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Source	<i>AARE Conference, Fremantle, Australia, 2-6 December 2001</i>

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Recent changes in primary teacher education in Singapore: Beyond design and implementation

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ABSTRACT

Primary teacher education in Singapore has taken on a different emphasis from one that was content biased to one that is more professionally based and integrated in nature. This repositioned degree programme, the Bachelor of Arts/Bachelor of Science (Education) was launched in July 2001. This paper outlines some of the thinking that went into the conceptualisation and design of the new degree programme and the objectives set for the programme to achieve. However, issues that go beyond the implementation stage have surfaced which question whether those objectives can indeed materialise. These include content mastery through one academic subject, content security in the other subjects found in the primary school curriculum, clarity of understanding of the curriculum content, and issues dealing with the practicum. In addition, new demands such as drama in education, minor specialisation, and national education to be made more explicit have exerted pressure on the need to further evaluate the degree programme. In short, can the new programme result in a teacher that is competent and confident enough to handle a class of primary school pupils in the future in the context of Singapore? These issues will be examined in this paper.

1. Introduction

Education reforms and school-restructuring initiatives that are taking place worldwide are forcing many countries to reconceptualise the role of teachers. The traditional role of the teacher at the centre of student learning is no longer deemed adequate to meet new demands and is being replaced by programmes in which students take greater ownership of their own learning. Conceptualisations of what the teacher should be able to do in this new setting have become the focus of attention. Certainly teachers have to be trained differently and existing ones in the teaching force must adapt and change to meet this challenge.

Liberman and Miller (2000) identified seven transitions that teachers need to make in 'the new social realities of teaching.' These include from individualism to professional community, from teaching at the center to learning at the center, from technical work to inquiry, from control to accountability, from managed work to leadership, from classroom concerns to whole school concerns, and from a weak knowledge base to a stronger, broader one. It follows from the above that there is now greater demand for better quality teachers and their role is going to change in profound ways. In the words of the Delors Report (1996), in the coming century "much will be expected, and much demanded of teachers."

It is not possible to effectively reform education systems without taking teachers into greater consideration (Ordonez & Maclean, 1997). Equally, it is not possible for changes to the teachers' role to happen without transforming teacher education. In fact, changes in initial teacher education and in career-long teacher development are an integral part of educational reform and improvement of schools (Beattie, 1997). Beattie stressed that reform of schools and efforts to change them into communities of learning will never happen without the reform of teacher education and acceptance on the part of professionals of the necessity of continual reforming of ideas, concepts and understandings.

Questions have been asked about the kinds of teachers that are being produced and what the teachers of tomorrow

would look like and be able to do. The literature is replete with the censure of teacher education programmes as being inadequate in preparing the 'new' teacher. For example, in the United States, Goodland (1990) concluded that teacher education was muddling along with neither a clear sense of mission nor coherent programmes, and in the words of Meyenn and Parker (1999) it is "like a grounded albatross." Referring to the same country, Smylie and Kahane (1997) felt that teacher education curricula overly reflect practice and prepare future teachers for prevailing conditions and circumstances. Others found them wanting in that they are out of sync with the demographic and curricular changes overtaking K-12 schools and concluded that the restructuring of teacher education programmes is long overdue (Ishler, 1996). In California, shortcomings about teacher education programmes were well reflected in a lack of connections between universities and K-12 school districts, poor quality of student teaching practice experiences, weak links between schools of education and liberal studies, and limited early clinical experiences (Hart & Burr, 1996). Since 1996, the problem has been addressed, to a limited extent, through the efforts of the California State University and 14 schools in the Los Angeles Unified School District (Burnstein et al., 1999).

The model of the new teacher may be easy to conceptualize but the end product is not easy to deliver. At best, a listing of the desirable characteristics that a teacher should have seems to be feasible, but the sum total of these may not add up to what the model of the new teacher ought to be. For example, in a recent report of the Carnegie Corporation of New York, Grosso de Leon (2001) concludes that an effective teacher must have mastery of subject matter, general knowledge of pedagogy, pedagogical content knowledge, knowledge of student context, a repertoire of metaphors (to be able to bridge theory and practice), evaluation of learning, clinical training, and technological training. Borko and Putnam (1995) highlighted the need for teachers to have a particular professional knowledge-base, and under this are:

- a. pedagogical knowledge which includes knowledge of learning environments and instructional strategies, classroom management, and knowledge of learners and learning;
- b. subject-matter knowledge which includes knowledge of content and substantive structures, and syntactic structures (equivalent to knowledge about a discipline);
- c. pedagogical content knowledge which includes a conceptual map of how to teach the subject; and
- d. knowledge of instructional strategies and representations, knowledge of students' understanding and potential misunderstanding, and knowledge of curriculum and curricular materials.

