Lesson Planning: The Crux of Teacher Education

Abstract

The teacher education programs aim at grooming teachers for the future. In any teacher education program, planning of lesson is an important activity. Planning of lesson serves many purposes and stems from different perspectives. These perspectives are grouped into four, viz., (1) General Approach, (2) Focussing on Objectives of Instruction, (3) Grounded in Psycho-social Theories and (4) Comprehensive Models of Lesson Planning. These perspectives are not mutually exclusive and are not claimed to be exhaustive. How to plan a lesson remains a problematic but crucial topic for teacher education. But there are dominant model of lesson planning at institutional and university levels. There are various reasons why a definite model in the lesson planning is popularised at institutional and university levels. The ideas presented in this paper are intended to encourage teacher educators to refrain from imposing a linear structure on the planning of lesson which is against the principle of flexibility. Also, teacher-trainees should be exposed to a wide range of possibilities to develop a lesson so to enable them to personalise their own lesson plan.

The teacher education programs aim at grooming teachers for the future. The whole program deals with theory and practice of teaching-learning processes. The focus of these programs is to train teachers in lesson planning and classroom instruction. Planning is very important in instruction as in any enterprise. Adopting a top-down planning strategy, there are three levels in the planning of instruction. They are: (1) Year Plan, (2) Unit Plan and (3) Lesson Plan. The details on the year plan and unit plan are available in any textbook on teaching (e.g., Sharma & Sharma, 1971; Thurber & Collette, 1964; Soman, 1987; Das, 1985; Gupta, 1985) and are not detailed in this paper. This paper focuses on different perspectives in lesson planning incorporating the recent theories and practices in school education.

Lesson Planning

About seven decades ago Good (1945) defined a lesson plan as a teaching outline of the important points of a lesson arranged in the order in which they are to be presented which may include objectives, points to be made, questions to ask, references and assignments. The importance of planning of lesson has been detailed by many authors (e.g., Joseph, 1982; Sharma, 1996). However, research findings suggest that teachers have three reasons for lesson planning (Clark & Peterson, 1990). They are: (1) planning to meet immediate personal needs (e.g., to reduce uncertainty and anxiety, to find a sense of direction, confidence and security); (2) planning as a means to the end of instruction (e.g., to learn the material, to collect and organize materials, to organize time and activity flow); and (3) planning to serve a direct function during instruction (e.g., to organise students, to get an activity started, to aid memory, to provide a framework for instruction and evaluation).

Apart from the above three reasons for planning a lesson, there are several variables that influence the lesson planning, viz., locality of the school (urban/rural), number of students in the class, students' previous knowledge assumed by the teacher, resources available at the school, etc (Gupta, 1985). Therefore, there can be as many lesson plans as there are teachers on a single topic (Joseph, 1982). One way to think of a lesson is by using the analogy of a story that is highly organized; it has a beginning, middle and an end (Stigler & Stevenson, 1991). A good story engages the reader's interest in a series of interconnected events that are best understood in the context of the events that precede and follow. Lesson Plan can also be conceived as a map which shows where you start, where you finish and the route to take to get there.

The content in the textbook is restructured /reorganized in the lesson planning process (Clark & Peterson, 1990). Novice teachers seem to be reluctant in making changes in the sequence of content in the process of lesson planning. For example, a textbook may contain a concept (e.g. alkali metals are highly reactive) for which there is no fact given in the textbook. In such cases, the teacher will have to generate (add) two or more facts which can be inductively developed into a concept. However, both novice and experienced teachers are influenced to a greater extent by the content *as given in the textbook* in the planning of lessons. In other words, the process of planning is constrained by the prescribed content in the textbook. Teacher-educators should encourage teacher-trainees to restructure the content and add items as demanded by the method of instruction and context of instruction.

Approaches to Lesson Planning

In the teacher education coursework, considerable time is spent on teaching how to write detailed lesson plans. It is true that the student population is diverse and the teacher educators need to rethink how to develop creative and active learning for students in inclusive classrooms (Causton-Theoharis, Theoharis & Trezek, 2008). There are several aphorisms which suggest the sequencing of content such as - - concrete to abstract, known to unknown, simple to complex, empirical to rational, specific to general, part to whole, near to far, etc. There are different suggestions regarding sequencing and organising the classroom transactions. Several alternatives and parallel formats have been suggested by different authors for lesson planning such as Test-Teach-Test (TTT); Presentation, Practice, Production (PPP), Task-Based Learning (TBL – Willis, 1996), etc. Vaidya (1971) is very critical about the rigid steps in lesson planning. He states, "There is no Money Order form like proforma for writing the lesson plan" (p. 168). He lists fourteen parts to a lesson plan with freedom to pick and choose, as there is no agreed format. However, different strands of lesson planning can be identified in the research literature. These strands are not claimed to be mutually exclusive or collectively exhaustive. These threads are grouped into four - - (I) General Approach, (II) Focussing on Objectives of Instruction, (III) Grounded in Psycho-social Theories and (IV) Comprehensive Models of Lesson Planning.

