IMPLEMENTING VALUES EDUCATION IN THE REGULAR CURRICULUM: A PROBLEM-SOLVING APPROACH TO CHALLENGE AND SUPPORT TEACHER GROWTH

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ABSTRACT

The purpose of this chapter is to report a research project concerned with the development of mathematics and language teachers' skills and understanding of themselves as pedagogical problem solvers and the impact of this development on their ability to implement curriculum reform in their teaching programmes. The project took place in Guandong Province, China, and aimed to challenge and support teachers to incorporate values education into their subject areas rather than treating it as an add-on subject. The teachers were working in a pressured, examination-driven environment and hence it was necessary for them to develop creative problem-solving strategies to integrate the new teaching approach within the existing constraints of curriculum and time. This chapter will report the growth that occurred in the teachers' ability to do this, and will examine the critical incidents that were catalysts for this growth to occur.

This chapter will address an issue which is important not only in China but worldwide, with the current emphasis on quality learning and instruction and also the growing pressure for schools to take responsibility for values education. Teachers are required to respond to changes and implement recommendations within the constraints of day-to-day classroom management. They need to be critical and informed professionals, so it is argued that by adopting a problem-solving approach to professional development, teachers would be better able to view themselves as

competent problem solvers who are able to develop various strategies to deal with change. The chapter will discuss some implications arising from the project for challenging and supporting teachers, worldwide, to implement curriculum reforms, specifically in values education, but also in a more general sense.

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INTRODUCTION

Instruction in schools can be enhanced by teachers' engagement in professional growth. This is dependent on their willingness to examine their own practices in light of developing theories about teaching and learning, and to modify their approaches using the best ideas from these theories. It has been documented (Gregg, 1995) that many teachers are reluctant to do this. Evidence suggests that their reluctance is due to lack of the skills and/or confidence to overcome obstacles to change. Also, in many cases, they have a belief that these obstacles are insurmountable (Gregg, 1995). Teachers who do not adapt successfully to change will more likely produce students who can "follow the rules and procedures and conventions specified in the textbook" (Gregg, 1995), rather than being equipped to meet the changing demands of society. A major concern of teacher educators is to encourage teachers to change their beliefs--from blaming students and school as obstacles to change, to taking responsibility for finding creative and feasible solutions to adopting recommended changes. Acquisition of the necessary skills and confidence to do this is an ongoing process of development for teachers. We are interested to explore ways of encouraging teachers to develop positive, creative attitudes towards change and be open to change throughout their careers.

This project focused on a group of experienced Mathematics and Chinese language teachers from ten primary schools in Guandong Province, China, who were engaged in the early stages of a curriculum reform designed to integrate values education into their subject curricula. The model that was adopted for these teachers' professional development was a kind of problem-based learning. It was problem-based in the sense that it consisted of a series of progressively complex tasks that were problems for the teachers. The design of these problems was based on the notion that a problem is only a problem if the respondents do not know immediately how to find a solution, but have to draw on other knowledge and resources before the solution can be obtained (Taplin, 1998). Once they can find an immediate solution, it ceases to be a problem any more, so part of the challenge for us was to find appropriate levels of problems that were challenging with respect to the stage the teachers were at, but not so far ahead of them that finding a solution would be impossible.

The literature of the past decade describes various models of problem-based learning (e.g., Kingsland, 1994; Ryan and Koschmann, 1994; Fogarty, 1997) in which the learning arises from an initial real-world problem situation presented to the students. With guidance, the participants identify areas of skills and knowledge that they need to acquire and apply in their solution attempts. Participants are required to reason and apply this knowledge and the learning that occurs is integrated into their body of skills and knowledge (Schiller, Ostwald and Chen, 1994, pp.301-302). The major difference between this and teacher-centred learning is that students have greater responsibility for generating their own learning issues (Dolmans, 1992). In this case the problems we asked the teachers to explore were those they faced in their own workplaces as they explored the teaching reform.

Research on problem-based learning can be classified into three groups. The first is concerned with the effectiveness of this mode of learning in promoting higher-order thinking skills and facilitating the solution of problems encountered in the workplace (c.f. Nuy and Moust, 1990 and Kingsland, 1994). The second is concerned with learning issues such as how to help the participants adapt to a problem-solving mode of thinking (Schiller, Ostwald and Chen, 1994), and the effectiveness of problem-based tasks to enable learners to generate skills and knowledge consistent with the objectives of the course (Dolmans, 1992; Kingsland, 1994; Duek and Wilkerson, 1995). The third area is the participants' perceptions of themselves as problem-solving learners at various phases of a problem-based course (Ryan, 1993). This project investigated all of the above issues.

While we wanted to encourage the teachers to learn about current theories of learning and teaching, and to actually consider *using* these in their own classrooms, we knew all too well that there were obstacles which would probably prevent this from happening. In Chinese primary schools, these obstacles include large class sizes, time constraints, pressure to cover the syllabus and achieve high examination results, and the fact that each subject specialist teacher is responsible for several classes. We were confident that the teachers *understood* what we were teaching them; most of them probably had a genuine *belief* in the value of the teaching approaches we were discussing. But we knew that when it came time to implement the ideas in their own classes, many of them would simply revert to the traditional methods of teaching they were used to and by which they had, themselves, been taught.

The curriculum reform was still very new at the time of this project and, even though moral and civics education have traditionally been taught as separate subjects, the teachers had only ever experienced the idea of a teacher-led, examination-driven approach to teaching in their subject areas. In other words, these teachers were being asked to adopt some changes that were vastly different from their existing conceptions of teaching.

PROJECT BACKGROUND AND METHODOLOGY

In an attempt to address the problem described above, we decided to trial a problem-based action research approach to teacher professional development. This trial was implemented over a twenty-month period from July 2002 to March 2004, with twenty primary school teachers. It was a joint project supported by the South China Normal University Department of Curriculum and Instruction, the local District Education Department, and the Institute of Sathya Sai Education of Hong Kong. As mentioned earlier, the project was connected to the introduction of curriculum reforms in China that aimed to incorporate values education into subject curricula along with a shift from teacher-centred to student-centred learning. Specifically it aimed to:

- guide a group of teachers to develop, implement and evaluate a values education curriculum embedded within their subject teaching, consistent with the current curriculum reforms in Guandong.

- monitor and evaluate the phases in teachers' developmental growth in the implementation of teaching reform in values education.

Participants

The participants were 20 teachers, nominated in pairs (one Chinese Language and one Mathematics) from 10 selected primary schools in the Qujiang district of Guandong Province. They were selected by the District Education Office because they were regarded as leading teachers in their schools. They were experienced teachers and had all taught for at least five years.

The teachers met with the programme facilitators for 2-4 days four times during the project and were set problem-based tasks to undertake in their schools during the interim periods.

The Theoretical Framework for the Project

This approach to professional development, combining seminars and action research to investigate a series of problem tasks, was chosen because of research that has clearly identified lack of appropriate professional development as being one of the most serious obstacles to fully integrating new teaching approaches into the curriculum, and one-time-only workshops as ineffective in making teachers comfortable with new approaches or integrating them into their programmes (NCREL, 2003). This project aimed to incorporate all the elements of professional development that have been found to be important: a connection to student learning, hands-on practice, a variety of learning experiences, curriculum-specific applications, new roles for teachers, collegial learning, active participation of teachers, ongoing process, sufficient time, assistance and support, administrative support, adequate resources, continuous funding and built-in evaluation (NCREL, 2003). In addition to working in pairs or teams, teachers need access to follow-up discussion and collegial activities, as required of professionals in other fields.

The theoretical framework for the project was based on the model of effective strategies for the stages of learning/adoption used by Sherry and Gibson (2002). This model is summarised in Figure 1, which also describes the strategies that were utilised for this project.

