

A STUDY OF INNOVATIONS IN INSTRUCTIONAL STRATEGIES AND DESIGNS FOR QUALITY ENRICHMENT IN HIGHER EDUCATION

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Abstract

The present era is an era of academic globalization. Though internationalism in education has been age old, the current wave has a new aspect i.e. augmenting, collaboration & co-operation. We are living in a rapidly changing time. Actually, change is the basic/fundamental rule of nature but this change is always purposeful & provides various new opportunities & makes a co-ordination with emerging trend. In the same way, change is also required in the form of innovations in the instructional strategies and designs, which should be fruitful & lucrative for entire education system. Instructional strategies that influenced teachers' attitudes toward initiating and sustaining change in their practice. Instructional strategies in the professional development course are successful in affecting teachers' attitudes toward initiating and sustaining change in their practice. However, the power of Instructional strategies to influence teachers' attitudes is not inherent in the strategy itself. The course was developed using a new model, The Reflective Conceptual Model (Ray, 2007), and followed the steps in the process. The application of the process allowed the power of instructional strategies to increase exponentially. The reflective mirrors in design path one and design path two enabled the exponential increase of the power of the instructional strategies through application of identified learners' needs and insertion of characteristics of successful innovations. The power of Instructional strategies (IS) can be increased exponentially through the innovative Instructional design of the course. This rapid and constant change is due to government policies, privatization, liberalization & globalization (LPG) of education, increasing competition, invasion by foreign university & emergence of knowledge society. Due to this change, teaching-learning process have become very typical & complex job. In this process, different instructional strategies, methods, materials are used. Selection of all these depends upon the individual difference, mental ability & nature of work of learner.

In this themed issue, "Innovation in Instructional Strategies & Design," the editors hope to show the types of innovation in instructional strategy as well as methodologies to study impact of innovation continue to show variety and ingenuity. In this article, the editor tried to explain (a) need of innovation (b) summarize the definitions extent in the literature (c) briefly describe several taxonomies for innovation (d) various innovative instructional strategies (e) discuss the implications for teacher for instructional strategies and design. In teacher education, research and practice. The challenge is available to all the learners in all venues of education to assess their practices according to a defensible rubric that will determine its innovativeness. This article is to make us aware as teachers to use the different innovative instructional strategy (IS) for teaching, enhancing and enriching the quality of higher education system.

Keywords: Augmenting, Collaboration, Strategies, Lucrative, Exponentially, Simulated, Pedagogies, Ingenuity, Implications, Rubric.

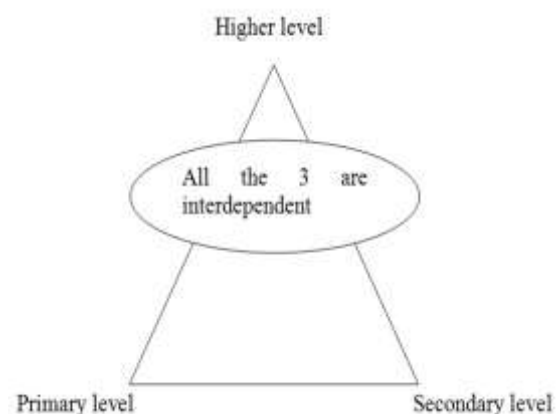
Introduction

"Tell me and I forget. Show me and I remember. Involve me and I understand"

.....Chinese Proverb

Education is the most important factor to progress the country. It is important not only for the full development of one's personality, but also for the sustained growth of the nation. Basically, Indian education system compound of three components and they are primary education, secondary education and higher education. The educational structure in India is generally referred to as 10+2+3 pattern. Here, we are only concern with +3 stage/level which involves college education and above level, the student goes for higher and research in his chosen field of the subject. Indians claims to have the second largest higher education system in the world. The educational structure in India which

operates at all conceivable levels from pre-school to post doctoral of monumental proportions.