At a higher level, Glaser (1987) used the following criteria to describe an expert teacher: domain and contexts; automaticity; task demands and social situations; opportunities and flexibility; approach to problems; interpreting patterns in meaningful ways; problem solving characteristics.

All the above seems to apply to relatively experienced teachers who, since initial preparation, have had the opportunity to improve their teaching. But there are certain basic characteristics which beginning teachers should have on which he/she can build expertise. In regard to this, Reynolds (1992) provided 4 characteristics beginning teachers should have:

- knowledge of subject matter
- disposition to find out about students and schools and the skills to do so
- knowledge of strategies, techniques and tools to create and sustain a learning environment/community, and the ability to employ the above
- knowledge of content specific pedagogy

While the first three would set a standard for pre-service teacher programmes to aim for, the last can be developed through experience and professional development. It is evident that subject matter knowledge, knowledge of pedagogy and awareness of the new learning environment, and hence instructional strategies, feature strongly in the above.

Models of teacher preparation aim for some basic parameters to be attained by the time a pre-service teacher graduates

from a course. But teachers are also expected to have exposure to values and to be able to deal with issues such as ethics, tolerance, citizenship, equity, and the ability to manage uncertainty. The context of each country provides some unique opportunities for variation in such preparation. For example, in France, teacher training is taking cognizance of real life situations. It can no longer be conceived or practiced without taking into account the particularities of the pupil population. Issues like teaching in underprivileged suburbs, facing and dealing with urban and school violence, how to vary pedagogy and manage pupil's heterogeneity take on greater significance in teacher preparation (Bourdoncle & Robert, 2000). With greater heterogeneity in the population of many countries, language education has become an issue, and training to deal with minorities and the disadvantaged groups is given greater emphasis. In other contexts gender issues and sexuality education are features incorporated in teacher education programmes, as, for example, in New Zealand (Partington, 1997).

How does all this ferment and innovation impact on teacher preparation programmes in Singapore? This paper outlines some of the thinking that went into the reconceptualisation and redesign of the new degree programmes implemented at the sole teacher-training institute in the country, the National Institute of Education. However, issues that go beyond the implementation stage have surfaced which require some further rethinking and refining. In a sense, no model of teacher preparation should remain static for long, but continuous reengineering, particularly in the context of fast changing externalities is imperative if the preparation is to be useful and relevant a few years down the line. Issues such as content mastery, content security in all the subjects in the primary school curriculum, pedagogical preparation, and the practicum have to be continually revisited. New demands from schools, the Ministry of Education and the socio-economic realities of a fast changing external environment that Singapore is exposed to have made it imperative that these matters be taken seriously and responded to quickly. Constant rethinking and reevaluation of the teacher preparation programmes must of necessity be a feature of the way NIE conducts itself. The bottom line that must be recognized is that the product, the teachers who graduate must be adequately prepared to fit in the classroom four years hence (given a four-year programme), and yet even within this relatively short period the landscape of the school system would have changed tremendously.