I. General Approach

General Approach focuses on some aspects of teaching-learning process such as objectives of teaching, culture of learner, experiential base of the learner, the nature of the content to be taught, etc. This category includes - - (1) the Tyler Model, (2) Culturally Responsive Teaching, (3) ARCS Model in Lesson Planning, (4) Kolb's Experiential Learning

Theory and (5) Typological Approach Based on the Nature of Content. Each model is described briefly in the following pages.

(1) Tyler Model

Tyler (1949) suggested a linear model with four steps in lesson planning. The four steps are: (1) Specify the objectives, (2) Select learning activities, (3) Organize learning activities and (4) Specify evaluation procedures. Thurber and Collette (1964) added three items, viz., materials, references and assignments to what Tyler had suggested. Different format for the body of the lesson plan such as matter & method (Das, 1985), teaching point & teacher-pupil activities (Maitra, 1991) and matter, method and black board summary (Kohli, 1986) have been proposed. However, a four-column format with content, specification, learning experience and evaluation was popular in the state of Kerala for more than four decades. In spite of the different format and stages in lesson planning, the fact remains that the lesson plan is the real plan to be executed in a class period. Also, teachers (teachers educators) Subject Matter Knowledge (SMK) and Knowledge of Student Misconceptions (KOSM) are very important in lesson planning (Sadler, Sonnert, Coyle, Cook-Smith, & Miller, 2013; Rajan, 2011; 2013c).

(2) Culturally Responsive Teaching

The process of lesson planning should consider the culture of the learner since it affects how people learn, remember, reason, solve problems, and communicate. Ladson-Billings (1994) suggested eight principles to make the teaching-learning culturally responsive. They are - - (1) Communication of High Expectations, (2) Active Teaching Methods, (3) Practitioner as Facilitator, (4) Inclusion of Culturally and Linguistically Diverse Students, (5) Cultural Sensitivity, (6) Reshaping the Curriculum or Delivery of Services, (7) Student-Controlled Discourse and (8) Small Group Instruction. This Culturally Responsive Teaching (CRT) was examined by several researchers (e.g., Shade, Kelly, & Oberg, 1997; Irvine & Armento, 2001).

(3) ARCS Model in Lesson Planning

In ARCS Model of Motivational Design, there are four steps for promoting and sustaining motivation in the learning process (Keller, 1983; 1984: 1987: 1999a; 1999b; Means, Jonassen, & Dwyer, 1997). They are - - (1) Attention, (2) Relevance, (3) Confidence, and (4) Satisfaction (ARCS).

1. Attention can be gained by Perceptual and Inquiry arousal (stimulates curiosity by posing challenging questions or problems to be solved). This will include – (a) Active participation, (b) Variability in presenting, (c) Humor, (d) Conflict and (e) Inquiry.

2. Relevance of the content will have to be established in order to increase learners' motivation. This will include - - (a) Experience , (b) Present Worth, (c) Future Usefulness and (d) Choice.

3. Confidence of students to learn and achieve is important no matter what the content is. Therefore, teachers should - - (a) Help students understand their likelihood of success, (b) Provide objectives and prerequisites, (c) Help students estimate the probability of success by presenting performance requirements and evaluation criteria, (d) Allow for small steps of growth

during the learning process, (e) Provide feedback and (f) Insist Learner to take control of their learning. They should believe that their success is a direct result of the amount of effort they have put forth.

4. Satisfaction is one of the laws of learning. The conditions that enable satisfaction are - - (a) Learning must be rewarding or satisfying in some way, (b) Make the learner feel as though the skill is useful or beneficial by providing opportunities to apply, (c) Provide feedback and reinforcement and (d) do not patronize the learner by over-rewarding easy tasks.

(4) Kolb's Experiential Learning Theory

David A. Kolb's experiential leaning theory is a holistic perspective that combines experience, perception, cognition and behavior. The theory is built upon the work of John Dewey and Kurt Levin. The essence of the theory is that "learning is the process whereby knowledge is created through the transformation of experience" (Kolb, 1984, p. 38). Kolb's four-stage learning cycle includes - - (1) Concrete Experience, (2) Reflective Observation, (3) Abstraction- conceptualization and (4) Active Experimentation. The focus of the model is on the learner variables and the social context of learning is neglected in this model.

(5) Typological Approach Based on the Nature of Content

All school subjects are not identical with respect to the content and therefore, how curriculum can be transacted and evaluated are different (Rajan, 2004). It is of crucial importance for teachers of each subject to sit and deliberate on what are the different types of content area that can be classified into lesson types. Lesson types can be construed from several perspectives. Dunkin (1987) analyzed lesson formats from the point of view of classroom communication and interaction. Wittrock (1986) summarized the complexity of classroom events and the demand on the teacher in group-lessons. A few teacher educators think of lesson types as lessons that can be taught using different instructional methods. A few others consider lesson types on the basis of the focus of teaching and learning activities, i.e., teacher-centered, student-centered and content-centered. The conceptions of science teaching such as the traditional, experimental, constructivist, pragmatic, and social will also influence lesson planning (Freire & Sanches, 1992). The lesson types that are discussed here stem from the nature of the content (subject or discipline).