Three Pillars of Indian Education System

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Multiple sources of influence impact the decisions about what and how teacher educators are expected to operate, including the innovations that are adopted. Some of those sources of influence (such as teacher certification boards) can demand that certain curricula be adopted, specific instructional procedures be utilized, and delineate the conditions under which candidates will be selected for entry into teacher education programs. Other sources of influence include how other professionals are prepared (e.g., case-based or problem-based learning from legal and business preparation, constructivist teaching methods derived from educational psychology). Issues involving innovation in teacher education have been studied by education researchers, reformers, and practitioners. For example, in a seminal work, Lilly (1973) wrote, "A first premise is that the technical soundness of an innovation as demonstrated by educational research is seldom necessary and never sufficient to guarantee adoption of that innovation by educational practitioners . . . consider the success of educational innovations [between 1960-1970], some proving successful (Sesame Street) and others apparently dying on the vine (performance contracting)" (p. 227).

Since then, some teacher educators have evaluated instructional innovation (e.g., Barrell, 1996), and in 1996, an entire issue of *Teacher Education Quarterly* was devoted to innovative colleges of education. Other researchers have studied team teaching in teacher education (Cruz & Zaragosa, 1998); teacher educators' beliefs about professional development schools (De Witt, Birrell, Cook, Ostlund, & Young, 1998); alternative teacher education programs such as school-university partnerships (Benton and colleagues, 1996). However, Melvin (1993) calls for more concerted efforts to study the influence of professional studies by faculties of education on actual practice in classrooms and schools.

Kenneth Zeichner, a past president of the Teacher Education Division of the American Educational Research Association, traced the types of scholarship in which teacher educators typically engaged between 1978 and 1999. He stated that the "new scholarship in teacher education is a much richer and more varied body of inquiry than that which existed 20 years ago" (p. 8). In addition to studies of the nature and impact of teacher education innovative practices such as electronic technologies, field-based programs, interdisciplinary or subject specific methods courses), methodologies have included case studies, narrative and life history methods, action research, life history and autobiographical methods (p. 11).

In this themed issue, "Assessing Innovation in Teacher Education," the editors hope to show that the types of innovation in teacher education as well as methodologies to study impact of innovation continue to show variety and ingenuity. In this article, the editors (a) need of innovation (b) summarize the definitions extant in the literature, (c) briefly describe several taxonomies for innovation, (d) discuss the implications for teacher education research and practice.

What is Innovation?

The history of Mankind, our history, is a history based on innovation. Innovation is a process of incorporating new ideas through the conversion of new knowledge & creativity into new services. It is more about creating value and increasing efficiency, which leads to improved engineering, technology, methods, state of mind and organization. It is journey, not a destination and considered as a spark that keeps people moving ever forward vertically. We have no choice other than to carry on learning and improving ourselves. Innovation means venturing away from familiar ground into uncharted territory. With the aim of somehow discovering something better in the uncharted territory than on the familiar ground. Innovation is above all spurred by entrepreneurial action, aimed at creating & delivering value through the application of knowledge. What makes innovation unique as a educational process is that creativity and routine are intertwined through out the process.

Invention + Implementation = Innovation

Moreover, the term **innovation** means a new way of doing something differently. It may refer to incremental, radical, and revolutionary changes in thinking, processes or organizations. A distinction is typically made between Invention, an idea made manifest, and innovation, ideas applied successfully. (McKeown 2008). A more exhausted definition of innovation is "the introduction of new ideas & practices which are intended to be useful & valuable." The main driver of innovation is often the courage and energy to create a better world. An essential element of innovation is its application in a commercially successful way. Logical and proper use of innovation always brings fruitful and desired changes in the respective field. User proclaims it with good intent and enthusiasm. The goal of innovation is positive change, to make someone or something better. Innovation leading to increased productivity is the fundamental source of increasing wealth in an economy. Colloquially, the word "innovation" is often used as synonymous with the output of the process.

The innovation in instructional strategy (IS) of transnational education like internet based distance

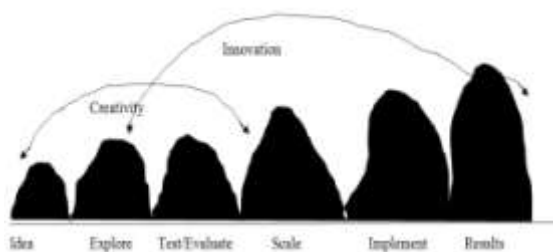
learning, for brightest brain enriches the higher education system and have greatly expanded opportunities for learners. Innovation in Instructional strategy (IS) would lag without IT. Today, learners frequently interact with cyber world. It has proved the way for potential improvement in the quality of higher education., by carrying out the reasoning and thinking ability, judgment and decision making, self-concept and value education and along with scientific trends. It has helped, spread, improved and maintain the quality of higher education to every nook and corner.