Developmental Stage	Effective Strategies	Corresponding Action in this Project
Stage 1. Teacher as Learner In this information-gathering stage, teachers learn the knowledge and skills necessary for performing instructional tasks using [the new innovation]	Training: demonstrations of promising practices, ongoing professional development by peers rather than one-shot workshops by outside experts; inservice sessions that stress the alignment of the initiative with curriculum and standards	Teachers were paired, ie 2 teachers from each school to enable peer discussion and support *First seminar:* - Introduction to terms and concepts of values education - Specific examples of integration into subject

		area • Demonstration lesson/s by expert mentors *Setting of first school-based problem task* • Explore ways of altering aspects of existing curriculum materials to reflect values education *Post First Seminar*: • School visits by project team: classroom observation and individual interviews (formative evaluation)
Stage 2 Teacher as Adopter In this stage, teachers progress through stages of personal and task management concern as the experiment with the innovation, begin to try it out in their classrooms, and share their experiences with their peers.	Resources, access to help and support; teachers who can mentor newcomers and provide them with care and comfort as well as information.	*Second seminar* • Talk by expert teacher who shared his experiences. Further clarification of concepts by project team • Demonstration lessons • Time made available for discussions between colleagues in cognate groups • Ongoing provision by workshop leaders of resources and materials *Second school-based problem task* • Prepare best three sample lesson plans and reflections on strategies such as use of silent sitting • Identify problems/issues for potential action research investigation
Stage 3 Teacher as Co-Learner In this stage, teachers focus on developing a clear relationship between the innovation and the curriculum, rather than concentrating on task management aspects.	Workshops and resources with strategies for enhancing instruction and integrating the new approach into the curriculum; collegial sharing of integration and assessment ideas	*Seminar 3* • Some revision of key concepts and philosophies of session 1 and more in-depth study of these, particularly to address issues raised previously by teachers

		(visiting expert and peer) • Demonstration lessons with time for teachers to give feedback and discuss • Teachers asked to bring with them a reflection on issues that have arisen – time allowed for discussion *Third school-based problem task* • Commence classroom-based action research on issues of own concern *Seminar 4* • Further resources provided in response to issues raised by teachers (e.g. asssessment and discipline)– time for discussion and personal reflection on these • Further demonstration lessons with time for reflection and discussion
Stage 4 Teacher as Reaffirmer or Rejecter In this stage, teachers develop a greater awareness of intermediate learning outcomes. They begin to create new ways to observe and assess impact on student products and performances	Administrative support: an incentive system that is valued by adopting teachers. Raise awareness of intermediate learning outcomes such as increased time on task, lower absenteeism, greater student engagement; evidence of impact on student performances	*Seminar 4* • Reflection and discussion with mentors and between peers about action research outcomes • Criterion-based reward system: All teachers who achieve a certain set of criteria will receive the same level of reward *Fourth problem task* • Group problem-based learning task to explore issues of assessment and discipline
Stage 5 Teacher as Leader* In this stage, experienced teachers expand their roles to become active researchers who carefully observe their practice, collect data, share the improvements in practice with peers and teach new	Incentives for co-teaching onsite workshops; release time and other semi-permanent role changes to allow peer coaching and outside consulting. Support from an outside network of	• 2 or 3 outstanding teachers identified as mentor teachers to share their experiences with beginners • release of 1-2 teachers in each cognate area to

6

members. Their skills become portable.	teacher-leaders; structured time for leading in-house discussions and workshops. Transfer of skills if teacher goes to another school	prepare suitable materials – find stories, re-write textbook problems etc.

Figure 1: Effective strategies for the stages of learning/adoption (Adapted from Sherry, L. & Gibson, D. (2002). The path to teacher leadership in educational technology. Contemporary Issues in Technology and Teacher Education, 2 (2), 178-203.)
*Planned as an ongoing process over the next 1-3 years

The problem-solving component for the project draws on an action research model. Action research is based on the assumption that learning results from active experience and that learning and improvements occur through cyclic processes (Kember and Kelly, 1994). A typical action research cycle involves planning an innovation, taking action to implement it, fact-finding about the result of the action, and reflecting about the outcomes. Most action research projects go through several cycles, as the reflections from one develop into the action plan for the next. The exploratory nature of the investigations carried out in this project, and the fact that it was dealing with teachers engaged in their actual teaching rather than in clinical experimental contexts, made action research the most suitable model to be used.

Kwan and Lee (1994) suggested that engaging educators in action research will encourage them to become empowered within their own professional practice rather than be tied to ideas imposed upon them by academic researchers or policy makers. Taplin (2002) has proposed a framework for supporting teachers implementing innovations in conventional face-to-face settings through participation in action research. This framework consists of four non-hierarchical, independent components shown in Figure 2:

- motivation to do classroom-based research,
- engagement as co-researchers in the development of new theories,
- provision of appropriate support at critical phases,
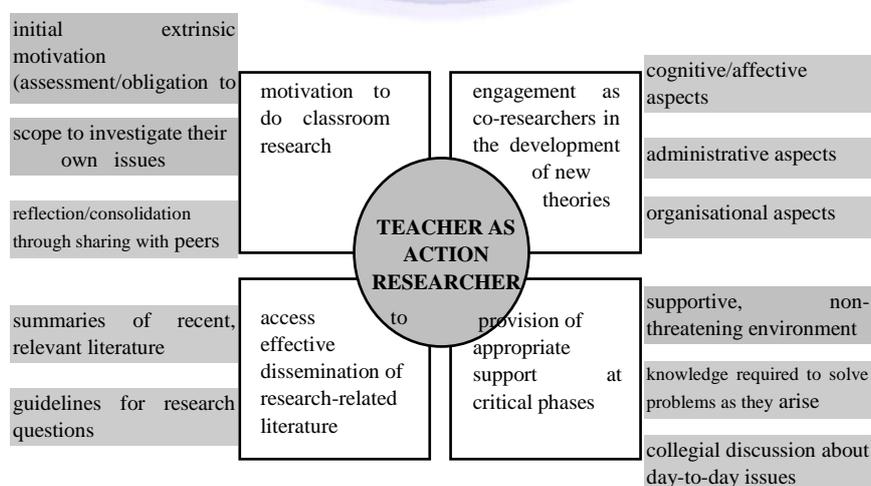- access to effective dissemination of research-related literature.

Figure 2: *Framework*

An essential pre-requisite to teacher change is motivating them to want to know about the change and explore how it can affect their practice (Hord et al., 1987). Action research can be a successful way to provide this motivation to persevere with the adoption of teaching reforms, not only to convince them of the value of the reform, but also that problems and obstacles can be overcome if they persevere with adapting the new ideas to fit in with the constraints of their particular situations. Taplin has suggested that, to encourage them to do this, teachers need to be given some extrinsic reward for making the effort. In this case there was some financial reward for the teachers who completed all requirements of the project and they were awarded certificates that have been acknowledged by the District Education Department for future promotion purposes. It also seems to be important, however, that the teachers are given scope to identify for themselves the issues that are relevant to their interest and concerns, and their students' needs. Another important factor, that many of the teachers involved in Taplin's earlier studies have mentioned, is the value of sharing their experiences with their peers, and reflecting on what they learned. This helps them to consolidate the growth in their own understanding as well as giving new knowledge to their colleagues. Furthermore, it has been suggested that teachers will be more highly motivated about teaching reforms if they are given the chance not just to do action research that 'tries out' theories in their classrooms, but that encourages them to be instrumental in developing new theories. In the case of this project, the teachers were involved in the development and trialing of materials and ideas that will be incorporated into teaching resources to be developed as part of the curriculum reform.

Values Education Framework

The values education framework adopted for this project was the Sathya Sai Education in Human Values (SSEHV) model. This model is supported by national education department policies in several countries. It is a secular model that is concerned with putting back character development and values into education and developing all domains of the student's personality: cognitive, physical, mental, emotional and particularly spiritual. It is based on five human values that are universal and inter-dependent, Truth, Right Conduct, Peace, Love and Non-violence, and is concerned with eliciting these values that are already inherent in all of us. The fundamental principle of SSEHV is that all teaching is based on love and that the teacher's example in living the values is the most critical component of values education. Its goals are:

1. *To bring out human excellence at all levels: character, academic, and "being";*
2. *The all-round development of the child (the heart as well as the head and the hands);*
3. *To help children to know who they are;*
4. *To help children to realise their full potential; and*
5. *To develop attitudes of selfless service*

The SSEHV model is concerned with three levels of the mind: the conscious, the subconscious and the superconscious (Jumsai, 1997). Through the five senses, the conscious mind receives and processes information from the environment in order to create awareness

and understanding. The subconscious stores the memories of everything that we have experienced, and feeds these memories to the conscious mind to control the individual's thoughts and actions, and even to colour our perceptions of events that happen around us. The superconscious mind is the source of our wisdom, knowledge, conscience and higher consciousness. In a holistically balanced person, these three levels of the mind interact together to contribute to the physical, mental, emotional and spiritual well-being. Jumsai proposes that there are two important ingredients for this healthy interaction to occur. The first is to free the three levels of the mind from extraneous 'chatter', to enable enhanced concentration and memory. The second is to ensure that the information that is stored in the various levels of the mind is 'clean', positive and constructive, since its retrieval will have such a significant effect on the individual's thoughts and actions, which in turn contribute to the presence or absence of holistic well being. The SSEHV model is a simple but effective means of ensuring that these two essential ingredients occur.