Teacher-trainees often find the development of lesson plan very difficult for they are not systematically exposed to the types of lessons that they will have to plan in each content area. A comprehensive and exhaustive description of the types of lesson plans in all school subjects is beyond the scope of what is attempted here. However, four types of content in physical science will be dealt here so that similar or other types can be developed in each subject of study. The different types identified in physical science are: (1) Descriptive type, (2) Inductive type, (3) Procedural type and (4) Logical relationship type (Rajan, 2004). Each type is described below.

1. In Descriptive Type, the content is mostly at the factual level. Analysis of content of this type reveals that there are so many facts in the content area with a minimum of concepts. The content demands verbal description and there is little scope for demonstration.

2. Inductive Type lessons are typical for they contain a set of facts, which lead to concept and generalization. Several content area fall under this category. The method of induction proposed by Francis Bacon and systematized by John Stuart Mill is used in this type of lesson planning (Mill, 1949).

3. In Procedural Type, a standard procedure is detailed in a particular sequence. The content usually contains a few facts to be arranged in a sequence which invariably involve a diagram and a procedure to be adopted in the process (e.g., laboratory preparation gases).

4. In Logical Relationship Type, the content is of higher level involving relationship among concepts. The content can be a principle or a law involving mathematical concepts such as proportionality, equality or variations. More often than not, these content areas are dealt at an abstract level in textbooks and teacher trainees find it difficult to select appropriate learning experience. On several occasions, teacher-trainees resort to deductive approach which may cause too much of information processing load on the part of the learner. Much attention is to be paid in helping teacher-trainees both in selecting and sequencing learning experiences.

The four types mentioned above entail different levels of planning. That is, the pre-requisites, learning experiences, method of instructions and home assignments have basic differences in the four types. The role of pre-requisite in the Logical Relationship Type is much more crucial than the other types. The selection of learning experience is simple in all types except the Logical Relationship Type. The home assignments can have variety of items in Inductive and Logical Relationship type but Descriptive and Procedural types involve mostly items to be recalled.

Most of the content areas in high school physics and chemistry will fall in either of the above four categories or a simple combination of one or more categories. Teacher-educators will have to identify types of lesson plans in their areas of specialization and must positively incorporate the types in the discussion of lesson plans. A thorough content analysis and identification of types of lesson plans are essential for an effective pre-service training of the teachers. Although the instructional methods aim at the realizations of objectives, the content types set limitations on curriculum transaction. An awareness of the structure of the content in a way helps for a better preparation of the teacher-trainees in the task of lesson planning.

II Focusing on Objectives of Instruction

Objectives are the foundation upon which lesson plans and assessment techniques can be developed. Objectives define the behavioural changes expected of the learner as a result of instruction. The objectives are formulated as the first step in developing lesson plans. The learner variables such as aptitude, interest, culture and social context of learning are not of primary concern in this approach. However, the emphasis on the Outcome-Based Education (OBE) or Measurement Driven Instruction (MDI) has de-emphasized some elements of learning that are not endorsed by the assessment procedure (Barnes, Clarke & Stephens, 2000). This category includes - - (1) Bloom' Taxonomy, (2) McCormack & Yager Taxonomy and (3) Objectives of Critical Pedagogy.

(1) Bloom's Taxonomy

The initiative in developing taxonomy gathered momentum in 1948 in the convention of the American Psychological Association in Boston. The participants were interested in developing a theoretical framework for the purpose of writing test items for evaluation. Several meetings were held during 1948-1953 to develop a taxonomy which resulted in the popularly known taxonomy of educational objectives (Blooms, 1956). According to Bloom's Taxonomy, behavioural changes of individuals resulting from instruction can be classified into three domains - - (1) Cognitive, (2) Affective and (3) Psychomotor. Although, the taxonomy was primarily developed to write test items, it became the pivot of lesson plan development which dominated the teacher education field for almost half-a-century in India. Several educationists have developed taxonomies for the psychomotor domain (e.g., Dave, 1970; Harrow, 1972; Simpson, 1972). In the 1990s Lorin Anderson, a former student of Bloom along with David Krathwohl, one of Bloom's original partners, worked to revise the original taxonomy (Anderson & Krathwohl, 2001; Krathwohl, 2002). They changed the category names from nouns to verbs, and switched the Evaluation and Synthesis levels in the hierarchy of Cognitive Domain.