Creativity and Innovation

Innovate (in'o-vat), v.t. to renew; to introduce as something new. v.i.to introduce novelties: to make changes. (Chambers 1989)

Create (Kre-at),v.t. to bring into being or from out of nothing; to bring into being by force of imagination; to make produce, or form: to design: to invest with new form, character: to institute (Chamber 1989)

Creativity & Innovation overlap & Compliment each other



Creativity and innovation interdependent as we can see from this definition. However, we must understand the relationship between these two words while creativity (or innovation) tends more towards something totally new. innovation relates to renewal, changing and bringing about synergy. It also refers to the viability and therefore, the realm of innovation is tended to wards the realization of creativity rather than just being satisfied with novelty. The relationship that creativity has with innovation is the same as that which "conceptualization" has with its realization. Innovation is necessitated by changing needs, competitive pressure and cost optimization.

Why is innovative thinking important under current condition?

Innovation helps teacher to:

- Find creative ways of keeping the same level of service without using the same level of resources

- Retain top performers. People to get a sense of satisfaction from creating something new (breakthrough or making something better (incremental).

Today our memory is primarily driven by the laws of the free market. So a teacher needs to churn out innovations constantly, otherwise the competition will leave him standing back. If a teacher comes up with little or no innovation, then he is unable to deliver teaching activity effectively and anyhow desired educational objective can be achieved. Consequently, his work life cycle will be short. So, developing innovation always entails provision of resources as well, and making a long-term investment of critical thoughts to make services alive.

How does innovation happen?

Because innovation is so important, innovation must be one of the core processes of every institution. In reality this is not always the case. Everybody must all contribute towards the innovation process and experience it together. If this is the case, all those involved will get together to pool their requirements. Each party must understand the concerns of the others, while at the same time promote their own. Only with the courage to deal with this chaos will the ultimate result be a success, creating something innovative things.

Need of Innovations in Teacher Education

The teaching and learning of education is a complex activity and many factors determine the success of this activity. The nature and quality of instructional material, the presentation of content, the pedagogic skills of the teacher, the learning environment, and the motivation of the students are all important and must be kept in view in any effort to ensure quality in teaching learning. Education in its broadest sense presupposes a better understanding of teaching and learning. On one side, teachers are supposed to be able to impart their knowledge through the many approaches, methods and techniques at their disposal. Teaching, for instance, requires a basic skill in explaining abstract concepts. Abstract thinking is one of the skills to be introduced to students at an early stage of learning this science. In India, however, studies has often been cited as a "monster" that troubles the students' progress in learning for a higher level of education. On the other, students particularly those who will continue their studies to a tertiary level are confronted with the various problems of life. They lack books, especially the translated texts, and other learning aids. Unlike in advanced countries, the students in India entirely depend on the explanation given by their teachers. This is especially true of learning as the basic science to

further their studies.

In reality, there is a big chasm between teachers and students. Teachers believe that they can produce a change of behavior, as is defined in the process of learning, after explaining everything about complex concepts. Students, on the other hand, feel that they have not learned enough from their teachers. As a result, there is a kind of “tug of war” between the two parties. The question is which party should be given more treatment, the teachers or the students.

For the feasible purposes, teachers should be given more training and knowledge on how to teach. Part of the solution is that the teachers should change their perception about their students. Students are no longer “containers to be filled”, instead they are curious people with much potential to learn anything new. What is needed today is the cooperation between teachers and students in finding solutions to the problems of teaching and learning. Both parties must realize the importance of sharing and exchanging experiences. Teaching must be very interesting that can help the students solve the many problems they face. Teachers can no longer boast of their overt knowledge. Students can be expected to contribute to the understanding of this science. The old saying “a teacher knows better” is no longer applicable.

Teaching students who do not have a very strong background in subject is always challenging. This experience is also extremely rewarding when these students begin enjoying the journey, which leads to mastering the concepts. The main purpose is to determine if the use of innovative methods of teaching including the technologies associated with modern computing enhances learning.