2. Changes in the Degree Programmes

1991 marked the upgrading of the Institute of Education to a university status, the National Institute of Education as part of the Nanyang Technological University. This enabled the institute to offer, for the first time, a concurrent initial teacher preparation programme at the degree level. While the initial focus of the degree programme in 1991 was to produce graduate teachers for the primary schools, in 1994 the programme, in response to external demand, evolved into the 'total' teacher model where every student was trained for both the primary and secondary schools. From the Ministry of Education's point of view, this flexibility in deployment of graduate teachers after training was a welcome development; shortages at either level could be plugged from this source. While the pragmatic objective seemed commendable, it soon became evident that students were overworked not only in terms of the pedagogical modules they had to read to prepare them for both levels of teaching, they also had to be sent to both the primary *and* secondary schools for their practicum. The pressure exerted on students brought into focus the question that, in trying to train teachers in both, they might have been well prepared for neither. The untenable position NIE soon found itself in necessitated a review of the degree programme in 1997. Arising from this, a proposal for two separate tracks – one for primary and one for secondary was made and implemented in July 1998. The revised programme now looked credible and student workload more acceptable. However, new conditions soon made even that model no longer viable. The launch of a new wave of systemic education reform in 1997 and the concomitant implementation of many new initiatives in Singapore schools compelled NIE to conduct a thorough and complete reexamination of the teacher education programmes in the light of this new educational environment. NIE had to deal with issues of relevance of existing components in the programme in the light of new demands on teachers. The result of this exercise was the implementation of a new degree programme, the Bachelor of Arts (Education) and the Bachelor of Science (Education) in July 2001.

The new degree programme has the following features: primary teaching only, honours awarded based on overall performance in four years instead of five, one academic subject instead of two, and students to be prepared in four curriculum studies and curriculum content subjects (English, Mathematics, Science and Social Studies) instead of three previously (see Table 1). The emphasis on the practicum remains the same as in the earlier programme but its scheduling within the programme structure was changed. The way the various components were put together in the

programme structure was intended to ensure a professionally prepared teacher for the primary school unlike the previous model where the programmes were very much content-driven. The various components of the programmes have been structured to provide sufficient flexibility for different groups¹ of students to be admitted at different entry points. Non-graduate teachers - whether they have been in service or those who have just completed their Diploma in Education - could be granted exemption for certain modules or components of the programme, thus enabling them to join the degree course and graduate in two additional years. The latest degree model of teacher preparation in a sense reflects the culmination in the process of evolving a teacher education model that is in tune with the current demands.

Table 1 The structure of the three variants of the degree programme for primary teaching

Components	Pre-1998		1998 Revised		2001	
	BA/BSc With Dip Ed		BA/BSc With Dip Ed		BA/BSc (Education)	
	AUs	%	AUs	%	AUs	%
ES	14	10.5/8.7	12	9.3/8.2	15	11.6/11.1
AS1	30/44	22.6/27.3	30/42	23.3/28.6	30/36	23.3/26.7
AS2	30/44	22.6/27.3	21/27	16.3/18.4	0	0
CC	0	0	9	7.0/6.1	14	10.8/10.4
CS	23	17.3/14.2	24	18.6/16.3	36	28.0/26.7
EM	4	3.0/2.4	12	9.3/8.2	12	9.3/8.9
GE	8	6.0/5.0	6	4.7/4.1	6	4.7/4.4
TP	10	7.5/6.2	15	11.5/10.1	16	12.3/11.8
CS (Sec)	8	6.0/5.2	0	0	0	0
TP (Sec)	6	4.5/3.7	0	0	0	0
TOTAL	133/161	100/100	129/147	100/100	129/135	100/100

Note: ES = Education Studies; AS1 = AcademicSubject 1; AS2 = AcademicSubject 2; CC = Curriculum Content; CS = Curriculum Studies; EM = Essential Modules; GE = General Electives; TP = Teaching Practice; and AUs = Academic Units

3. Rationale for the structure

The following discussion shows in more detail the changes and the logic behind what has been proposed. In a sense the new degree programme takes cognizance of the education reforms taking place abroad and in Singapore schools.

1. Subject content knowledge

The content-pedagogy issue surfaces whenever models of teacher preparation programmes are debated. The basic positions can vary from no content mastery at all in primary teacher preparation to strong mastery in subject matter content, and the recent literature on teacher education seems to favour the latter. For example, Ishler (1996) advocates the extension of the 4 year teachers' degree in US colleges to 5 years to allow enough time to include, among other

