Abstract

Models of teaching commonly used in the West and in China are analyzed and compared, using an analytical approach that systematically considers different aspects of the models. The purpose of the exploration is three-fold: (a) to create better understanding of both Chinese and Western models, for mutual insight and to strengthen the development of pedagogical theory building in China; (b) to guide a joint project between the Netherlands and China relative to the development computer-related learning resources for China; and (c) to contribute to better overall understanding of how instructional resources can be adapted for use in both Western and Chinese situations. The analysis provides a contribution for each of these goals.

Models of Teaching and their Applications

A model is not the same as a theory. As Roberts (1978) noted in his review of program-planning models, "A model of instructional design may also be the result of a component-testing or theory-building process, in which case the construction of the model is built on weak theory or no theory at all" (p. 7). Brady (1985) in describing the nature of models has also pointed out "The models are guides to the preparation and implementation of teaching, and not highly developed theories" (p. 11). We think it would be not enough for a teacher to know only one or two teaching models, because education has so many different types of approach and context. A thorough knowledge of a number of models could lead to greater teacher flexibility and efficiency. Understanding of several models could facilitate the ability to adapt those models or to combine them with others, and offer valuable approaches that enrich a teacher's repertoire.
All the above descriptions lead to the conclusion that the study of teaching models is a very powerful way to explore educational issues related to teaching strategies, pedagogical and curricular design, instructional materials and learning sources, and even the design of learning environments. In this article, we try to discuss several teaching models which represent typical approaches to teaching in the West and in China through describing and summarizing major characteristics of those models. Our intention for this has the following three main aspects: (a) to understand more about teaching models, (b) to guide a joint project concerning the development of learning resources appropriate for Chinese education, and (c) to contribute to the portability of computer-related educational resources between the West and China. We next discuss these three aspects.

Understanding More about Teaching Models

Finding out both similarities and differences in teaching models typical to Western and Chinese educators can help us better understand each individual model's characteristics and functions. It is particularly important for Chinese educators to learn more about teaching strategies and methods, pedagogical theory, and study approaches and to develop a theoretical basis for teaching models, strengthened from an analysis of these Western models, because China in its move toward more openness is facing educational reform which has been called a base of the nation's development and modernization realization.

Presently the Government of China has often argued forcefully that the nation's goal of modernization rests in part on education and its reform, and the improvement of the country's education depends on teachers and teaching methods. Paine (1992) has pointed out:

In China today, the scale of technical problems combined with the desired pace of educational, social and economic reform give added urgency to the call to revamp teaching methods (p. 184).

Taxonomies of Teaching Models

In order to compare Western and Chinese teaching models, it is necessary, although difficult and complicated to fully work out, to have a system for classification of teaching models and conceptual descriptions of each model. This will lead research involving teaching models in a more systematic and scientific way than would occur without such a classification, and make it convenient for Western and Chinese educators to exchange and communicate ideas in this domain. According to Joyce and Weil's definitions and classifications for teaching models (1992), four families of teaching models (at least for Western circumstances) can be defined, together describing a classification based on different orientations toward man and his universe. The four are:

1. **Social Family:** Oriented toward social relations and the relation between man and his culture and drawing upon social sources. The range of models in this family includes those which focus more on the comparatively simple processes of organizing students to work together, and those more complicated models that base themselves on democratic social organization and the analysis of major social problems and critical social values and issues. "When we work together we generate a collective energy that we call `synergy'. The social models of teaching are constructed to take advantage of this phenomenon by building learning communities" (Joyce & Weil, 1992, p. 5).

2. **Information-Processing Family:** Models in this family share an orientation toward the information-processing capabilities of the learner and to environments that can be organized for him so as to improve his capacity for information processing. The models in this family emphasize "Ways of enhancing the human being's innate drive to make sense of the world by acquiring and organizing data, sensing problems and generating solutions to them, and developing concepts and language for conveying them" (Joyce & Weil, 1992, p. 7). Of course, some models from this family are also concerned with social relationships and overlap with those from the above category, "Social Family" or the next category, "Personal Family".

3. **Personal Family:** This cluster of personal-family models focuses on the individual as the source of educational growth and pays great attention to personal development and the processes by which the individual constructs and organizes his reality. In other words, it is student-centred and students are taught to take charge of themselves in learning, and in life. As Joyce and Weil (1992) pointed out "They (the Personal family models) attempt to shape
education so that we come to understand ourselves better, take responsibility for our education, and learn to reach beyond our current development to become stronger, more sensitive, and more creative in our search for high-quality lives” (p. 9). Personal models can also be related to the development of social relations and to the individual's information processing capacity.

4. *Behavioural System Family*: This family attempts to build efficient environments for sequencing activities and for shaping behaviour by manipulating reinforcement. These models were guided and developed from an analysis of the processes by which human behaviour is shaped and reinforced, and are based on behaviour modification, behaviour therapy, and cybernetics theories. The major emphasis of behavioural theory is the changing of the learner's observable behaviour. These models can usually be used in most educational settings. As Joyce and Weil (1992) note "Because these models concentrate on observable behaviour and clearly defined tasks and methods for communicating progress to the student, this family of teaching models has a very large foundation of research. Behavioural techniques are amenable to learners of all ages and to an impressive range of educational goals" (p. 11).