Definitions of Innovation

A review of the literature on innovation yields multiple definitions, components, and processes that attempt to distinguish a unique element. Characteristic to all definitions are proximal, distal, and confluent properties of innovation. The proximal properties include definitions that conjoin to individual or micro perceptions of innovation, versus distal properties that ascribe a community, or macro, perception of innovation. Thus it can be argued that if an individual learns or performs a task for the first time it may be considered innovative. This also includes tasks that may have been available to the individual yet unperformed. The distal element underscores the value of the perceived task within a community or other external validating entity. Additionally, the confluence of the proximal and distal categories of innovation highlights a dynamic synergy for both personal and public innovations.

Foremost in any treatise of innovation is the foundational lexicon or definition that anchors subsequent substantive discussions. Clapham (2003) states that "the word innovate comes from the Latin word 'innovare' which means to renew, to make new" (p. 366). Therefore, by definition, an innovation can be a renovation of a theme or a variation of an idea. The author further cites Smith (2003) who postulates that a critical component of innovation is "ideation." The notion of ideation suggests credibility to best practice research that in fact is grounded not only on ideation but also on data-based implementation. This resonates with Kostoff (2003) who suggests that "innovation reflects the metamorphosis from present practice to some new, hopefully, 'better' practice" (p. 388). Sternberg, Pretz, and Kaufman (2003) define innovation as "the channeling of creativity so as to produce a creative idea and/or product that can and wish to be used" (p. 158). Thus, an innovation may have only intrinsic value. Consequently, teachers as action researchers can discover innovative curricular, instructional, and management strategies that will effectively benefit their respective classes and may be transported to colleagues.

The concept of newness has been superimposed on the definition of innovation by Goldsmith and Foxall (2003) who posit three different qualities of newness: recency, originality, and similarity. Teacher educators have capitalized on the recency of curricular innovations, for example, by taking the leadership in implementing and evaluating whole-language, student-led individual education programs, and character education. The concepts of originality and similarity are meshed with the various approaches of positive peer culture, cooperative learning groups, and classroom communities. As Davila et al (2006) note,

"People cannot grow through cost reduction and reengineering alone . . . Innovation is the key element in providing aggressive top-line growth, and for increasing bottom-line results" (p.6)

Proximal Innovation

Rogers (1995) defines innovation in terms of its proximal, distal, and interactive associations by stating that things, ideas, or practices are perceived to be new or novel by an individual or other external entity. The onus of determining innovativeness falls to the individual perceiver as well as to the entity intending to embrace the innovation - the unit of adoption - as having deemed value to the innovation. This provides for an internal or proximal association to the perceiver. Rogers goes on to state it is of little consequence whether or not an idea is, in fact, new since its first use or discovery over time. The external or distal

objectivity allows for validation of the innovation for the individual purpose. Rogers concludes by suggesting that individualization of perception regarding "newness" will determine the individual's reaction. Hence, there is a dynamic interaction between the internal perception and affirmation of the innovation, and the external validation and the consequent reaction - thus setting into motion perhaps yet another innovation. This circular pattern of perception, internalization, reaction, action, and perception seems to provide a template for the process of initiating innovation. In fact, Kostoff (2003) resonates with Boyer (1997) when he states that innovation is characterized as "discovery of previously unknown information, discovery and synthesis of publicly available knowledge whose independent segments have not been combined and/or invented" (p. 388). Boyer's counterparts to Kostoff's categories include the scholarship of discovery and the scholarship of integration. Boyer states "knowledge is acquired through research, through synthesis, through practice and through teaching" (p. 24). Hence, this progression from research to teaching exemplifies the connectivity of innovation and the need for assessment of its outcomes.

Distal Innovation

Shavinina (2003) suggests that innovation and discoveries are central to human culture, echoing of collaborative definition of innovation advanced by Hauschildt (2003), who posits, "the success of innovation is to a great extent dependent upon the activities and abilities of individuals who enthusiastically support the new product or process" (p. 804). Hauschildt referred to these individuals as champions and promoters.