(2) McCormack & Yager Taxonomy

McCormack and Yager (1989) proposed a new taxonomy of science education which includes five domains - - (1) Knowledge, (2) Process, (3) Creativity, (4) Attitudinal and (5) Application. The focus of this taxonomy is to help learners know how scientists develop new knowledge, methods of science and to instil an interest in conducting scientific enquiry. The process domain of this taxonomy draws heavily from the Science A Process Approach (SAPA, 1966) of the American Association for Advancement of Science (AAAS).

(3) Objectives of Critical Pedagogy

Paulo Freire, the Brazilian educator (1921-1997), in 1968 published the book titled Pedagogy of the oppressed in Portuguese. The book was translated at published in English in 1970. He lays out the dynamics of oppression and uncovers secretes of the oppressors in his book (Freire, 2000). The book is one of the foundation texts in the field of critical pedagogy which attempts to help students question and challenge domination, beliefs and practices that dominate. The theory envisages a transformed world through a kind of educational system, which enables people to get involved in social issues, analyse them critically, discuss them in a democratic atmosphere and achieve a deepened awareness of socio-cultural reality that shapes their life. This approach gave rise to Issue-Based Instruction (IBI).

The IBI or Problem-Based Approach (PBA) addresses certain areas of concern such as lack of vision as a universal citizen, lack of development of work competency, lack of awareness of cultural heritage and independence, lack of scientific perspective on health, lack of scientific land and water management, lack of eco-friendly industrialisation and urbanisation, negligence of marginalised sections, state of negligence towards agricultural heritage, etc. The classroom transactions should be centred on any one or more of the issues or problems. Learners can be lead to various sub-problems by using different strategies, which arouse critical thinking in them. The steps in critical pedagogy are - - - (1) Context, (2) Vocabulary, (3) Codification, (4) De-codification, (5) Dialogue and (6) Praxis. This approach promotes dialogue mode in teaching-learning process (Rajan, Sindhu, George, Netto, & Sajan , 2010).

III Grounded in Psycho-social Theories

Lesson Planning approach in this category deals with psycho-social theories. These theories includes (but not limited to) - - (1) Cognitive Constructivism, (2) Social Constructivism and (3) Theory of Multiple Intelligence.

(1) Cognitive Constructivism

Cognitive constructivism is based on the work of the developmental psychologist Jean Piaget. Piaget's theory has two parts - - (1) dealing with what children can and cannot understand at different ages and (2) a theory of development that describes how children develop cognitive abilities. In connection with the process of learning Piaget suggests that humans cannot be 'given' information which they automatically understand and use, they must 'construct' their own knowledge (Piaget, 1964; 1973). They have to build knowledge through experience. Several psychological constructs such as assimilation, accommodation, disequilibrium, equilibration, organization, adaptation, maturation and activity are all components of this influential theory (Hurlock, 1997; Woolfolk, 2004). The focus of cognitive constructivism is on the learner and his/her psychological capabilities.

(2) Social Constructivism

Social constructivism is a theory developed by the psychologist Lev Vygotsky. Vygotsky's theory is very similar to Piaget's assumptions about how children learn, but he places more emphasis on the social context of learning (Vygotsky, 1978; 1988; Shaffer, 1996; Woolfolk, 2004). Infants are born with a few elementary mental functions such as attention, sensation, perception and memory that are eventually transformed by the culture into new and more sophisticated mental processes. According to the social constructivists students can, with help from adults or children who are more advanced, grasp concepts and ideas that they cannot understand on their own. Social constructivism encourages the learner to arrive at his/her own version of truth, influenced by his/her background, culture or embedded world view. In this context, Zone of Proximal Development (ZPD) and scaffolding are important in the learning process (Rajan, 2010; 2013a; 2013b). Social constructivism acknowledges the role of context of learning in the process of learning.

(3) Theory of Multiple Intelligence

Planning of Lesson must take into consideration Multiple Intelligences of the learner (Gardner, 1993; Lind, 1997; Lazear, 2003; Armstrong, 2009). Multiple Intelligence (MI) theory suggests use of diverse teaching strategies and materials in teaching and learning processes. The guideline in this framework addresses the cognitive components of intelligence which are to be satisfied. That is, during an academic year, lessons should be planned in such a way that all students can have their strongest intelligences addressed at least some of the time.

Armstrong (2000) suggested seven steps in creating MI lesson plans. The steps are - - (1) Decide on the topic/objective, (2) Relate the topic with nine intelligences, (3) Consider the possibilities of using different techniques and materials appropriate for developing different intelligences, (4) Brainstorm the various alternatives to generate a minimum of two ideas to address each intelligence, (5) Select appropriate activities taking into account the infrastructure facilities of the school/classroom, number of students in the class and time available, (6) Set up a

sequential plan of action to address each intelligence and (7) Implement the plan. While trying to relate the topic with nine intelligences (Step 2), several probing questions should be asked. For example, how can I use spoken or written words? (Linguistic Intelligence), how can I bring in logical thinking skills or classifications? (Logical-Mathematical Intelligence), How can I use visual aids? (Spatial Intelligence), How can I bring in a rhythmic or melodic framework? (Musical Intelligence), How can I use hands-on experience? (Bodily-Kinesthetic Intelligence), how can I engage students in peer sharing or co-operative learning? (Interpersonal Intelligence), How can I evoke personal feelings or give students choices? (Intrapersonal Intelligence), How can I relate the topic with natural phenomena or living things? (Naturalist Intelligence) and How can I address current controversies in science? (Existential Intelligence). Although the MI theory seems to be appealing, there is a strong argument that these intelligences are not mutually exclusive.