### Concepts for Describing the Models

Because models, whether Western or Chinese, could come from many different sources and be expressed by many kinds of approaches, it is necessary not only to indicate which family of models a model belongs, but also to have a format for describing each model as explicitly as possible. Joyce and Weil (1992) have also developed “four concepts to describe the operations of the model itself as a way of communicating the basic procedures involved in implementing any instructional model” (p. 14). These concepts involve a description of the model in terms of its characteristic environments. The four concepts used by Joyce and Weil are the model's *syntax*, *social system*, *principles of reaction*, and *support system*. We will use these concepts to describe some main teaching models which are popularly used in Western countries and others which are commonly used in contemporary China. The following definitions of the four description concepts are mainly taken from Joyce and Weil (1992, pp.14-15).

#### Syntax

The syntax of the model involves a description of the model in action. For example, if a teacher were to use the model as the basis for his strategy, what kinds of activities would he use? How does he begin? What happens next? The description of syntax is normally in terms of sequences of activities called phases. Hence, each model has a distinct flow of phases.

#### Social system

The social system describes student and teacher roles and the hierarchical relationships and the kind of norms that are encouraged based on these roles. Of course, the way of the teacher manifests leadership will vary greatly from model to model. One way to describe a model of teaching is in terms of the degree of structure in the social relationships that take place in the learning environment. That is, we can classify models as highly structured, more-or-less structured, or relatively unstructured.

#### Principles of reaction

Principles of reaction help the teacher respond to what the learner does. They can help teachers select the reactions they will have in their interaction with the students and provide them with guidelines by which they can better tune in to the learner and select model-appropriate responses to what the student does.

#### Support system

This concept describes not the model itself so much as the supporting conditions necessary for its existence. What
support is needed in order to create the environment specified by a model? That is, what are the additional requirements beyond the usual human skills and capacities, and technical facilities? Suppose a model postulates that students should teach themselves and that the roles of teachers should be limited to consultation and facilitation. What support is necessary? Certainly a classroom filled only with textbooks would be limiting and prescriptive. Rather, support in the form of books, films, self-instructional systems, travel arrangements, and the like is necessary.

Western Models

Joyce and Weil (1980) have identified more than 23 models in their four basic families (see the previous section) as well as a number of "models for thinking about models". Based on their viewpoints and definitions of teaching and learning, most of the models fell into the information-processing family, although some of them could be considered personal models and some overlap with other families. There is little value in trying to describe and compare all the teaching models existing in the West and in China, but it is helpful to describe and compare some models that are most illustrative of different subgroupings with the overall set of models. In the following section, we will select six Western models supported by analysis in (Joyce & Weil, 1992) and describe them according to the four families and concepts mentioned above. The six Western models are: Group Investigation (Social family), Advance Organizer (Information-Processing family), Inquiry Training (Information-Processing family), Nondirective Teaching (Personal family), Self-Control model (Behavioural family), and Simulation model (Behavioural family). We describe them in comparative detail in order to facilitate later comparison with Chinese models.

Chinese Models

In order to adapt education to the development of social and economic reform, many Chinese educators are today paying attention to the study of teaching models and have developed some teaching models themselves, as an exploration of educational theory and practice. The development of Chinese models of teaching has normally stemmed from three aspects: learning from other countries, particularly Russia and America; analyzing Chinese teaching experiences; and combining available models from outside with their own approach to teaching. We select and describe six Chinese teaching models that are mainly based on Chinese educators' own teaching experiences and are commonly used in China today. We will call the six Chinese teaching models: Delivery - Receive (Information-Processing family), Self-Learning - Guided (Personal family), Buide - Discover (Information-Processing family), Circumstances - Mold (Social family), Demonstration - Imitation (Behavioural family), and Collective Teaching model (Social family).

Comparing Western and Chinese Models of Teaching

The comparison of teaching models is a more difficult task than the description of them individually, because the different models have different purposes or areas of concentration. Also it is impossible to say one model is superior to others. As Maker (1982) pointed out, "No comparative research indicates which models may be more appropriate than others" (p. 452), and "no one model is regarded as superior to others, ... and no single model can realise the multiplicity of school and subject objectives" (Brady, 1985, p. 11). We think the goal of comparison is not to reach a conclusion that one model is better than another, but to find out the similarities and differences among the models, which can serve as guideline when selecting or adapting a teaching model (or models) for instructional use.