Parallels to teacher education can be easily drawn. First, innovation and discovery are embedded in the teaching and learning process in the culture of education. Second, both the teachers and students actively and intimately engage in collaboration with the curricula that address standards. Third, as champions and promoters, school administrators and parents advance the efforts of the teachers as they conduct action research and implement data-driven instruction in their classes to create instructional innovation.

Proximal and Distal Confluence

A 20th century innovator (inventor of the geodesic dome, for example), R. Buckminster Fuller (1981), described innovations in various industries such as ship building, architecture, and copper mining. He noticed that when half of the industries in a specific area have adopted an innovation, it stops being an innovation and enters a new phase. His notion is based on the distinctions between new practice and accepted practice wherein the majority of an

industry is using that method. Thus, an innovation would have to be anything that hasn't reached 50% industry penetration. Generalizing this definition to teacher education, an innovative practice in teacher education would remain an innovation until at least half of the industry has adopted the innovation. In other words, if we make a distinction between teacher education researchers' standard practices and teacher education implementers' standard practices, half of the researchers in teacher education would need to adopt the innovation and half of the implementers would have to adopt it before it would enter the next phase of accepted or standard practice where the majority of the industry has adopted the method. For public school innovations, similarly: half of the schools must adopt it. Within a specific school, half of the faculty and staff would have to adopt it.

Admittedly, this definition is daunting, but it could provide a framework to explain differences of opinion about various innovations. Consider constructivist pedagogical approaches. If you are a teacher education researcher, for example, you may have the experience that 50% of the researcher colleagues whom you know have adopted the practices of constructivist research. In comparison, other colleagues might be teacher educators who use constructivist practices and notice that less than 50% of their school of education faculty do NOT practice this method of teacher education research. Nor is it being implemented by 50% of the faculty in the local area public schools. Thus, in their experience, constructivism remains an innovation. Another example might be the teaching practices associated with cooperative group learning. Many professors in university teacher education may still practice only one method of teaching, e.g., lecture. For them, cooperative group learning in higher education is an innovative way to teach, sometimes requiring them to engage in professional development activities to learn how to use it effectively. David and Roger Johnson (2002) indicate that it can take between two and three years of conscious practice to become proficient in using cooperative group learning so as to gain the research promise of increased achievement, increased cohesiveness among members of the class, and increased social interaction and even acceptance among people with diverse opinions, ethnicities, and so on. In spite of research-based evidence attesting to these desirable outcomes, cooperative group learning remains an innovation, because it has not reached 50% industry penetration in either university or public school teaching. There are many such examples of innovation in teacher education that have yet to achieve the 50% market penetration standard: professional development schools, teaching with educational technology, use of selfstudy, inquiry-

as-stance, service-learning, socio-cultural pedagogical approaches.

Taxonomies of Innovation

The literature is replete with components, types, and elements of innovation. The various categories further advance the notion that innovation is subjective to internal and external validation. Sternberg, Pretz, and Kaufman (2003) suggest eight types of innovations based on Sternberg's propulsion model of creative innovations. The eight types of innovations include "replication, redefinition, forward incrementation, advance forward incrimination, redirection, reconstruction, re-initiation and integration" (p. 159). Teacher education innovations presented in this issue reflect this taxonomy. For example, innovation through integration can be seen in this issue in Teemant's application of socio-cultural theory to a bilingual distance education program. The innovation of reconstruction is highlighted in this issue by Whittaker, McDonald, and Markowitz, who reconstruct multicultural pedagogy to create new ways of providing instruction. In this issue the innovation of advance forward incrementation is evidenced in Sindelar, Bishop, Brownell, Rosenberg, and Connelly wherein special education teacher preparation is examined and projected in successive studies to provide viable and defensible avenues for future research.

In contrast, Robertson (1971) suggests three types of innovation: continuous innovation, dynamic innovation, and discontinuous. Continuous innovation in teacher education would include program revisions based on student outcomes assessment as recommended in this issue by Hall, Nowinski, and Smith and by Sindelar, Bishop, Brownell, Rosenberg, and Connelly and as practiced by Wong and Glass as well as Karayan and Gathercoal. Dynamic innovation is exemplified by data-based triangulation of assessments gathered from students, instructors, and field-based constituents for the purpose of program development and/or modification such as the research reported in this issue by Donnell and Harper as well as Wong and Glass. Finally, discontinuous innovation supports individual faculty efforts, perhaps through program improvement grants to produce innovation for a specific area, such as the study in this issue by McClintock, O'Brien, and Jiang in mathematics education. Moreover, the taxonomy of innovations in teacher education featured in this issue include collaborative partnerships (Sindelar et al.; Teemant; Wong & Glass; McClintock et al); professional development schools (Wong & Glass); integration of technology (Karayan & Gathercoal; Teemant); standards-based teacher education (Hall, Nowinski, & Smith); data-based professional