IV Comprehensive Models of Lesson Planning

Comprehensive Models of Lesson Planning have taken into consideration most of the aspects of teaching-learning process. These models have given a framework that is generic which can be attempted by novice and experienced teachers. This category includes - - (1) Herbartian Steps of Lesson Planning, (2) Hunter Model of Lesson Planning and (3) Inclusive Lesson Planning Model.

(1) Herbartian Steps of Lesson Planning

The first name associated with Lesson planning is that of John F. Herbart (1776-1841). Herbart's theory of education is based on the assimilative function of mind. This assimilative power of mind to him is the apperception. Apperception implies the linking up of new experiences with the old (Purkait, 1995). The principle of apperception suggests two important processes in learning, viz., absorption and reflection. Absorption stands for clearness and association, and reflection involves system and method. Thus, Herbart suggested four steps in the educative process. They are: (1) Clearness, (2) Association, (3) System and (4) Method. Later, Herbart's disciple, Ziller, divided the step clearness into two - - (1) preparation and (2) presentation. The other three steps were renamed (Purkait, 1995). Thus, the five steps of lesson planning are - - (1) Preparation, (2) Presentation, (3) Association/Comparison, (4) Generalisation/Systematisation and (5) Application (Ozmon & Craver, 1986). However, several authors have added recapitulation to make six Herbartian steps in developing a lesson plan (e.g., Maitra, 1991; Kohli, 1986; Joseph, 1982). The main problem in delineating the Herbartian steps is that none of the authors have indicated the source from which they have drawn this information. This is a problem in writing and will not be elaborated here. The details of these six steps are available in any textbook on teaching (e.g., Kohli, 1986; Maitra 1991; Das; 1985; Rajan, 1999; Rajan, 2004; Vaidya, 1971).

(2) Hunter Model of Lesson Planning

Hunter's Instructional Theory into Practice (ITIP) model suggest seven steps to lesson planning. They are - - (1) Learning Objective (on the basis of task analysis), (2) Anticipatory Set (motivate focussing on task and or prior knowledge/experience), (3) State Lesson Objectives of learners, (4) Input (introduce main concepts/skills using examples/diagrams and inviting student participation), (5) Check for understanding (make modification based on immediate feedback),

(6) Provide guided practice (asking questions and solving problems) and (7) Independent Practice (to solidify skills and knowledge). However, these seven steps are not mandatory to develop each lesson (Hunter, 1982, 1994; Mishra, 2008; Mollica, 1994; Boudah, Deshler, Schumaker, Lenz & Cook, 1997; Skowron, 2001; Chatel, 2002). Although Hunter's method gives insight about how to structure a lesson, it omits guidance around individual students, needs and strengths, behaviour management, student support, etc.

(3) InclusiveLesson Planning Model

The inclusive lesson planning Model addresses the diverse needs of the learner. The model includes six sections (Causton-Theoharis, Theoharis & Trezek, 2008). Each of the six section is detailed here because this model appears to be more comprehensive compared to other models referred above.

(1) Lesson Context. This involves Description of Grade Level/School, Demographics, unique characteristics, Subject, Unit, Duration of the Lesson, Student Background Knowledge, Target Students (academic, behavioural and/or social range of learners) such as - - (a) background, (b) like/dislikes, (c) intelligences, (d) strengths, (e) communication, (f) behaviour, (g) academic performance, (h) social information, (i) concerns, and (j) other pertinent information.

(2) Lesson Content. This deal with Lesson Goal, Content Differentiation (to make it appealing to students with different levels of knowledge about this content), Whole-class and Multi- level Lesson Objectives.

(3) Lesson Product. This discusses the outcome of learning such as Product Differentiation, Authentic Assessment (Work samples, song, play, photo, essay, mural, article, demonstration of a skill, individual and or group presentation.

(4) Lesson Process. This incorporates - - (a) Process Differentiation, (b) Lesson Formats (Demonstrations, experiential learning, group investigation, games, simulations, multi-media, presentation, mini-lecture, peer dialogues, etc), (c) Room Arrangement (physical access, rules, expectations, noise level, etc), (d) Student Arrangement (Small groups, cooperative partnerships, cross-age pairings, active learning strategies, etc), (e) General Teaching Strategies, (f) Student Specific Teaching Strategies (Pre-teaching, adjust pacing, sequence, repetition of key points or directions, periodically check performance, reduce or increase complexity, functional applications, physical guidance, pair verbal instruction with other modes of input, adjust behaviour management), (g) Systems of Support and Supervision (Options for co-teaching, alternative teaching, split class with same content, team-teaching, etc).