components, 'a complete academic major in the subject to be taught.' The structure of pre-1998 degree model for primary teaching relative to the more recent models in NIE is shown in Table 1. From the table, it is evident that the pre-1998 model had a relatively even balance between the academic subject exposure and the methods training - 45.2 % and 46.0 % in the case of the Bachelor of Arts, and 54.6 % and 31.8% in the case of the Bachelor of Science, but this balance was heavy on content. In fact the pre-1998 programme trained students to be both primary and secondary teachers, hence the requirements for the components of secondary methods and teaching practice. This model was changed in 1998 when two tracks were proposed - a secondary track where students are required to read 2 academic subjects as majors, and a primary track where students read one major and one minor. As far as the honours year is concerned, there is no difference; students who did well in the major academic subject can qualify for the honours year of studies. It is obvious that the above models of teacher preparation were very much content-driven and in a sense this was detrimental to the overall attainment of the objective of the programme. In the models above, much of the teacher preparation was done in the first two out of the four, or in the case of honours, five years of study. The last two or three years focus mainly on academic discipline modules. What this means is that a student who graduates would have become out of touch with educational and pedagogical content for some two or three years. However, this new degree model (BA/BSc (Education)) ensures that the content courses are offered mainly in the first two years rather than the last two, that the methods and practicum courses spread throughout the four years, and that these methods courses and the Practicum are a recent experience which trainees can relate to as soon when they graduate and enter the classroom.

3.2 Curriculum Content and Curriculum Studies

The 1998 degree model was superseded by a new model BA/BSc (Education) implemented in July 2001, which is predicated on the belief that one academic subject is sufficient to provide the academic rigour, breadth and depth in specific content mastery. The academic units released from the minor academic subject are now used to provide a more complete curriculum studies (CS) and curriculum content (CC) preparation. The opening of the degree programmes to polytechnic diploma holders who are generally weaker in content knowledge of the academic subjects taught at NIE makes this programme more attractive to this group of applicants. In this respect, the programmes at NIE incorporating this feature, the curriculum content, may have no parallel elsewhere in primary teacher preparation degree programmes.

All primary school teachers are expected to teach the four subjects found in the primary curriculum; namely English Language, Mathematics, Science and Social Studies, with the exception of specialised subjects such as mother tongue subjects, art, music and physical education. All students are exposed to curriculum studies which provide them the necessary methods and skills to teach the subjects. Although students read 1 academic subject up to University level, they may be somewhat lacking in a sound knowledge base in the other curriculum areas. A solid base of *subject matter knowledge* is necessary for teachers to make professional decisions about different strategies and approaches. In response to these concerns, Curriculum Content courses were conceptualised and implemented in three subject areas in the 1998 model but extended to all the curriculum subjects found only in the latest degree programmes. The curriculum content modules are aimed at building up the trainees' own knowledge and understanding of the subject and hence should not be confused with the Curriculum Studies which deals with methodology and pedagogical issues of teaching/learning the subject. In contrast to the academic subject, curriculum content topics are directly linked to topics in the primary curriculum but would go beyond such content to provide the foundations for better understanding of that content (Lim-Teo et al., 2000). This part of the training provides trainees with the confidence and the security when they teach those subjects in schools upon graduation.

It is apparent that in designing the degree programmes at NIE great efforts were made to avoid the mistakes of the BED model overseas, and rather than emphasising wide-ranging pedagogy courses, the degree programmes planners at NIE have given emphasis to ensuring content mastery and rigour achieved through the one academic subject and the four curriculum content subjects (Gopinathan et al.1999).

Because of the way primary teachers are deployed i.e. they teach all four core subjects, it became necessary for NIE to consider training them in all four. The rationale for all four Curriculum Studies subjects is pragmatic as well as

pedagogic as students will have the confidence and skills to teach any of these subjects when posted to primary schools. This was not the case in the earlier models where only three were required. In the various specialisations such as Music or Art, given that the teachers are going to be specialists, they have to read 3 CS subjects only (CS1 is the same as their AS, CS2 in either Mathematics or English, and CS3 in either Science or Social Studies).