development (Teemant; Wong & Glass; Whittaker et al.); alternative certification (Sindelar et al); graduate follow-up programs (Whittaker et al); teacher recruitment and induction (Wong & Glass). In addition, the topic of teacher education reform and accountability is addressed by all authors.

The Innovation Candle Lights

"For a prosperous & developed India, the important thrust will be on the growth in the number of Invisible leaders & Innovative Organizations"

.....**Dr. APJ Abdul Kalam (Former President of India) Indian Innovation Awards 2005 ceremony held at vigyan bhawan on march 7, 2005**

"There is need for greater awareness amongst the people concerning some of this conceptual ideas-to have innovation as a national movement, just as pandit Jawaher Lal Nehru had always talked of the nation and society being imbued with the scientific temper that characterizes a scientific approach to the very functioning of life."

.....**MGK Menon chairman, Jury InitiativesA spot bulletin of EMPI Institute, vol,I march,2005**

"NIF (National Innovation Foundation of India) has been set up to give expression to the 94% population which has been neglected so far. They comprise of artisans, tribals farmers,the unemployed, the illetrate & the youth. In order to survive & succeed they keep on innovating. The challenge is to connect the 6% that is exposed to modern science and technology in a formal waqy with 94%."

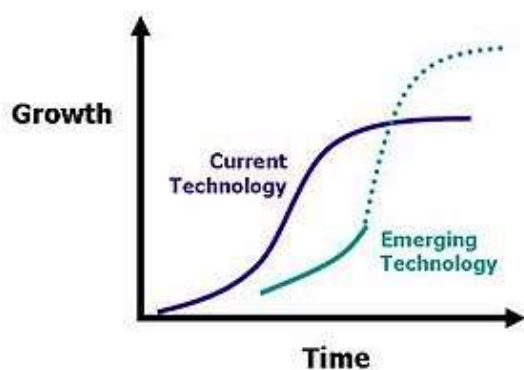
..... **R A Mashelkar Chairman of NIF:Interview Business world, 21,(36), 30, 2002**

Attributes of Innovations and Their Effects on Individual's Perception of Innovations

Attributes	Definition of Attribute	Individual's Perception of Attribute
Relative Advantage	The degree to which an innovation is perceived as better than the idea it supercedes.	The relative advantage of an innovation, as perceived by members of a social system, is positively related to adoption.
Compatibility	The degree to which an innovation is perceived as consistent with existing values,	The compatibility of an innovation, as perceived by

Trialability	past experiences, and needs of potential adopters.	members of a social system, is positively related to adoption.
Observability	The degree to which an innovation is perceived as relatively difficult to understand and to use.	The complexity of an innovation, as perceived by members of a social system, is negatively related to adoption.
	The degree to which an innovation may be experimented with on a limited basis.	The trialability of an innovation, as perceived by members of a social system, is positively related to adoption.
	The degree to which the results of an innovation are visible to others.	The observability of an innovation, as perceived by members of a social system, is positively related to adoption.

Diffusion of Innovations



Main article: Diffusion of Innovations

Once innovation occurs, innovations may be spread from the innovator to other individuals and groups. This process has been proposed that the life cycle of innovations can be described using the 's-curve'

or diffusion curve. The s-curve maps growth of revenue or productivity against time. In the early stage of a particular innovation, growth is relatively slow as the new strategy establishes itself. At some point users begin to demand and the prescribes growth increases more rapidly. New incremental innovations or changes to the product allow growth to continue. Towards the end of its life cycle growth slows and may even begin to decline. In the later stages, no amount of new ideas in that strategy will yield a normal rate of return.

The s-curve is derived from half of a normal distribution curve. There is an assumption that new ideas are likely to have "product Life". i.e. a start-up phase, a rapid increase in results and eventual decline. In fact the great majority of innovations never get off the bottom of the curve, and never produce normal returns.