(5) Lesson outline. This section details - - (a) Sequence of Lesson (such as Engage, Explore, Explain, Apply), (b) Behavioural Considerations (Setting expectations, praising desired behaviour, purposeful partnering, increasing student responsibility, individual behaviour plan, more or different type of support, choice, proximity, scheduled breaks, voice/tone, incentives, etc), (c) Introduction, Body, actual time each segment will occur, Sequence of steps, questions prepared, Closure , Materials and Assistive Technologies.

(6) Reflection on teaching. Reflection by the teacher is very important in any type of teaching. The teacher must reflect on - - (a) time, (b) Sequence of steps, (c) Students who are different and alike, (d) Students' words and/or reaction to the content, (e) Student learning, (f) Student engagement and participation, (g) effectiveness of planning, preparation and teaching, (h) Educational theories that guided decision making process and (i) Use of technology

Conclusion

A variety of lesson planning formats and approaches are available as described in this paper. However, a ten-step lesson plan format is common in the state of Kerala. The ten steps are - - (1) General Information, (2) Content Analysis, (3) Statements of Instructional (Curricular) Objectives, (4)Pre-requisites/Previous Knowledge/Entry Behaviour, (5) Teaching Aids/instructional materials, (6) Preparation/Introduction/sensitization, (7) Presentation/Learning Activities, (8) Application, (9) Review/Recapitulation and (10) Assignments. The details of these steps although named differently are available in any textbook on teaching (e.g., Rajan, 1999; 2004).

The dominant model of lesson plan in any teacher education program leads to a limited view of teaching-learning process and a restricted approach to 'learning to teach.' All the steps in the dominant model lead to or emerge from the aims and objectives in a linear pattern (John, 2006). There are various reasons for such a definite (dominant) model in the lesson planning. The important reason can be summarised as - - (1) teacher educators feel more comfortable with a unified agreed-upon format, (2) the model creates grater equity in terms of teacher-trainees experience, (3) teacher educators gain a control to manage, assess and direct the process of lesson planning since all students are required to follow the same procedure and (4) so called professional organisations' hegemony demand a uniformity in lesson planning.

How to plan a lesson remains a problematic but crucial topic for teacher education programs. The ideas presented in this paper are intended to encourage teacher educators to refrain from imposing a linear structure on the planning of lesson which is against the principle of flexibility. Also, teacher-trainees should be exposed to a wide range of possibilities to develop a lesson so to enable them to personalise their own lesson plan.

References

Anderson, L. W., & Krathwohl, D. R. (Eds.). (2001). *A taxonomy of learning, teaching, and assessing: A revision of Bloom's taxonomy of educational objectives*. New York: Lonman.

Armstrong, T. (2000). *Multiple Intelligence in the classroom* (2nd ed.). Washington, D.C.: Association for Supervision and Curriculum Development.

Armstrong, T. (2009). *Multiple intelligence in the classroom*. (3rd ed.). Alexandria: ASCD.

Barnes, M., Clarke, D. and Stephens, M. (2000) Assessment: the engine of systematic curriculum reform. *Journal of Curriculum Studies,* 32(5), 623–600.

Bloom, B. S. (Ed.). (1956) *Taxonomy of Educational Objectives: The classification of educational goals, Handbook I: The Cognitive Domain.* New York, NY: David McKay.

Boudah, D., Deshler, D., Schumaker, J., Lenz, K. & Cook, B. (1997) Student centered or content-centered? A case study of a middle school teacher's lesson planning and

instruction in inclusive classes, *Teacher Education and SpecialEducation,* 20(3), 189–203.

Causton-Theoharis, J. N., Theoharis, G. T., & Trezek, B. J. (2008). Teaching pre-service teachers to design inclusive instruction: A lesson planning template.*International Journal of Inclusive Education*, 12(4), 381-399,

Chatel, R. G. (2002) *Lesson Planning & Analysis: Including Analysis of Implementation & Samples of Student Work.* ERIC Document Reproduction Service No. ED459469. Bloomington, US Department of Education Office of Educational Research and Improvement.

Clark, C. M., & Peterson, P. L. (1990). *Teacher thought processes*. New York: Mac Millan Publishing Company.

Das, R. C. (1985). *Science teaching in Schools* (rev. ed.), New Delhi: Sterling Publishers Private Limited.

Dave, R. H. (1970). Psychomotor levels. In R. J. Armstrong (Ed.). *Developing and writing behavioural objectives*. Tucson, AZ: Educational Innovators Press.

Dunkin, M. J. (Ed.) (1987). *The international encyclopedia of teaching and teacher education*. Oxford: Pergamon Press.

