assume that teachers' lack of competencies is associated with their training needs. It would also be disastrous to assume that in-service teacher training programs that meet the needs of the teachers would also address their weaknesses.

Discussion

In their responses regarding current competencies and perceived training needs, on the whole, the teachers rated high for all of the 24 variables. These results indicate that even though the teachers feel competent in their role as a teacher, they also feel strong needs for INSET. However, most of the variables showed little correlation between competency and need. Hence, there was no support for the assumption of a close association between existing competencies and needs for INSET in respective areas.

For the competencies of teachers at different stages of their career, significant differences were found for some variables. For example, the greenhorns were more competent in using information technology and innovative teaching methods whereas the more experienced teachers were more competent in communicating with colleagues and handling students with special education needs. The results have provided some support for assumptions based on stage theories (e.g., Huberman, 1995; Moyer & Husman, 2000; Pang, 2001). Nevertheless, for the needs of teachers at different stages of their career, no significant difference was found between the groups. All the variables showed a great need from the three groups of teachers. In this sense, the results did not seem to support the expectations of stage theories. The findings imply that the consideration of contents for INSET programs cannot be reasonably based on either the teachers' reported competencies or their perceived training needs. Instead, a more fruitful evaluation of useful elements to include in INSET programs should involve consideration of both teachers' competencies and needs.

After the handover of the sovereignty of Hong Kong to China in 1997, the government of the Hong Kong Special Administration Region of China proposed a change in the education system and conducted a wide consultation about the education reform. The reform aims at helping the young people learn how to learn and commit themselves to life-long learning in order to cope with the knowledge-based, globalized economy (Law, 2002). This is a massive education reform with changes at the various levels of the system, school and classroom (e.g., Education Commission, 2000). Teachers are requested, among other things, to design school-based curriculum, use

innovative teaching strategies and conduct multimode assessment of learning as well as assessment for learning for their students. It is not surprising, therefore, to find from the study, a great need for in-service training among the teachers irrespective of their different stages of career even though they believed they were competent in their teaching. The difference between the greenhorns and the well-experienced teachers in terms of, for example, using information technology and handling students with special education needs is consistent with the literature of teacher development (Ehman & Bonk, 2002; Layfield & Dobbins, 2002; Reiser, 2002; Ruhland & Bremer, 2002). However, it would be a difficult decision as to whether the specific aspects of weaknesses should be dealt with separately to cater for the needs of the younger and the more experienced teachers. It would be similarly difficult for the INSET designers to decide whether every new aspect arising from the education reform should be included in the program and which existing elements should be discarded from the existing program in order to accommodate the new ones. Interestingly, the present study has found that basically the teachers' needs for INSET tend to be very similar irrespective of their stages of career development. Thus at least for this sample of Hong Kong teachers, the program design would not require the consideration of a separate focus for teachers of varying experiences when delivering the course.

In the turmoil of global recession and economic crisis, there are many other issues that could influence the teachers' participation and perceptions of INSET. The supply of teachers in Hong Kong in the last decade has out-numbered the vacant teaching positions available at schools due to various reasons, one of which is the decline in birth rate over the years (Census & Statistics Department 2005). Under the policy of a student-teacher ratio of 1.3 and 1.5 in the primary and secondary schools, respectively, a reduction in the number of students will inevitably call for a lower demand for teachers. Suggestions have been made to the authority on reducing the number of students per class for quality teaching on the one hand, and addressing the problem of over supply of teachers on the other hand. However, this seems to be hard to implement as it has financial implications, especially in the years when Hong Kong is still experiencing the economic crises. In fact, the government is cutting the expenditure on various public services and utilities, including education. There have even been suggestions of two teachers sharing one teaching job as a plausible solution to the teachers who are facing potential layoff. Teachers at this tidal change have to upgrade themselves for value-addedness to increase their competitiveness for employment. Under these circumstances, the teachers' needs for professional development do not necessarily follow the patterns suggested by stage theories. Hence as reflected from the findings of the present study, some previously valued aspects such as time management and self-evaluating and perfecting have now become the least needed variables. There are reasons to speculate that the teachers' major motive for professional development today is more oriented to the struggle for survival.

At present, the teachers taking the primary teachers' retraining course are enjoying block releases from their schools in order to participate in the course. Under the adverse economic situation of Hong Kong, it would be doubtful how long the Hong Kong government would continue to provide such financial support. In their study with a random sample of 1,363 teachers of Hong Kong, Ho and Yip (2003) found that a great majority of teachers favored the idea of partial pay

leave as well as no pay leave as support for the lifelong education of teachers. Nevertheless, we might speculate that the government would soon make attempts to minimize the expenditure of public revenue on INSET programs. When the teachers have to self-fund their INSET participation, they would probably demand for an even more precise match between the course contents and their expectations. Therefore, the present study that proposes a systematic evaluation of both the competencies and needs of potential participants should be a significant contribution to the INSET providers. However, although the present study has focused solely on the teachers' perceptions and beliefs, it would be important for the program designers to take into account also those aspects that the teachers might have presently neglected. In any case, INSET program designers need to take into account the changing needs of teachers in the changing society (e.g., Levin, 1986; Longmore, 1974; Sklarz, 1991).

In sum, the findings of the present investigation have important implications for INSET design. First, the results of the study suggest that neither the analysis of the teacher competencies nor of their perceived needs would be adequate for the teacher educators to design an appropriate curriculum for INSET. Second, although teachers of varying experiences perceived similarly high needs of INSET, they had different competencies such that more experienced and less experienced teachers may have different strengths. Hence, curriculum designers for INSET should consider both teacher competencies and needs together with their current stage of professional development when considering the course contents.

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