The first step in comparing models should be to offer a framework which identifies relative aspects of comparison. We have developed a framework focussing on four aspects, involving different items appropriate for a comparison among teaching models. The four are: Teacher Aspects, Student Aspects, Aspects relating to Degree of Flexibility or Adaptability of the models, and Aspects related to Effective Theoretical and Technological Supports. Following are some specific questions for each aspect that can be used in a comparison of teaching models.
Teacher Aspects

1. How easily can the model be managed by the average teacher?
2. To what extent does the model save teaching time (including preparation time for the lesson)?
3. How likely is it that the model will be accepted and used by the average teacher?
4. To what extent does the model give full play to the teacher's professional knowledge or skill?

Student Aspects

1. How much initiative is given to students within the model?
2. How adaptable is the model to individual differences in the students?
3. How well can the model be adapted for students of different ages?
4. How well can the model be adapted for different sorts of learning goals?

Flexibility to the Situation

1. How easily can the model be adapted to the present organizational system in the school and to the current standards for student evaluation followed by the school?
2. Can the model be well adapted to a variety of subject disciplines?
3. How easily can the model be combined with other models?
4. To what extent is the model adaptable to cultural expectations for student and teacher behaviour?

Theoretical and Technological Supports

1. Was the model developed using an appropriate theory?
2. How much research and evidence are available to show the model is internally valid?
3. In what ways might the model be well supported by new technologies and media?
4. Are the technologies and media most suitable to the model readily available?

Analysis of Set of Ratings

Based on these completed worksheets, we can do some general comparisons with respect to different aspects among the models. For example, we can compare the teacher aspects with student aspects, flexibility aspects with supports aspects, student aspects with flexibility aspects, or the teacher/student aspects (human side) with flexibility/supports aspects (conditions side) of a model. However, since the judgment for each item is subjective and global, the comparison can only be viewed as a reference when selecting or adapting a teaching model for instructional use. Each user must interpret the ratings relative to the perceptions of his own culture.

Let us take an example to see how we worked the subjective judgments out. The example we will choose is the Group Investigation model (GI) from the Western model cluster. It should be, of course, clear that the GI model, although its total rating is the highest, does not necessarily become the best model. In the Student and Flexibility aspects, two items got a rating of 2 (good fit); they are "How well can the model be adapted for students of different ages?" and "Can the model be well adapted to a variety of disciplines?". Why did we give these two items the rating of "good" fit? The answer could be based on following descriptions: "The GI model is highly versatile and comprehensive; it blends the goals of academic inquiry, social integration, and social process learning. It can be used in all subject areas, with all age levels" (Joyce & Weil, 1992, p. 51). In the Supports aspects, the GI model has also obtained two ratings of "good" for two questions; "Was the model developed using an appropriate theory?" and "How much research and evidence are available to show the model is internally valid?". As Joyce and Weil (1992) indicate "Important for us is the question of whether cooperative groups do in fact generate the energy that results in improved learning. The evidence is largely affirmative ... we have observed successful group-investigation teachers in a context in which other subjects, such as math and reading, are carried out in a more structured, teacher-directed fashion" (p. 48). Sharan and Shaulov (1990) and Sharan, Slavin, and
Davidson (1990) have also studied group investigation, and have developed considerable insight into how to make the dynamics of such a model work as well as its effects on cooperative behaviour, intergroup relations, and lower- and higher-order achievement.

Comparison Among the Models

As a further example, we refer to the broader comparison in regard to the teacher/student aspects (human side) with the flexibility/supports aspects (conditions side) between the Western and Chinese models. We think these two sides can virtually reflect the real substance of a teaching model. The human side can be viewed as the action target of instruction, which means that the teacher and student are the main players. In other words, the teaching model will be empty if there are no teachers or students. The conditions side can be considered as the external considerations which can indicate the degree to which a teaching model can be adapted for current external environments and conditions. A good model, in general, should be able to be well matched with the external environments and conditions.

The coordinate is divided into four quadrants named I, II, III, and IV. The vertical direction of the coordinate grid represents the human side and the horizontal is the conditions side. The maximum possible rating for each side is 16. In general, it can be said that the model is more adapted to the human side if a model falls in Quadrant I. Similarly, it is more adapted to the external environments and conditions if the model falls in Quadrant IV. If a model is located in Quadrant II, it can be considered as well adapted to both dimensions and may be the most desirable model. Based on the summary of subtotal fit we can locate all models in their grid relative to their human and conditions coordinates.

Conclusion

The comparison of teaching models in the West and in China has been little undertaken and there are very few articles in the literature relating to this issue. Our primary goal for this study was to help Western and Chinese educators to better understand each other's approaches to teaching, through the creation of a framework to concisely compare the individual characteristics and functions of teaching models from the West and China. We think our approach offers a useful contribution for such a comparison. Our second purpose for the analysis was more personal, to create a theoretical framework for our own research project, relating to the adaptability of computer-related learning environments to different teaching methods in the West and in China. From the analysis we have a basis for hypothesizing this adaptability. Such a basis is also a contribution to our third purpose -- to contribute to portability research relating to learning resources. We realize our ratings relative to the fit of the models are subjective; we hope they will stimulate critical discussion, in that such discussion will further support our main goal -- in increase in insight and familiarity with teaching methods from a cross-cultural perspective.

References