3.3 Practicum

The Practicum occupies a crucial position in the teacher training programmes at NIE and this is equally true of the degree programme. A pass in practicum is a prerequisite for certification of trainees at the end of the programme. The issue of practicum was widely discussed each time a review of the degree programme is proposed. In the revised degree programme implemented in 1998 a total of 15 weeks - 5 weeks of observation and 10 weeks of teaching - was planned for trainees to be attached to either the primary or secondary schools in their third year of study. Under the 'total' teacher degree programme trainees were expected to spend time in both the primary and secondary schools but this was superseded by the revised model of 1998 which limits the practicum experience to either the primary or secondary school. The length of time spent in one type of school meant that trainees would have longer practicum training than before. Also, in the revised and repositioned degree programmes, the semesters where there are significant practicum periods are better planned. For example, in the first semester of the third year of study, only 3 weeks of the semester is affected as two weeks of the 5-week practicum block fall within the university break but coincide with the beginning of the school term. In the second semester where there is a 10-week practicum block, no academic subject but only a couple of CS modules are offered, and these CS modules capitalise on the practicum experience of trainees for their project assignments. This model, with slight modification, is retained in the new degree programme. The total length of the practicum is now 16 weeks instead of 15 previously and it is divided into 8 weeks in the third year and 8 weeks in the final year. Also, only the final year practicum is assessed while the third year practicum block is mainly for settling in schools, classroom observation, and some co-teaching with cooperating teachers. This positioning of the practicum in the last two years would stand the trainees in good stead as they would 'transit' from training to the classroom with ease when they graduate at the end of the course. This was not the case in the previous models where, as alluded to earlier, their pedagogical preparation would have been completed at the end of their second year.

3.4 Other components

The other components comprise the educational studies (ES), essential modules (EM) and general electives (GE), features of the old model which are retained in the new (refer to Table 1).

4. Issues and Implications

NIE has now launched its latest model of teacher education programme at the degree level. Given that schools are changing fast, and the external environment make constant demands on teacher education programmes, no amount of review is final or complete. Many questions would need to be constantly asked and answers sought. In the context of the current repositioning of the degree programme, several issues and implications have been recognised as needing attention.

4.1 Academic challenge

Academic challenge is fundamental to and expected of any degree programme. While the academic challenge of a degree programme may be difficult to define, it can nevertheless be gauged when the programme is compared across all programmes within a university or when compared with similar programmes across several universities, local as well as abroad. As far as the BA/BSc (Education) course is concerned, the question of academic challenge arises in relation to the many types of modules offered under the various components that make up the professional degree programme. Does this academic challenge pervade the whole programme through its various components that include academic subject, curriculum studies, education studies, curriculum content, essential modules and general electives? It is in the nature of things that the more components there are in a programme, the more each component would be measured against each other and some would invariably be perceived as less challenging than others. Here, the perception of academic challenge may vary between students and educators on the one hand, and between content staff and methods staff on the other. It is important that any gaps in perception be narrowed if not removed altogether.

To be realistic, one has to admit that this dissonance and varying perception of academic rigour will always remain, particularly so in a teacher preparation course that tries to fulfill both the academic and professional demands. But the trainees' perception of rigour and academic challenge needs to be given due attention. It is important to note that trainees who join the degree programme would have obtained admission to a degree course at local universities and they would have been perfectly able and justified to make such demands in the courses they are reading. Components such as curriculum studies and curriculum content and general electives must stand, in their own right, as both challenging and demanding, consistent with a university type expectation in the way they are planned and developed, delivered and assessed. At the feedback sessions students have expressed their preference for tutorials for one essential module which, for reason of large class size and shortage of staff, has not been able to mount such tutorial classes.

While academic challenge should not be an end in itself, it should be counterbalanced by the competencies that graduates display at the end of the degree course. In the final analysis, one has to ask the questions 'Will our graduates be professionally competent and academically able to handle the difficult tasks in schools?' and 'Would they have developed the mental ability to pursue higher levels of academic challenge and teaching competencies through upgrading courses?'

2. Coherence

Given the many components that make up the new repositioned degree programme to achieve certain expected outcomes, the issue of balance and coherence is equally important. Is the whole attained through the sum of all its parts? How would one determine what is sufficient in a particular component relative to others in the process of fashioning the end product? To illustrate the point of coherence in the repositioned degree programme, reference is made to the Essential Module (EM) and General Elective (GE) components. These two components were designed in the context of the Nanyang Technological University's efforts to enrich and broaden the training of undergraduates in the engineering and business schools. Since NIE forms part of the university, it was logical that the EM and GE components be introduced to the institute as well. However, within the context of an already varied mix of components in the degree teacher-training programme at NIE, is the adoption and retention of these two components really necessary? While their introduction in the parent campus was justified, wouldn't these two components add additional burdens to an already packed teacher training programme, when in fact the programme is already broad-based and when the time released (15 AUs) could be better devoted to finding ways to strengthen the teacher education programme itself? The repositioned degree programme did not question this basic assumption and therefore EM and GE modules continue to form important components within its programme. Some examination of this issue would be in order.