Freire, A. M., & Sanches, F. C. C. (1992). Elements for a typology of teachers' conceptions of physics teaching, *Teaching and Teacher Education*, 8(5-6) 497–507.

Freire, P. (2000). *Pedagogy of the oppressed* (30th ed.). UK: Bloomsbury Academic.

Gagné, R. M. (1970). *The Conditions of Learning.* New York: Holt, Rinehart, & Winston.

Gardner, H. (1993). *Frames of mind: The theory of Multiple Intelligence* (10th ed.). New York: Basic Books.

Good, C. V. (Ed.), (1945). *Dictionary of Education*. New York: Mc Graw Hill Book Company Inc.

Gupta, S. K. (1985): *Teaching Physical Sciences in Secondary Schools* (rev. ed.). New Delhi: Sterling Publishers Private Limited.

Harrow, A. J. (1972). *A taxonomy of the psychomotor domain: A guide for developing behavioural objectives*. New York: David McKay Co.

Hunter, M. (1982) *Mastery Teaching: Increasing Instructional Effectiveness in Elementary and Secondary Schools, Colleges, and Universities.* Thousand Oaks, California: Corwin.

Hunter, M. C. (1994). *Enhancing teaching*. UK: Macmillan College Publishing Company.

Hurlock, E. B. (1997). *Child development* (6th 3ed.). New Delhi: Tata McGraw-Hill Publishing Company.

Irvine, J. J., & Armento, B. J. (2001). *Culturally responsive teaching: Lesson planning for elementary and middle grades*. Boston: McGraw Hill.

John, P. D. (1991) Course, curricular and classroom influences on the development of student teachers' lesson planning perspectives. *Teaching and Teacher Education,* 7(4), 359–373.

John, P. D. (1992). *Lesson Planning for Teachers.* London: Cassell.

John, P. D. (1996). Understanding the apprenticeship of observation in initial teacher training: Exploring student teachers' implicit theories of teaching and learning. In G. Claxton, T. Atkinson, M. Osborn & M. Wallace (Eds.), *Liberating the Learner: Lessons for Professional Development in Education.* London: Routledge, 90–108.

John, P. D. (2000) Awareness and intuition: how student teachers read their own lesson. In T. Atkinson and G. Claxton (Eds.), *The Intuitive Practitioner.* London: Open University Press, 84–107.

John, P. D. (2006). Lesson Planning and the student teacher: Rethinking the dominant model. *Journal of Curriculum Studies*, 38(4), 483-498.

Joseph, T. T. (1982). *Modern trends in science education* (2nd ed.). Kottayam, Kerala: Author.

Keller, J. M. (1983). Motivational design of instruction. In C. M. Reigeluth (Ed.), *Instructional-design theories and models: An overview of their current status*. Hillsdale, NJ: Lawrence Erlbaum Associates.

Keller, J. M. (1984). The use of the ARCS model of motivation in teacher training. In K. Shaw & A. J. Trott (Eds.), *Aspects of Educational Technology Volume XVII: staff Development and Career Updating*. London: Kogan Page.

Keller, J. M. (1987). Development and use of the ARCS model of motivational design. *Journal of Instructional Development*, 10(3), 2-10.

Keller, J. M. (1999b). Using ARCS motivational process in computer-based instruction and distance education. *New Directions for Teaching and Learning*, 78, 37-47.

Keller, J. M. (1999a). Motivational systems. In H. D. Stolovitch & E. J. Keeps (Eds.), *Handbook of human performance technology* (2nd ed., pp. 373–394). San Francisco: Jossey-Bass.

Kohli, V. K. (1986). *How to teach science.* Ambala City, Haryana: Vivek Publishers.

Kolb, D. A. (1984). *Eexperiential learning: Experience as the source of learning and development*. New Jersey: Prentice-Hall, Inc.

Krathwohl, D. R. (2002). A revision of Bloom's taxonomy: An overview. *Theory into Practice*, 41(4), 212-218.

Ladson-Billings, G. (1994). *The Dreamkeepers: Successful Teachers of African American Children.* San Francisco: Jossey-Bass Publishers.

Lazear, D. G. (2003). *Eight ways of teaching: The artistry of teaching with Multiple Intelligences* (4th ed.). Arlington Heights, IL: Skylight Training and Pub.

Linda, C. (1997). How teachers interpret MI theory, *Educational Leadership*, 55(1), 14-19.

Maitra, K. (1991). *Teaching of physics*. New Delhi: Discovery Publishing House.

Mc Cormack, A. J., & Yager, R. E. (1989). New taxonomy of science eduation. *Science Teacher*, 56(2), 47-48.

Means, T. B., Jonassen, D. H., & Dwyer, F. M. (1997). Enhancing relevance: Embedded ARCS strategies vs. purpose. *Educational Technology Research and Development*, 45(1), 5-17.