There are several teaching approaches that are particularly useful in addressing these ingredients and drawing out the values inherent within students. The first of these, considered to be a fundamental component of SSEHV, is silent sitting. This refers to encouraging pupils to sit quietly and allow their minds to relax for a few minutes, particularly at the beginning of a lesson, to make them feel more focused and peaceful. Often this time is used for them to listen to soft, relaxing music or to lead them through a guided visualisation. One particularly effective form of silent sitting that is a fundamental feature of SSEHV is to invite pupils to visualise the effects of a pure, cleansing light, burning out their negative thoughts and actions and leaving only room for the positive. The light is symbolic of purity, warmth and growth (Jumsai, 1997). This technique is beneficial in silencing the mind's extraneous 'chatter' to improve concentration and problem solving, and enabling the child to go deeply within his/her own consciousness to tap into the values that are latent there.

The use of quotation and positive affirmation is also considered to be an important component of the SSEHV model because of evidence that children's thinking can be influenced by regular exposure to positive statements. The teacher can select quotations that are relevant for the child's age, interests and culture. Quotations can be displayed every day and used as a basis for discussion and other language activities, or simply be left for the children to read for themselves. Teachers are encouraged to utilise opportunities to tell stories and anecdotes about famous people, heroes and ordinary people who have demonstrated the kinds of values with which we are concerned. By regular exposure to stories of such people, the pupils will come to value the good qualities described and to use them as a framework to draw on when the need arises. Music and song are valuable ways of promoting inner peace and emphasising positive values. These days, with concerns that young people can be exposed to many negative values through the music they listen to, this needs to be counter-balanced by the use of music and songs that promote positive feelings and celebrate healthy values. Group activities are important. Apart from the fact that current research about teaching suggests that pupils can come to better understanding if they have the chance to work together in pairs or small groups (Schoenfeld, 1985, NCTM, 1989, Von Glaserfield, 1991), this methodology allows for the development of unity, co-operation, mutual regard

9

and creative conflict resolution that are essential if people are going to be able to live together in peace and harmony. Another important component of the SSEHV model is to encourage students to participate in selfless service, that is giving willing and selfless help to others, particularly the less fortunate.

While it is appropriate to utilise the SSEHV model in teaching directly about values education, and many teachers are using it successfully in this way, there are many situations such as the one in China where the existing time and examination constraints make it extremely difficult to add it to the programme as an extra. Therefore it is necessary to adapt the principles to existing classroom practices, thus empowering every teacher, irrespective of subject specialisation, to be a teacher of human values. This is the approach that we were aiming to develop with the teachers participating in this project.

The Problems

As outlined in Figure 1 above, the teachers were given a series of problem tasks that were graded in complexity according to their growth at different stages of the project. In particular, these problems were structured in such a way as to actually *be* problems for the teachers, in the sense that they were not immediately able to find solutions but had to draw on their knowledge, experience and resources in order to be able to find solutions for themselves. The problems were designed to create opportunities for the teachers to start speaking about the new paradigm by verbalising the values-related vocabulary to their pupils and colleagues – this has been established as an important step in facilitating movement from the entrenched ideas of the old paradigm to thinking and acting out the new one (Barr and Tagg, 1995).

Full details of the problems have been included in the Appendix. Table 1 summarises the tasks and gives an indication of their complexity by mapping them to Bloom's Taxonomy (Bloom, 1956). It also indicates the level of expected response as indicated by the SOLO Taxonomy, which describes levels of increasing complexity in a student's understanding of a subject (Biggs and Collis, 1985).

Table 1: Overview of the problem tasks

Problem task	Summary of task	Link to Bloom's Taxonomy	Anticipated responses according to SOLO Taxonomy
1	Find ways to alter existing curriculum material to reflect values education	Knowledge (defining, describing) Comprehension (giving examples, understanding, converting)	Unistructural (simple and obvious connections are made, but their significance is not grasped)
2	Develop 3 lesson plans that integrate values education into your existing curriculum (incorporating silent sitting in at least	Comprehension Application (assessing, constructing, developing, establishing, discovering, implementing, utilising)	Multistructural (a number of connections may be made, but the meta-connections between them are missed, as is their significance for the whole)

	some lessons)		
3 & 4	Identify questions/issues that interest or worry you and reflect on actions that can be taken to address these	Analysis (prioritising, recognising, making inferences)	Relational (The student is now able to appreciate the significance of the parts in relation to the whole).
5*	Carry out school-based action research to investigate solutions to the issues that interest/worry you	Analysis Synthesis (creating, designing, devising, generating, incorporating, individualising, ititiating, integrating, modifying, revising, validating) Evaluation (appraising, critiquing, defending, interpreting, justifying, reframing, supporting)	Extended abstract (The student is making connections not only within the given subject area, but also beyond it, able to generalise and transfer the principles and ideas underlying the specific instance)

*This is an ongoing follow-up aspect of the project so the outcomes cannot be reported fully here

Data Collection

The data were collected from notes taken by the researchers during teachers' discussions about problems in the workshops, observation of demonstration lessons and reflective notes in which the teachers were asked to record their experiences, particularly their ability to adapt the new ideas to classroom situations. Since all discussions and written records were in Chinese, the transcripts have been paraphrased from the translations into English for reporting in this chapter. In the face-to-face sessions the teachers were given opportunities to discuss the problem that had been set in their cognate groups to come up with some practical, feasible solution, then to try out the ideas in their classes and to come back and discuss their experiences again in their cognate groups. They were provided with background information, readings and examples to give them an adequate knowledge base for the discussion. We acted as facilitators, asking appropriate questions to direct their thinking rather than giving them direct answers.

Several categories were identified in the data as indicators of change. These included evidence of changes in the teachers' feelings about the teaching reform, their strategies that they used for solving the problems, the nature of the questions they asked, their perceptions of their confidence to tackle pedagogical problems in their future teaching, and their beliefs about implementing new approaches in their future teaching.

RESULTS

Effectiveness of Mode of Learning in Promoting Problem-Solving Skills and Facilitating the Solution of Problems Encountered in the Workplace

Quality of the Teachers' Problem-Solving Strategies

First Session

During the first face-to-face workshop the teachers did not demonstrate much ability to apply higher-order thinking skills or problem-solving strategies to their teaching. It was considered more difficult for the Mathematics group than for the Chinese group because the latter were dealing with curriculum material that already focused to some extent on the values inherent in their traditional culture, whereas the Mathematics teachers did not have even suitable examples in their curriculum material to draw on. They were also inhibited by the fact that, until

now, they had never previously been permitted to change even the wording in the examples in the text book. When the facilitator suggested that they could begin by changing the wording of textbook problems to reflect values like sharing and helping others (see Figure 3 for an example) they were incredulous and actually asked, "Can we do that?" In terms of the SOLO Taxonomy, this can be described as a pre-structural response to the problem, that is a response which has no organisation and makes no contribution to the problem solution.

Change:
Shao Hui bought 40kg of rice. He ate 5/8. How much was left?
to:
Shao Hui bought 40kg of rice. He kept 5/8 of it for his own family to eat, and gave the rest to a poor family who lived near his house. How much did he give away?

Figure 3: Example of a word problem from textbook changed to reflect values

Hence, while at surface level this seems to be a very simple task, it was in fact a *problem* for these teachers because it was outside their previous experience and was not something they could do immediately without reflecting and drawing on other knowledge. This is clearly a lower-level task and the teachers' initial responses equate with the unistructural level of the SOLO Taxonomy and reflecting an understanding not beyond the knowledge level of Bloom's Taxonomy.

In the Chinese lessons the most frequently-used approach was to discuss the values that already appeared in the reading lesson material. The Mathematics teachers attempted simply to use words that related to values, such as telling their pupils to enjoy the task and to help each other, or using a careful choice of words to praise the pupils. Some attempted some group activities in which they encouraged the pupils to help each other, although they reported that many of the children were unwilling to do this and they did not know how to solve this new problem. Both of these solutions can be described as unistructural in terms of the SOLO Taxonomy but are beginning to show some signs of comprehension according to Bloom's Taxonomy. Observers of classroom lessons noted that the teachers often overlooked opportunities to promote values education and sometimes even used expressions that were contradictory to the philosophy, for example using words such as "lazy" or "stupid" when chastising children, again reflecting a unistructural, or even pre-structural, way of thinking about the new paradigm. One of the reasons why this happened was because the teachers at

this stage had not yet developed sufficient understanding of the values themselves in order to be able to utilise this understanding in their teaching practice. Hence it was necessary to structure subsequent problem tasks that would bring this

understanding into their schemas in order for them to move to a higher, more integrated level of thinking.