By questioning the relevance of EM and GEs in the context of a broad-based teacher education degree programme, one is provided with an opportunity to examine how these components or the academic units allocated to them could be better utilised. In this respect, the suggestion of minors being offered to students in areas that have direct and practical relevance to schools be conceptualised merits consideration. Three areas where minors could be offered are:

- a. Psychology and Counseling
- b. Advanced ICT Applications in Education
- c. Arts in Education

It would be feasible to use the EM and GE modules, which together make up 15 academic units (or 5 modules of 3 AUs each), to develop minor packages for each of the above, and students would be free to choose either to offer the existing EMs and GEs or opt for any of the minors indicated above. The minors will serve a useful purpose as far as schools are concerned. The additional preparation and competencies gained from any of the minor packages would stand trainees in good stead as teachers who would have an edge over the rest who have but a general one or two module exposure in those areas in their basic preparation. Currently primary schools could do with teachers who have counselling expertise or arts in education expertise or greater competency in the use of ICT in curriculum and instruction.

4.3 Curriculum Content

The curriculum content component was designed for the purpose of preparing primary teachers to competently teach the subject content found in the primary curriculum. The curriculum content modules offered are required to be both academically rigorous and intellectually stimulating. In a sense the curriculum content component seeks to bridge the gap between academic subject modules which provide an in-depth study in the discipline and the curriculum studies component which in theory should make use of the knowledge base provided by the AS component. However, given that the AS modules are not taught with the primary school curriculum in mind, curriculum content that offers a repertoire of knowledge base relevant to the primary syllabus is needed. However, in the light of the varied subjects ranging from English Language, Mathematics, Social Studies, to Physical Education it became apparent that no one model of CC would fit all these subjects. Some subjects like Social Studies and Mathematics are content-based while a subject like Physical Education is skills-based. In the case of English Language such a component has already been catered for in its CS component. There is also the fear that the CC might be misunderstood by different disciplines and in the process might become another AS component. The challenge for the programme is to formulate some criteria to ensure that CC will remain as CC and not be used to strengthen subject content mastery. Additionally, it would be difficult to teach the same CC module to trainees with different prior knowledge in the related academic subject. Different disciplines have grappled with these problems and have developed their own CC modules. While it has been accepted that the CC would provide the foundational understanding of the subject for primary school teaching, and therefore has a place in the degree programme structure, the two years of implementation have shown that some students are not comfortable with these courses. Because CC component has been introduced in the BA/BSc with Dip Ed 1998 revised programme, lessons learnt from one or two experiences (particularly in Mathematics) make such discussion and fine-tuning necessary. This has been the experience in Mathematics where non-Mathematics students find the curriculum content in mathematics difficult and their performance in the courses not quite satisfactory. An evaluation of the course provided strong conviction of its merit, that the introduction of the curriculum content course in Mathematics has gone some way in providing the foundational mathematical knowledge of the trainees who will be teaching mathematics in the primary schools. However, Lim-Teo et al. (2000) have recommended that course lecturers should continue to modify and improve their teaching methods and approaches in order to foster mathematics conceptual understandings in these trainees.

4.4 Professional judgement vs pragmatic demands

From the above, there appears to be a tension between professional judgment and pragmatic demands to meet teacher shortages in schools. The teaching of all the four curriculum studies subjects is governed more by the need to have a teacher who can be deployed easily in schools than the trainees' competency to master all the four areas equally well. In general, it is likely that teachers will be asked to teach only three, rather than all four subjects in the primary schools. The same contention applies to the Chinese Language specialization. For pragmatic reasons again such as ease of deployment of mother tongue teachers in primary schools where there is a shortage of Mathematics and English teachers, such trainees are required to offer two additional CSs (Teaching of Moral Education and Teaching of English/Mathematics/Science/Social Science). This requirement creates some anxiety among Chinese Language trainees who may be weak in any of the third CS subject.