Mill, J. S. (1949). *A system of logic* (8th ed.). London: Longmans, Green and Co.

Mishra, R. C. (2008). *Lesson Planning*. New Delhi: APH Publishing Corporation.

Mollica, A. (1994) Planning for successful teaching: the lesson outline, *Mosaic,* 1(3), 13–15.

Ozmon, H. A., & Craver, S. M. (1986). *Philosophical foundation of education* (3rd ed.). Columbus, Ohio: Merrill Publishing Company.

Piaget, J. (1964). Development and learning. *Journal of Research in Science Teaching*, 2(3), 176-186.

Piaget, J. (1973). *To understand is to invent*. New York: Grossman.

Popham, W. J. & Baker, E. L. (1970) *Systematic Instruction.* Englewood Cliffs, NJ: Prentice-Hall.

Purkait, B. R. (1995). *Great educators and their philosophies*. Culcutta: New Central Book Agency (P) Limited.

Rajan, K. M. (1999). *Perspectives in physical science teaching.* Kottayam: Vidyarthi Mithram.

Rajan, K. M. (2004). *Science of science education*. Mannanam, Kottayam: St. Joseph's Training College.

Rajan, K. M. (2010) Constructivism: An approach to classroom practice. *Pedagogics*, 8(1), 64-68.

Rajan, K. M., Sindhu B. S., George, J., Netto, S. G., & Sajan, R. K. (2010). *Teaching of Physical Science: Theory, Perspectives & Practice* (2nd rev. ed.). Mannanam, Kottayam: St. Joseph's Training College.

Rajan, K. M. (2011). Phenomenological primitives and learning of science. *Journal of Indian Education*, 37(1), 64-71. ISSN: 0972-5628

Rajan, K. M. (2013a). Constructivist classroom: A Pandora's box. *Journal of International Academic Research for Multidisciplinary, 1(3), 120-125,* (Online ISSN: 2320-5083).

Rajan, K. M. (2013b). Teacher education curriculum and pedagogical practices in schools: Putting the cart before the horse? *Asian Academic Research Journal of Social Sciences and Humanities*, 1(12), 24-30. (ISSN 2278 – 859X).

Rajan, K. M. (2013c). Exploratory study of misconceptions of grade VII students in science. *The Ground Builder: An Attempt to Recast Quality Education*, 2(1), 17-26.

Sadler, P. M., Sonnert, G., Coyle, H. P., Cook-Smith, N., & Miller, J. L. (2013). The influence of teachers' knowledge on student learning in middle school physical science classrooms. *American Educational Research Journal*, 50(5), 1020-1049.

SAPA (1966). *Grade Teacher*, 83(5), 59-79, 113.

Shade, B. J., Kelly, C. A., & Oberg, M. (1997). *Creating culturally responsive classrooms*. Washington, DC, USA: American Psychological Association.

Shaffer, D. R. (1996). *Developmental psychology* (4th ed.). California, USA: Brooks/Cole Publishing Company.

Sharma, R. C. (1996). *Modern science teaching*. Delhi: Dhanpat Rai Publishing Company (Pvt.) Limited.

Sharma, R. C., & Sharma, D. N. (1971). *Teaching of science* (5th ed.). Delhi: Dhanpat Rai & Sons.

Simpson, E. (1972). *The classification of educational objectives in the psychomotor domain.* Washington, DC: Gryphon House.

Skowron, J. (2001) *Powerful Lesson Planning Models: The Art of 1,000 Decisions* Arlington Heights, IL, Skylight Professional Development

Soman, K. (1987). *Udheshyadhishtitha bothanam* (Malayalam) (3rd ed.). Trivandrum: State Institute of Languages.

Stigler, J. W., & Stevenson, H. W. (1991, spring). How Asian teachers polish each lesson to perfection. *American Educator*, 12-20, 33-37.

Sukumaran Nair, R. (1982). *Boutika Sastra Bodhanam* (Malayalam) (2nd ed.) Trivandrum: Kerala State Institute of Languages.

Thurber, W. A., & Collette, A. T. (1964). *Teaching science in today's secondary schools* (2nd ed.). New Delhi: Prentice-Hall of India Private Limited.

Tyler, R. W. (1949). *Basic Principles of curriculum and instruction*. Chicago: The University of Chicago Press.

Vaidya. N. (1971). *The impact science teaching*. New Delhi: Oxford & IBH Publishing Company Private Limited.

Vygotsky, L. (1978). *Mind in society: The development of higher psychological processes*. London: Harvard University Press.

Vygotsky, L. (1988). *Though and language*. London: MIT Press.

Willis, J. (1996). *A framework for Task-Based Learning.* UK: Longman.

Wittrock, M. C. (Ed.) (1986). *Handbook of research on teaching* (3rd ed.) New York: Mc Millan Publishing Company.

Woolfolk, A. (2004). *Educational psychology* (9th ed.). New Delhi: Pearson Education.