Second Session

In the period after the second workshop the teachers began to show more signs of problem-solving strategies, although these were still only reflecting lower levels of problem-solving skills. Many of them began by experimenting with silent sitting, since this was something that could be added on as an 'extra' at the beginning of the class without taking up too much time (a unistructural approach) – which was the reason for setting it as a part of the problem task at this stage. However, there was an emergence of some simple experimentation with different formats of silent sitting that were appropriate for particular classes and situations (multistructural in terms of SOLO and showing indications of the application level of Bloom):

> I tried different ways: just sitting, using background music, and using guided visualisation. I found that the use of music was not such a good way and the guided visualisation was better for the children. I guide them to think about meaningful things like wildlife protection in China – encourage them to think of issues outside school.

Others showed an emerging multistructural thinking in recognising that they could make minor changes to their teaching approaches that could bring about a focus on values education:

> In September, when teaching multiplication, I tried to ask students to do some things differently, such as to go to the street and sell things, to use their minds to calculate prices and to give a sense of serving others.

> In China, largely because of the one child policy and living standards improving, many children lack responsibility and compassion. This is a common problem among students. By adopting EHV we can introduce, for example, stories from Chinese history so that students know more about their culture. For example, when teaching about π I mention relevant famous Chinese mathematicians. Mathematics is kind of not so interesting as other subjects but I am trying to introduce some interesting things, for example stories into maths so the children have more interest and their learning is more efficient. Problems and silent sitting about environmental awareness have improved their awareness of this, by talking about things happening.

The latter example above was a positive sign that the teacher was drawing on real-life issues that had potential to elicit children's awareness of values, a multistructural response reflecting application.

The next two examples show that these teachers were beginning to develop a sensitivity towards the children's reactions and feelings and to use these as a basis for values education while not compromising the content of the Mathematics lesson (starting to show some sign of

relational level thinking, although the first example was the application of an idea suggested previously by the facilitator).

> When playing a game in Mathematics class awards were given for the first 6 children. Sometimes the others feel jealous – so we can talk about how to balance their own thinking and have right attitudes, that people have ups and downs, and not to be jealous of others.

> In the beginning, I found it difficult to explain simple equations but now I am combining the equations with other more spiritual things, e.g. balance of nature and aesthetic environmental things, such as looking at bridges and buildings.

Third Session

The teachers who gave demonstration lessons during this session showed evidence of a considerable increase in their incidental modelling of values that had not been there previously. For example in one Mathematics lesson the teacher went to a lot of trouble to find up-to-date statistics about social and environmental problems in China and to set problems that incorporated values education. Apart from this understanding of how to adjust the lesson content, there was an emerging sense of the integration of values education with the content of the lesson that can be characterised by the combination of a number of features such as:

- encouraging children to think for themselves and discuss (Right Action)
- encouraging children to help and support each other (Right Action, Love)
- accepting their answers, not making them feel bad if they made a mistake (Love)
- creating a 'safe' environment – children feel safe to try ideas and learn from mistakes (Peace, Love)
- showing they value what children are saying – teacher listening to children and children listening to each other (Love)
- using homework to ask children to research other areas related to both percentage and values.

This shows further evidence that they were developing relational level thinking (SOLO) and were synthesising the information they had been given (Bloom).

In the third session, the teachers were also asked to discuss their reflections on issues and problems that had arisen in their attempts to implement values education into their teaching Again, the following selection of their comments

indicates a higher level of thinking about these issues. They were beginning to look at the differences between the old and new paradigms and to recognise that the integration of values education is a way of thinking about their teaching and being able to reflect this in their practice (relational level thinking according to SOLO and suggesting synthesis according to Bloom).

The first are examples of analytical thinking, reflecting an emerging understanding of the difference between the new and existing paradigm and ability to see beyond the superficial level of the content to what is underlying it.

What's different about EHV and moral education class – at first I didn't think there were any differences – now I realise it is a different style of teaching different values to develop character.

The five values are really the same as what we have advocated in moral education – the most important factor is the emphasis on love. The students love each other – this can symbolise a sense of peace. I think one of the best results is the silent sitting - the experimental class, shows more unity than other classes.

At the beginning I tried to draw out every kind of value from the curriculum content – after different kinds of training I have realised that EHV is not only from the content but from ways of teaching and different kinds of activities.

EHV exists in every time and every way, therefore I will pay more attention.

They also demonstrated an ability to take the ideas that they had been exposed to and apply them to fit the context:

What I feel for myself and would like to put to the other teachers – silent sitting shouldn't only be before class, sometimes it can be in the middle or when the children are doing self-study, eg if they have many questions I will sometimes get the children to do silent sitting in the middle of doing their calculations.

We do silent sitting almost every day. Co-operative learning – all students are very familiar with this now – they can co-operate with each other. We go out to the community to serve society – to an old people's home. I have put a small box in the classroom – if the students have some change they put it there. At the end of the semester we collect the notebooks they have finished with and sell them, and put this money in the box. We use this money to give to the poor. I keep telling some stories about famous people to set examples – also try to set good examples among students. I often take them out to some special places to feel the beauty of nature.

Generally there was the suggestion of a growing level of confidence to try the new ideas, without being as concerned as previously with the possibility of failure:

I have the feeling that the more I do the experiment I should learn more. I am young therefore it is a good opportunity to learn how to use my love to change my students.

Fourth Session

During the demonstration lessons given in the fourth session, the teachers were, for the first time, really integrating their own modeling of the values, the discussion of the values inherent in the lesson and helping children to draw out these values in relation to themselves and their daily lives. For example, the topic of one Chinese lesson was a story about the true beauty of a flower that at first appears to be ugly. At the end of the lesson the teacher engaged the children naturally in a discussion about people they know who are beautiful on the inside and from this invited them to talk about themselves and what they are like on the inside, and what they can do to change anything that prevents their inner beauty from coming through. In the Mathematics lesson the teacher began with a problem related to giving to charity, and drew very naturally and spontaneously from one child the suggestion that they could save a little money to bring happiness to poor children. In both of these examples the teachers were

skillfully structuring the lessons so that the children were telling them about the underpinning values rather than the reverse and in both cases the values education was seemingly incidental to the subject content of the lesson but was in fact skillfully architected. These examples suggest, although they cannot fully capture, this ability to weave the values education naturally into the content of the lesson and to elicit the values from within the children. The ability to do this has strong indications of synthesis (Bloom) and was bordering on the extended abstract level of the SOLO Taxonomy.

The teachers' solutions to the problem-solving tasks set during the fourth session in response to the issues they had raised themselves also indicated that they were looking beyond what happens at the superficial level in the classroom to the interaction between themselves and the pupils and the impact of this interaction on student outcomes. For the task related to assessing character development they recognized very quickly that they could integrate the sample rubric provided for them with the existing knowledge-based moral education assessment criteria that they use in their system, to produce a more performance-based set of criteria relevant to everyday life.

The other problem task asked them to suggest suitable disciplinary measures that would follow the principles of SSEHV and encourage children to draw on their inner values rather than simply punish them. Again the solutions suggested by the teachers indicated their new understanding of the integration of their own

practices with the children's behaviours within the whole teaching context. Examples of their comments include:

> Improve the teacher's character and teacher's performance, therefore when teachers do good things in our daily lives the students will really respect us.

> I didn't tell them not to fight, I let them experience [through inner reflection] how it might feel to be bullied by a bigger child.

> If I say, 'Now is not the time to talk, let me speak' it won't work. So I send the children to do activities outside the classroom. They suggest what they would like to do. On one occasion they wanted to play football. So I organized a competition and during the competition we talked about how to co-operate with each other. We must have this period of unity to do well in the competition, so we can carry it over into the classroom when we study, working hard and thinking of others.

For the first time they showed that they were actually using the tools such as silent sitting as means to correct discipline problems whereas previously they were simply making token and often unrelated use of these tools:

> Strengthen the power of silent sitting to make students think before they act – it can also give them a chance to correct their own misdemeanours by themselves.

Quality of the Questions/Issues/Problems Teachers Raised

As well as looking at the teachers' problem-solving solutions, we have also considered changes in the quality of the questions they asked and the problems they posed.