The issue of having some degree of specialisation in teaching lower primary and upper primary has been brought up for consideration. In schools, such a delineation is very marked; fresh graduate teachers are almost never assigned to teach the upper, especially the examination classes such as primary 4 where an streaming examination is held, and in primary 6 where the national examination (PSLE) is held. For these classes it is almost always the senior and more experienced teachers who will be assigned by the principals to teach these examination classes. Given the importance of primary 4 onwards and the marked difference in the way teaching is carried out between the lower primary and the upper primary, shouldn't teacher education programmes also reflect this need in schools?

4.5 Practicum

It is apparent that by opening the door into the new repositioned programme wider, the numbers of trainees in the degree programme will increase, and since supervision duties are expected in the other programmes as well, the demand for supervision on faculty will also correspondingly increase. Since 1999, a new 'school-partnership' model of teaching supervision has been tried out in a situation of necessity when NIE was requested to train additional intakes

of the PGDE trainees in January 1999 and January 2000 (Wong and Goh, 2002). Going by the feedback obtained from schools and trainees, this school partnership model has shown to be effective in ensuring the desired outcomes of the programmes with positive feedback from schools and students alike. This model of practicum training with schools taking greater ownership of trainees will now be extended to the new degree programme as well.

Despite what has been achieved so far, there remain some nagging doubts about the sufficiency and efficacy of the limited exposure of the practicum experience when compared with the long stints that trainees are required to spend in schools in other countries such as in England and Australia. Whether the practicum experience in the new degree programme should in fact be extended for enhancing teacher effectiveness merits further investigation.

4.6 Elements of student-centred learning

Evidently the issues discussed above are matters of import whose implications go beyond the design and implementation stages of the new degree programmes at NIE. Relevant as they are they are components of what are considered useful in the objective of producing a teacher within a concurrent programme that stresses both academic discipline knowledge and teacher preparation skills for primary teaching. However, they are essentially the framework on which the degree teacher preparation programme hangs. They by no means show what goes on at the module level that would reflect the elements or exposure that student teachers should have to prepare them for the new environment of student-centred learning.

In his speech at the Third NIE - IT seminar recently the Permanent Secretary of Education, who is also the chairman of the NIE Council, expressed his sentiment in these words

"Schools in Singapore are moving ahead in student-centred learning using ICT learning."

and in the same vein asked this question.

"How does NIE position itself in terms of teacher training curriculum?"

At the graduation of the Leaders in Education course for potential principals on October 23, 2001, the Minister of Education, in his speech used varied metaphors to press home the need for schools to be centres of educational innovation. He said,

"Innovation is no longer simply encouraged; it has to become an imperative of all professional endeavour in business, government and education... A new mindset and new strategies are needed to foster innovation, and all organisations, especially schools, will have to respond to the imperatives of innovation at work around us... Schools are knowledge organisations.. they must therefore serve as catalysts for learning and discovery, and the wellsprings of the knowledge society. Innovation in education can take place in school organisation, use of technology, or physical organisation of instruction. This may involve discovering better ways to integrate new technologies into conventional teaching; or trying out models different from conventional one-teacher classrooms such as teaching laboratories, team teaching, and multi-disciplinary teaching; or introducing new international collaboration projects that instil greater breadth of outlook among students and teachers. Schools can also be innovative in how they form close school-community linkages with employers and corporations, and how they leverage on their stakeholders as an important extension of the school."

It would do NIE well to take heed of the messages that come loud and clear from the drivers and policy makers of education in Singapore. A similar question could be asked "What is NIE doing to prepare teachers for this new environment in schools as learning organisations?"

Much has been emphasised about enquiry and independent learning, integrated curriculum, integrated project work, innovative approaches to learning, and others - trends in the new direction of student centred learning. All schools in Singapore have implemented, to varying degrees and to different levels of success, these initiatives, in part, to re-

orientate learning, and in part, to prepare students for 2004 when one of the criteria for admission to the local university will be project work. Teacher education curriculum must foster inquiry and independent thought and provide prospective teachers with experiences which enable them to become reflective practitioners. Beattie (1997) opined that

"it seems a little incongruous to suggest that teachers who have not experienced inquiry in their own lives will be able to create classroom settings which encourage students to question, to pose and solve problems, and to be self directed learners. If teachers are to be able to create classroom experiences and conditions which promote student inquiry, and to be capable of reflective thought, collegial teamwork and school reform, these skills and capacities must be taught and nurtured in their preservice professional learning settings and developed throughout their careers." (page?)