First Session

After the first interview session with the teachers it was clear that their problem-solving ability was at a low level. In fact, when they asked the question, 'Can we do that?' about re-wording a text-book problem, it could almost be classified as a pre-structural (a response unrelated to solving the problem) comment according to the SOLO Taxonomy. There were further questions raised that can be described as unistructural because they only focused on one dimension of the issue. For example, they had a strong tendency to blame the time and curriculum limitations for their inability to manage to integrate anything else into the curriculum (that is, they could only do one thing at a time, and not bring in any part of the new thing). They were reluctant to integrate values education into every lesson because of the difficulty of planning to do so. Several of them used the technique of silent sitting in a few lessons, but mainly because it had been set as one of the tasks for them to follow up. They still expressed reluctance to use it however because they felt it

was "difficult to find the words and music and to link up the silent sitting with the lesson". The questions they asked the facilitators at this stage were for direct demonstrations of lessons following their curricula that integrated values education and resource materials that could be applied directly.

Second Session

At this stage the teachers were still saying it was too difficult to implement the values education and too time consuming They also started to express concerns that the project was compromising the amount of content they could cover:

> We are finding that the characters of the children in the experimental class are improving but we are worried that their scores are going down because we are spending less time on the lesson by talking about values.

However, they were starting to raise some questions that reflected a slightly higher level of thinking about the integration. For example, they were noticing that some children were not participating in the more student-centred activities and asked how to deal with this:

> About teamwork in class – sometimes it is time consuming and some children rely on others rather than doing any work.

One example of a multistructural question arose because they had finished their syllabus for the semester and were starting exam preparation They felt that they might have to stop their values education so they could do more intensive exam preparation because their performances are evaluated on their pupils' exam scores. They queried how they could integrate values education into this review period – thus indicating that they were making

some connections between values education and the total school programme, even though they could not suggest *how* to do so.

Third Session

Even in the third session, the teachers were still raising questions about the obstacles of the students' academic achievement, lack of time and parental expectations:

> About the students' academic achievement – it is commonly accepted that the EHV students are good in thinking but not in basic knowledge recital. Colleagues think the atmosphere in our classroom is good – they like to choose our students to demonstrate to others – but when we take exams my students are not performing in tests – we want to change this situation.

> I tried to introduce EHV to my Chinese Language colleagues. They said that teaching Chinese is not only values, we have many skills to teach that are more important – so how can they balance these?
> Sometimes I feel it is difficult for the students to master all the knowledge points in 40 minutes. If we can't achieve good academic results the headmaster might have something to say, which causes stress for us. I have the same feeling – what can we do? The students in my class are not so good on tests compared with others – not the weakest, in the middle. I admit that having good values is important – but how can we improve students' scores in exams. I also hope our leaders won't only look at students' scores but also think about their values and classroom atmosphere etc.
> Sometimes I have to spend much time to think about different kinds of values. Sometimes I have many things to do because I must try to draw out values from daily life. This was the worst class but I can feel the change. There are still 4 children making big trouble, forming gangs etc. Sometimes I don't know what to do about these.
> The students are really interested but sometimes there is not enough time to find these stories.
> Most of the parents think that academic achievement is more important than character development.

There does still seem to be a unistructural level thinking in relation to these serious problems – the teachers were still, at this stage, dependent on the facilitators and Education Department officers to give them answers rather than looking for their own solutions. However, other more complex questions indicated that they were now considering a higher level of problem, a common one being the integration of values education and discipline:

> *I try to use love to move my students – if every teacher treats them with love then sometimes there is no punishment at all, so sometimes I have a very good relationship with the students, sometimes they are disrespectful.*

> I have one doubt – if we just teach students in a positive way, if we avoid them seeing bad things, how can they learn to discriminate? If they don't see the ugly, how can they appreciate the beauty? Is it good to just show the positive things? How about the negative things? For example, I have taught my children that when they go to another person's room they don't touch things and make a mess, but then others come to our room and do this, so the children wonder why others can do this and they can't.

Another interesting question that reflected a deeper level of thinking was concerned with the effects of the values education strategy on children who are at different stages of their character development:

> About the power of love: If there are two seeds and one is very strong but the other is not so good – if I give love to the not-so-good it still won't grow as strong as the good one, so is it better to concentrate the love on the strong one?

They were also starting to think, at this stage, about the interactive effects between school and home:

> A colleague asked me "5 plus 2 = 0". I didn't understand. She told me that 5 means the 5 days in school, 2 means the 2 days outside school, maybe equals 0 because the effects of the two days at home can undo the effects of the five days at school – the effects may be negated by outside things. How can we connect family and community education with school education?
>
> Sometimes I feel there is some difference in the students' behaviour – they are good in front of their teachers but different at home. I have been surprised to hear they do bad things at home, even to their own grandmother they have been rude, therefore we must keep in close contact with their families so we can know the two sides of the children.

Another issue raised for the first time was that of evaluation:

> How can we evaluate the moral education? We do the experiments but we don't know how to see the effects.

In all of the above, it can be seen that, although the questions they were asking were more complex than those they were asking in the earlier stages of the project, the teachers reverted to their former dependence on the facilitators to provide answers rather than attempting to suggest solutions themselves. Therefore, the problem-solving tasks for the fourth face-to-face session were established in such a way as to provide some useful information but to put the responsibility for thinking about the solutions onto the teachers themselves.

Fourth Session

In the fourth session, the teachers' questions indicated that they had reached another level in their thinking about the values themselves, as well as about the pedagogy of applying values education, again suggesting a relational level of understanding. Specifically they asked questions such as:

> What can we do now to deepen our personal understanding of the values and to deepen the experiment?
> How can we improve the quality of our classroom teaching [in relation to eliciting values while offering rich pedagogical experiences].

They also began to ask questions about how to move beyond their own classrooms and integrate it as a whole-school approach. They seem to be no longer thinking of it as a fragmented thing applicable only to their experimental classes but as a total school programme, in and out of class.

Verbalising about the New Paradigm

One particular feature which was built into the project design and particularly taken into consideration when designing the problem tasks for the teachers to

tackle was to create opportunities for them to start speaking about the new paradigm, to verbalise the vocabulary as a means of moving from the entrenched ideas of the old paradigm to begin to think and act out the new one (Barr and Tagg, 1995) The following discussion shows how the complexity of the teachers' vocabulary changed over time, as the result of talking about the language of values education with their pupils and their colleagues.

First Session

It can be seen from the earlier examples that the teachers' verbalisation about the paradigm was concerned mostly with naming various values as the opportunity arose in lessons or creating opportunities to bring these words into their lessons. The teachers themselves said that they did not have a full understanding of the values – however, this simple speaking about them was probably an important step in internalising them. The following comments indicate the extent to which this verbalising had helped them to understand the concepts after the first session:

> I had never heard of values education before – sometimes I incorporate some moral teaching but I had not regarded it as an important component of education in its own right.
> I now know the basic concept of values education and the concept of the five values, and in general how to incorporate it into Chinese and Mathematics.

Second Session

In the second session the teachers talked a lot about silent sitting (possibly because it was something more tangible they could talk about more easily):

> The students participating in regular silent sitting at the beginning of the lesson have begun to behave differently from the others. Even the naughty ones can calm down and listen to the lesson – at least for the first half of the class.
> We started doing silent sitting every time before class. After one month I found that the [Grade 3] children could do it by themselves.
> When they hear the bell ring they just go and do silent sitting by themselves. They can concentrate their attention and think it is good to do.

They were also incorporating some of the concepts underlying values-related vocabulary into their comments:

> In a lesson on percentage we asked the students to count the number of *good* children in the class. The children really want to be good. A parent mentioned that he had asked his son if he knew his favourite food, but he did not. We asked the children to write down their parents' favourite foods, their birth-dates etc. Most children did not know the answers so they did a survey to collect the data. This was *to correct the trend of self-centredness*. We asked them how they spent their own birthdays and asked them to think about how they could celebrate and at the same time *save their parents from extra expense*.

Third Session

From the teachers' post-demonstration lesson discussions during the third session, it could be seen clearly that they were now competently able to verbalise about and use the vocabulary of values education. The following examples of their comments reflect their higher level of

20

thinking about the situation. This is clearly evidence of relational level thinking (SOLO) and the ability to synthesise (according to Bloom) their understanding of values education.

The first example, taken from a critique of a colleague's demonstration lesson, shows that this participant was able to recognise the hidden messages embedded within the content and delivery of the lesson, and was also able to make some suggestions about how the teacher could further utilise the examples to bring out another dimension of values education, namely 'ceiling on desires'. Therefore, this participant had, to some extent, taken on the role previously assigned to the facilitator of suggesting ways the values education could be drawn out from the lesson content.

> [The teacher] was able to bring out examples and can further bring out values from examples of children's daily lives all the way up to politics – giving the message about the problems the government is facing; could use examples of different brands of groceries to show children they could buy something that is not a luxury item [ceiling on desires]

The second example also indicates that this participant was able to integrate not only the values education vocabulary, but the actual concepts (peace, love, inner strength) into his critique of his colleague's lesson, and to make links between the surface-level values education strategy being used and the underlying value that was being brought out by the strategy.

> The way he took the children through the clouds and the sky, through teaching maths, gave the message of peace in every subject. Through co-operation with each other it brought out peace and love. In discussion he asked them to think first – to bring out their own inner strength. [Truth: fraction and percentage are the same although they are written in different ways.]

The third example raises an interesting issue that posed a dilemma amongst the teachers. The story that was the focus of this lesson was a famous true story about five Chinese patriots who sacrificed their lives to kill Japanese soldiers who were invading their village. The teachers were struck by the irony that, while the lesson created opportunities to focus on values like loyalty, bravery, inner strength and self-sacrifice, there was the simultaneous undercurrent of hatred and killing. Some lengthy discussions ensued, resulting in the need to consult some of the teachings of great spiritual leaders about this issue, and this process made a major contribution to the teachers' internalising of their understanding of human values.

> The teacher was very loving and the children were very loving in return. Despite the story talking about killing and hatred, the teacher only focused on the bravery (see feedback comments above). The irony is how not to hate the enemy who are the invaders.

Fourth Session

In the fourth session it was notable that the teachers were verbalizing at a higher level of relational understanding about the values themselves and the pedagogy associated with eliciting them from the children rather than simply telling children about them. It has already been mentioned above that they were now comfortably verbalizing their ~~now~~ conception of their own roles, which they had not done previously:

21

What will influence the students the most is the teacher's character, not the knowledge s/he imparts.

Of particular importance here is the fact that, while it was our aim for them to reach this stage of understanding, we had not told them directly, they had come to this understanding by themselves.

In particular, it is interesting to note that they were beginning to talk about the changes they could *feel*. Since a characteristic of the relational level of operation is to be able to integrate all of the pieces and operate in a more intuitive way – as in learning to drive a car when the learner reaches the stage of being able to feel the process as a whole rather than having to think about each separate component - it is encouraging that they were now describing an integrated feel for the whole picture:

> I can *feel* they are increasingly paying attention to the honour of the whole class and to self-discipline.
> I can *feel* that the students can feel the change in me.
> I can *feel* the changing relationship building in our class – we have an atmosphere of helping each other.

Prompts and Feedback Used to Help Teachers Adapt to a Problem-Solving Mode of Thinking

While the systematic structuring of the problems was one thing that helped the teachers develop their thinking skills, there were other ways in which the project facilitators needed to act to support this development As can be seen from the

project structure outlined earlier in Figure 1, there was a change over time in the kind of input and feedback given.

First Session

At the beginning the teachers in both subjects were seriously concerned that the teaching of skills in the curriculum would be compromised by the time spent on teaching about values. However, their thinking developed gradually over time, until they were demonstrating higher level skills of analysing the situation and using it to integrate the new ideas in a way that addressed the constraints they had previously seen as an obstacle.

Clearly at this stage there was a need for the teachers to rethink about their teaching. At this stage they were very much dependent on the project facilitators to find answers to these problems for them. For example, as mentioned earlier, they requested direct input in the form of video tapes of real classes, teaching plans, evaluation forms, etc. and detailed guidance about how to carry out values education in classroom teaching. They also pointed out the importance of the facilitators observing and evaluating their experimental teaching and pointing out their strengths and weaknesses. At this stage their dependence was on the curriculum experts for input, rather than on any of the other members of the facilitation team.

This kind of feedback continued after the first session, when the University and Education Department project team members visited the teachers in their schools to observe them in class. The project team found it necessary to give very simple and direct feedback, such as:

- To integrate the values education into Chinese, integrate reading and enjoying with values education; in Maths use values words such as enjoy,help each other,use special words aiming praise at each pupil.
- Use group-cooperation to organize class.
- Encourage pupils to help each other.
- Mobilize the teachers who attended the values education project and those who did not attend, pupils, parents etc to explore the resources for values education, such as collecting the music for silent sitting, encouraging pupils to write for the silent sitting, collecting good sample lessons.
- Use silent sitting: in Maths - remind the children that the silent sitting can improve their correctness through calming their emotions; in Chinese use words from the text as content for the silent sitting and remind the children that silent sitting can improve memory and the effectiveness of their writing.
- integrate the values education into homework, such as (Maths) counting and recording the numbers of good deeds children have done.

Second Session

Following the second session the teachers were asked to submit their best lesson plans for feedback and discussion. The facilitators needed to give very specific feedback to help to develop a higher level of thinking about the integration of the values education into their teaching. The following gives an example of the ways in which the facilitators spelled out clearly the opportunities for promoting values education in the lesson plans that the teachers had submitted as well as commenting on the ideas the teachers had tried. It can be seen that this feedback was more specific than in the first session and focused on a more complex level of understanding than the teachers had seemed able to cope with previously.

Table 2: Facilitator feedback during second session

Aspect of lesson	Comment about Mathematics teaching	Comment about education in human values/suggested key vocabulary to use with children
Introduction of a problem about China's wild animals as a fraction of the world's wild animals	Sets a real-world context for the problem	Non-violence: Creates awareness of the environment. You can talk about the dangers for some animals of becoming extinct and what each of us, as individuals, can do to help to protect them (e.g. using plant-based rather than animal-based medicines)
Concept of 'one' or 'whole'	Very important to establish the idea of a fraction as a part of the whole	Peace: What do we need to do to become *whole* people? Can we feel whole and complete if we have a lot of material possessions? (Lead them to the idea that we can only really feel whole and complete if we have inner peace.)
Asking students to find different ways to get the same answer	This is a good practice to encourage, to get them to think mathematically.	Love: There are many different ways of arriving at the correct answer. The same applies to life. People have different ways of doing things but we cannot judge them if their ways are different from ours.

23

Group discussion to help students who still did not understand	Often children can understand something explained by their peers better than an explanation by an adult.	Love: teamwork. If one group member is unable to understand, it is the group's responsibility to help him/her.
'Mirror' problem	Good use of estimation and problem-solving skills	Right Action: This could be a good chance to talk a little bit more about mirrors (perhaps in a silent sitting at the end) – tell them that other people are mirrors of our behaviour and that when we see something we don't like in another person it often means we have to look at ourselves to see if it is really something in our own behaviour we have to change.
Saving water consumption	As above	Non-violence: This is a very good example. We should talk to children about the importance of looking after the resources that Nature provides. There should be enough resources from Nature for everyone to have their share, as long as everyone only takes their fair share and doesn't waste it. "Water is life. Don't waste water."
Story about flood and story about Shao Hua and Shao Li donating money for children who cannot afford to go to school	This relates to a real-life event, which helps children to see that Mathematics is a tool for describing real-life.	Love: Developing a sense of compassion towards those who have been unfortunate to suffer in a flood; helping these people by giving seeds to them. (Could this lesson be followed up by asking the children to sacrifice something that they like – eg buying candy or going to the game parlour – and using the money they save to donate to the flood victims? In SSEHV we call this "Ceiling on Desires".)
Percentage: comparing statistics of China and other countries; comparing with another class the students who are good in study, sports etc.	Again, this use of real-world examples encourages children to think more widely about Mathematics and how it is a tool that helps us to understand our world.	Love: This is a very important aspect of helping children to develop self-acceptance and self-esteem as well as tolerance of others. *We need to emphasise repeatedly* that everyone has his/her special gifts/talents and help them to think how they can use these for the good of society. We also need to encourage them to be tolerant of others and to look for the good things that others can do, not at what they cannot do.

Third Session

After the third session, the teachers agreed that they understood more about values and how to integrate them into their programmes It was interesting to note that at this stage they were turning more to the Education Department officers for support with policy-related matters than to the curriculum experts for support with pedagogical ideas. It was clearly important to them to have official support of the ideas that the curriculum experts were portraying and that they were beginning to come up with for themselves However, with the pedagogical ideas they seemed to have developed a greater independence to think of their own strategies and to give feedback to each other. Examples of the feedback given by the Education Department officers at this stage include:

[In response to the teacher comment: 'I really love my students, am seldom angry with them. For example if they drop rubbish, the first time I tell them not to do it, the second time I take them to see how dirty it is. If they still do it a third time, those who throw rubbish have to clean the school for a week – then they stop. Sometimes this is not advocated now, so I could get into trouble.'] We must distinguish this kind of penalty from those that will hurt the students psychologically. This type won't hurt them psychologically.