Another issue concerns interdisciplinary or integrated curricula to enhance student learning. Like the inquiry and independent learning, this approach to instruction has been demonstrated in very few modules at NIE. Resta et al (1999) in their observation of secondary teacher preparation in the USA pointed to inherent autonomy of university professors and university structures for this lack of approach in preservice teacher curriculum as the major impediment. To a large extent this reflects the situation at NIE and the danger of this is that many preservice teachers may graduate with a degree without any opportunity of experiencing such strategies and cognitive model of interdisciplinary or integrated curriculum and instruction.

These are real issues that need to be dealt with by faculty at NIE and all attempts must be made to introduce and encourage these approaches to learning. Policies that give greater autonomy to faculty to use different strategies for student centred learning and other forms of authentic assessments need to be spelt out, curriculum content reduced to increase time for students to approach their learning differently and faculty be won over to this view of education.

4.7 Students with varying backgrounds

One last issue that goes beyond design and implementation of the teacher education degree programmes concerns the varied clientele with varied backgrounds who enter the degree programmes. Essentially there are three groups of students that join the degree programmes.

- a. A-level holders who have gone through 12 years of schooling and they come in fresh from schools. There is a slight difference between male and female students however. Because of 2.5 years of compulsory national service, the male students join the programmes two and a half years older than their female counterparts.
- b. Polytechnic diploma holders who after 10 years of education have opted to go to the polytechnics to earn a diploma in three years, rather than junior colleges for A-levels. The educational exposure in the polytechnic is quite different from that in junior colleges. In the polytechnics students are more technically prepared for industry while the A-level students are prepared academically for the A-levels examinations.
- c. Returning teachers or those who are selected to upgrade themselves directly after completing the Diploma of Education. (which is a two-year course for A-level or polytechnic holders who initially failed to gain entry into the degree programmes).

As the three groups come from varied backgrounds and maturity they also respond differently to the degree programmes, although no quantitative analysis has been done to confirm this. Nevertheless, some indication of varying responses from the three groups during the feedback sessions with trainees and with staff teaching the programmes seem to indicate this fact. This poses a challenge to teacher educators who work with them and for some groups, some initial bridging modules may be required to help ease their entry into higher levels of the programme.

Conclusion

Many countries are reexamining the role of the teacher and are grappling with the issue of how to produce a new breed of teachers by reviewing the teacher preparation programmes. The National Institute of Education, being the sole

teacher-training institute in Singapore, has been responsive to new initiatives implemented in schools in the last four years. Reviews of its programmes have been on-going ever since the degree programmes were launched in 1991 and this culminated in a major overhauling exercise in late 1998 which saw the introduction of a new degree programme, the BA/BSc (Education), in July 2001. In designing the new programmes, consideration has been given to many aspects. These include new developments in teacher education that are taking place in the developed countries, new initiatives implemented in Singapore schools, the Ministry of Education's strategic policy thrusts, the context of the Nanyang Technological University and the need for a holistic and professionally prepared teacher for primary schools.

Design and implementation of the new degree programmes is the first step. There is greater concern to see that elements of what has been implemented in schools are incorporated and reflected as part of the trainees' educational experience at the module level. These elements such as inquiry method, students as independent knowledge creator, integrated project work, group project and problem based learning, use of ICT in instruction and many others have been frequently encouraged but are not quite evident in the modules trainees read. The complementary roles of the Foundation Programmes Office and the academic groups are crucial in determining that these skills become part of the normal repertoire of the new teacher who graduates from NIE. Otherwise the new model of the degree teacher preparation programmes will only have the framework but devoid of the substantive elements that will determine whether those who graduate are really competent in discharging their responsibility in the new school environment.

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Paper presented at the International Educational Research Conference, University of Notre Dame, Fremantle, Western Australia, 2-6 December 2001.