The above reinforced the teacher's need for official endorsement that what she was doing was acceptable with regard to policy, irrespective of whether or not it was good pedagogical practice.

[In response to teachers' questions about discipline policy, competition and community expectations] Teacher practice is important – whatever you ask students, you should also do first. Teachers must love the students – this is the foundation of EHV. This doesn't mean love without any kind of punishment – if students form bad habits, if you don't use 'punishment' you can't get good effects – but first there must be clear understanding about the whole situation and make the right kind of punishment. Silent sitting is a main characteristic of EHV – what can we do to make silent sitting better? EHV must exist everywhere, so don't think that just the content is EHV, everything we do is the process of doing EHV. Competition: In relation to EHV, I don't think EHV must avoid competition. EHV is not evaluated by academic knowledge – the purpose of these experiments is not only to improve academic achievement, but to develop character, therefore you must send this message to your headmasters. One problem in Chinese education is that the family, community and school education are separated – this must be changed so the school and parents have a close relationship. The evaluation by academic achievement alone is a shortcoming of the education system so don't worry – this will change. Try to fill in the gap between school education and family education – keep in close contact with parents by phone calls and visiting family.

Again what the teachers required here was official reassurance that they were on the right track from a policy, as opposed to a pedagogical, point of view.

Fourth Session
In this session the teachers continued to seek policy-related feedback. The feedback given by the Education Department officials was concerned with the overall education reform policy – the first time that the teachers seemed really ready to listen to feedback about their work in the context of this reform rather than in the context of their own classrooms. At the pedagogical level there was very little need to give the very directive kind of feedback that had been given in earlier sessions that pointed out the opportunities to draw out the values. The feedback from the curriculum experts was mostly concerned with confirmation of the effective strategies they were using, and they did not seem as anxious about receiving this feedback as they had done in previous sessions because they had a greater level of confidence in their own decisions.

Teachers' Perceptions of Themselves as Problem-Solving Learners
In the fourth session, the teachers were asked to complete an eight-item questionnaire, using a 5-point Likert scale on which 1 referred to very low and 5 to very high, to rate their self-perceptions at the beginning of the project and at the end with respect to:
- belief about how important it is to integrate EHV into their teaching
- ability and confidence to solve problems that arise in implementing EHV

- ability and confidence to solve problems that arise in implementing other new teaching ideas
- belief in themselves as problem-solving practitioners
- belief that they can continue to make changes in their teaching approaches to further develop values education in their programmes
- openness to further changes in teaching

While the small number of respondents means these results must be interpreted with caution, there are some interesting patterns that are worthy of comment. It is encouraging to see that there was some increase in mean ratings on all of the self-perceptions of their ability to solve problems and adapt to change in their teaching practices. There was also some increase in their ratings of the usefulness of the approaches used in the programme.

Regarding 'belief about self as a problem-solving practitioner', five of the teachers increased their ratings while eight remained unchanged. On all other items, six or seven increased their ratings by at least one point and several by two points, with most of the other half showing no change. While this change is not dramatic it is encouraging that there was some increase in self-perception for at least half of the teachers, especially in the light of the fact that change often takes 3-5 years.

Table 3 summarises the outcomes of this survey.

Table 3: Change in teachers' self perceptions during programme (N=14)

Self-perception	At start of project			At end of project		
	Mean	Number rating very low/low	Number rating high/very high	Mean	Number rating very low/low	Number rating high/very high
Belief about how important it is to integrate EHV into my teaching	3.21	2	6	4.21	2	12
Ability and confidence to solve problems that arise in implementing EHV	3.21	3	6	3.64	3	10
Ability and confidence to solve problems that arise in implementing other new teaching ideas	3.00	3	6	3.57	1	8
Belief in myself as a problem-solving practitioner	2.86	3	6	3.64	1	8
Belief that I can continue to make changes in my teaching approaches to further develop EHV in my programme	3.28	2	6	3.86	2	11
Openness to further changes in teaching	3.42	3	8	4.00	1	11
Belief about effectiveness	3.07	4	4	3.57	2	9

of approach used in course (input/discussion/problem solving in own class/discussion with group and facilitators)						
Belief about usefulness of collegial discussion within group	3.21	3	6	3.64	2	9

Critical Incidents that Facilitated Positive Attitudes

In the analysis of the teachers' reflections, it became clear that there were certain incidents that many of them commented on as having influenced their feelings about themselves as problem-solving teachers. Quite often, it was these incidents that triggered changes in the students' feelings and beliefs.

One of the critical turning points came when the teachers began to recognise that the values education was having an impact on themselves personally. For many of them, this occurred during the period between the second and third face-to-face workshops.

> I have a straight-forward personality – sometimes when teaching students my attitude might be a bit rude. In some cases when dealing with problems with students I haven't considered the consequences very carefully. But after participating in values education, I have found that my attitude has changed a lot – I know how to approach others. ..I try to encourage students to encourage each other.
>
> For myself – my attitude towards students has changed a lot – I find it easier to forgive others and use acceptable ways to explain to students and let them develop self-discipline rather than having to impose discipline on them. In some cases where students have been annoying I have even made phone calls to their parents to discuss the problem – I have changed a lot, know how to communicate with students and am getting along more easily with colleagues – not arguing over little things, more likely to discuss issues peacefully.
>
> Silent sitting has brought about a personal change. I find myself able to control my own moods easier, and have an improved sense of responsibility. For example if I had found lights left on previously I would not have been aware of it but now I will turn them off.
>
> I experimented with my own self – I am better in settling difficulties – I don't swear or punish students in the classroom now.

Another turning point was noticing positive changes in their students:

> Previously one student became very sick and no other students helped him. I did not encourage them. Now I have found that many students have a sense of helping others – although I still have to try to encourage and guide them to do it.
>
> Before I didn't know anything about education in human values. After the seminars I have a deeper understanding and find I have a changing attitude towards my students. I am finding more accepting ways to deal with them. My attitude towards my own work is more enjoyable and I am voluntarily spending more time on it.
>
> Values education and silent sitting bring real benefits to students – reduces pressure, concentrates minds, improves thinking, changes naughty behaviour, improves imagination and quality of writing. Sometimes students give up when facing difficulties but, after values education, they are becoming more persistent.
>
> Silent sitting – I can feel the results.

The third commonly-reported critical incident occurred when the teachers noticed a change in the teacher-student relationship. One noted change was in the way they dealt with situations arising in the classroom:

> If students haven't submitted assignments I will try to find the causes whereas before I would give tough reprimands. I now start the class by trying to encourage students instead of reprimanding them, which has led to increased motivation by the students.
>
> In one of my lessons of "addition and subtraction of decimals" by using the Chinese abacus, I requested the students to bring their own abaci. After 10 minutes of the lesson, one of the students started to 'play' his abacus like a guitar. He made all the classmates laugh. At the moment, what should I do? Continue the lesson or punish him? I had no idea. Suddenly, I thought of the values education. I should calm down, and be open-minded and positive. So I spoke louder in class. All the students stopped talking and paid attention immediately. In the last part of my lesson, I mentioned that, "The Chinese abacus can help us a lot in life and it is a perfect calculation tool. We have to promote it to others and be proud of it. But our inventor of the abacus did not think that students would play it as a musical instrument. That student is very creative, but I hope all of you can use it properly and promote the intended use of the abacus".
>
> In the process of implementing the values education, I have found out that my students can understand the concept of this education which has a positive effect on their manner and conduct.

Another way they noted change in the student-teacher relationship was in 'discovering' their students as human beings with complex issues in their lives that affect their classroom behaviour, and experiencing the benefits of acting on this discovery:

> When I blamed the students it made our relationship worse. I destroyed the student's self-esteem and reduced their motivation to study. I regretted this and thought again, for example how to increase my own values and perform in front of them. I influence the students.
>
> One day, a student was looking for his book in his bag. The teacher thought that he was disturbing the class, so he punished the student by telling him to stand up. But the student refused and kept sitting on his chair. Then the teacher become angry and asked the student to come to his office with him immediately. The student became out of control and shouted" I did not make any mistake!" When I saw him, I gave him a chair and asked him to calm down. Then I started to talk to him. After our discussion, the student admitted that he did not pay attention in class and was willing to apologize to the teacher.
>
> When implementing the process of values education, I had an experience. One boy changed a lot suddenly. His exam result was low. He told lies. He argued with his parents at home (especially his mother). One day, he fought with his mother at home. Then I scolded him in school. I warned him not to do this any more. But after a few days, he did not show any remorse. Then I talked to him again and discussed it in detail. I discovered that his mother and grandma's relationship was not good. His mother did not allow his father to visit his grandma although she was sick. His father loved his mother very much. Then he went to her home. After visiting his grandma, the boy's mother was angry with his father and would not forgive him. That boy was very sad. Therefore, he always argued with his mother. He thought she was so cruel. After I listened to that boy, I realized the importance of family education. If you wish your children to be good, the parents should show a good conduct and manner, otherwise your children cannot be good. In addition, communication in one's family is also important. We have to listen more to our children's voices.

DISCUSSION

The findings reported in this chapter represented a small-scale action research project in which we explored the extent to which a group of Chinese teachers could be encouraged to change their feelings about their ability to incorporate change into their teaching and what "critical incidents" contributed to any changes that occurred. At the end of the twenty-month

programme, half of the teachers had increased their self-perceptions about the knowledge and skills they had developed from the problem-solving activities.

Table 4 summarises the teachers' growth in their actual ability to be problem-solving practitioners, as indicated by the four dimensions of change in the nature of their problem-solving strategies, quality of the questions and problems they raised, verbalization about the new paradigm and prompts and feedback needed. It shows that there was a pleasing growth in the teachers' capacity to solve and pose problems and to talk about the relevant issues.

Table 4: Teachers' growth across four dimensions, with reference to SOLO Taxonomy and Bloom's Taxonomy

	First session	*Second session*	*Third session*	*Fourth session*
Nature of problem tasks	Unistructural Knowledge	Multi-structural Comprehension	Relational Analysis	Relational Analysis
Nature of their problem-solving strategies	Unistructural Knowledge/ Comprehension	Multi-structural and Application emerging	Relational Synthesis	Relational Extended Abstract emerging Synthesis
Quality of the questions and problems they raised	Unistructural Knowledge	Multi-structural Application	Relational emerging Analysis emerging	Relational Analysis
Verbalization about the new paradigm	Unistructural Knowledge	Multi-structural Comprehension	Relational Synthesis	Relational Extended Abstract emerging Synthesis
Prompts and feedback needed	Facilitator directed: what to do, how to include values	Facilitator directed: more complex directions about what to do	More policy related Better able to give feedback to peers	More policy related Better able to give feedback to peers

The major turning points in the teachers' beliefs about the value of the initiative and their own capacity to bring about change came about when they recognised the impact on themselves, on their students and on the student-teacher relationship.

A major concern expressed in the literature reported earlier in this chapter is to get teachers to move their beliefs from blaming circumstances as obstacles to taking responsibility for finding creative and feasible solutions. It appears that this shift in thinking has occurred with these teachers as they have increased their problem-solving skills. However, it clearly would not have been appropriate to go straight into the use of a conventional action-research model. They were experienced classroom teachers but still behaved very much like novices in the early stages of the project. Hence it was necessary to start with very simple problems for them to investigate in action at first, and then lead them to address more complex ones. The conventional action-research model, as such, was only introduced at the end of the programme when we felt that the teachers had developed sufficient confidence in themselves as problem-solving practitioners to be able to undertake more independent studies.

29

The process of engaging the teachers as problem-solving practitioners has clear links to Taplin's (2002) framework for supporting teacher growth. To engage the teachers at the beginning it was necessary for them to know that there would be extrinsic incentives in the form of financial support and acknowledgement from the Education Department that would support their future career growth. In the early stages they needed – and in fact demanded – a lot of input of resources, demonstrations and 'how to do it' feedback. However, as their problem-solving strategies developed they moved further and further away from the need for this kind of support. When looking at the incidents that brought about change, we can see that the turning point came when the teachers began to be the discoverers of new theories – particularly theories about the impacts on themselves, their students and their teacher-student relationships. This led them to a higher level of conception that was not present at the stage where we were simply asking them to try out ideas. However, this latter stage was still a necessary part of the process.

It was also important that the teachers moved from a superficial to a deep understanding of the content knowledge related to the innovation, in this case the human values themselves. This deeper understanding was a necessary pre-requisite to developing their content-pedagogical knowledge to integrate the values into their practice.

It may be interesting to note that the turning point for most of the teachers came between the second and third face-to-face sessions with the facilitators. Due to the infamous outbreak of the SARS virus in China at that time, there was a break of almost one year between these two sessions. During that time the teachers submitted reports reflecting on their experiences. It may in fact have been a significant part of their growth process that such a long period of reflection was enforced in the middle of the project.

In summary, there are certain aspects of the project design that appear to have been instrumental in bringing about the growth that occurred. These include:
- opportunities for discussion and sharing of ideas with peers,
- achievement of success in solving problems that were challenging but within the teachers' reach,
- reflection on the new knowledge and skills that developed during the problem solving, so they were aware that learning *was* taking place,
- challenges to existing beliefs that they do not need to change their way of thinking about the subject or to learn new skills,
- recognition that the tasks are relevant to their current or future "real world" needs.
-

The main implication for teaching is that if we can be aware of the importance of these aspects to the development of teacher change, then we can attempt to plan future professional development in such a way as to facilitate the occurrence of these incidents.

So far, the study has only been conducted with one small group of teachers. Nevertheless, it is encouraging to see the positive changes in the teachers and their reflections about the

innovation, even if they were initially doubtful or negative. Of course, the real evidence of the success of the project will be if, in future, the teachers *do* in fact demonstrate their developing confidence and skills to overcome obstacles to change. As they continue with their school-based action research, we will certainly be monitoring what they do with great interest. In the meantime, we feel encouraged that the use of the problem-solving approach has had a substantial effect on changing their way of thinking about change, which in turn has contributed to the quality of their thinking about learning and instruction.

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APPENDIX: DETAILS OF PROBLEM TASKS

First Assignment

Chinese

Prepare 6 lesson plans that integrate Chinese language and education in human values

Mathematics

1. Collect three stories of famous Chinese mathematicians who reflected human excellence/strong character in some way. Describe how these stories were used in a lesson and how they used them to discuss values.
2. If possible, find three examples of ways in which Mathematics is important to Chinese culture (ie in architecture, art, music).
3. Use silent sitting for 2 minutes (preferably every lesson but as much as possible) and monitor the effects. Interview 6 children each month about how it is affecting their concentration, behaviour and achievement.
4. Prepare three lesson plans where values are drawn out of the lesson, eg the equivalent fractions lesson. Provide full details of the lesson and what the value was, include samples of what children said, wrote about the values. At least one of these lesson plans should include service.

Second Assignment

1. Write down the 5 questions that either *interest* or *worry* you the most about teaching values education in your situation.
2. Choose the 1 question that interests or worries you the most.
3. List three things that you can try in your classroom in the period from July to October to try to find some answers to your question. Please give enough detail so that somebody else could repeat your experiment if they wanted to.
4. What information, materials or resources do you need before you can try your 3 strategies? If you need our help in finding this information or resources, please contact us so we can help you.
5. Put your 3 strategies into practice and then provide the following information (this only needs to be a brief report of about 2 pages):
6. How has this experiment affected your students?
7. How has this experiment affected you as a teacher? (Please refer to the handout we gave you called "Roles and responsibilities of the teacher"to give you some ideas about how you have been affected).
8. What do you think you still need to do to bring about further changes in your students?
9. What do you think you still need to do to bring about further changes in yourself?

10. Now that you have tried your 3 strategies, write another list of 3-5 questions that have come up from these strategies that either **interest** or **worry** you the most about teaching values education in your situation. Some of these might still be the same questions as before, or they might be new ones. Please be very honest and open about your questions and worries, so we can find ways to help you with these.
11. List all the insights you have had about values education and/or about the meanings of the actual values themselves from doing this experiment.

Third Assignment

1. After discussion about the assessment rubric:
   a) Decide how you would use this in your own teaching,
   b) Does it reflect what we are talking about with values education?
   c) Look at each criterion and discuss whether it is suitable for your classes or change whatever needs to be changed.
2. After considering the booklet about discipline, develop your own list of discipline strategies using the same framework of consequence, key vocabulary to be used, any anecdotes from your own experience…
3. Report and discuss your own experiences with your latest action research cycle.
   a) What problems arose?
   b) What solutions did they come up with?
   c) Recommendations for other teachers? [Give them an outline of points to discuss]

Fourth Assignment

Write a full-scale report on the implementation and evaluation of your action research. Discuss your experiment. What was successful? What was unsuccessful? What will you do differently next time? What insights have you gained about education in human values? What new questions have been generated for your next cycle of experiment?