Innovative person will typically be working on new innovations that will eventually replace older ones. Successive s-curves will come along to replace older ones and continue to drive growth upwards. In the figure above the first curve shows a current technology. The second shows an emerging technology that current yields lower growth but will eventually overtake current technology and lead to even greater levels of growth. The length of life will depend on many factors.

Instructional Strategy and Design

Instruction may be defined as the set of events designed to facilitate, activate and support learning in a human learner (Gagne and Driscoll, 1989). It involves creation, maintenance and appropriate adjustment of learning conditions of to meet the needs of individual learner and groups a whole. The major nine events of instruction are (Gagne and Driscoll, 1988):

- Gaining attention
- Arousing motivation/informing the learner of the objectives.
- Stimulating recall of prior learning
- Presenting the stimulus
- Providing learning guidance
- Eliciting performance
- Providing feedback
- Assessing performance
- Enhancing retention and transfer

In simple words, instruction is mainly concerned with creating the optimal conditions for learning. It involved the provision of controlled environment with which the individual will interact leading towards the attainment of certain pre-specified learning outcomes or instructional objectives.

Instructional strategy and design is a discipline that is concerned with understanding and improving one aspect of education: the process of instruction. The purpose of any strategy & design activity is to devise optimal means to achieve desired ends. Therefore, the discipline of Instructional strategy & design is concerned primarily with the prescribing optimal methods of instruction to bring about desired changes in the student knowledge & skills. Instructional strategy & design is the linking science- a body of knowledge that prescribes instructional actions to optimized desired instructional outcomes, such as effect and achievement. Besides, it is a generalized plan for lessons, which include structure, desired learner behavior, in terms of goals, instructions and an outline of planned tactics necessary to implement the strategy. A knowledge base on Instructional strategy & design is necessary to effect the change. It has become evident that the instructional strategy process is complex even more so than was formerly realized. It is composed of many interrelated parts and functions that must operate in a coherent manner in order to achieve success. This method involves the development of an overall plan incorporating the inter-related parts of an instructional process in a sequential pattern. It is called the system approach. Instructional strategy may be viewed as composed of various inter-related components functioning together to achieve a purpose. Instructional system design is, therefore, a three phase process of establishing precise and useful objectives, planning viable routes and testing them out, i.e., we shall be concerned with analysis, synthesis and evaluation. Moreover, it is concerned with understanding, improving and applying methods of instructions for bringing about desired changes in the learner knowledge and skills for specific course content and a specific student population.

Devising Instructional Strategy and design is

- An art
- A creative process
- An innovation
- Thinking out of the box

The teacher has a number of instructional strategies at his disposal to select from. To attain desired learning outcomes the teacher must have a thorough understanding of the characteristics and appropriate uses of various instructional strategies. These can comprise of

- Large group strategy of instruction
- Small group strategy of instruction
- Individualized strategy of instruction

There are various innovative instructional strategies, which are effectively used in higher

education to improve and maintain the teaching-learning quality. These are as follows:

- **Cooperative Learning (CL)** – This method mostly aims at the development of cognition, which includes thinking, remembering, concept formation, problem solving & logical reasoning. It provides opportunities for a teacher to interact with other learners in the class. They enable all the learners to work together & arrive at the final solution on the basis of teamwork. It promotes participation of all learners. It not only contributes to intellectual development but also equally contributes to social & psychological development of the learner unlike other methods of instruction. Moreover, it is an act of practicing face-to-face interaction learning so to encourage creativity & foster critical thinking through group discussion (GD). Research clearly indicated that cooperative learning compared with competitive & individualistic efforts typically results in team spirit, interpersonal relationship, self-esteem, motivation & leadership quality etc. Some well known methods of cooperative learning (CL) are Group Investigation (GI), Learning Together (LT), Reciprocal Teaching of Reading (RTR), Cooperative Integrated Reading & Composition (CIRC), Jigsaw I & II, constructive controversy (CC) / structured academic controversy (SAC), student Teams – Achievement Divisions (STAD) & Teams – Games Tournament (TGT). Thus, it helps the teacher in achieving thousands of goals of education because they incorporate intellectual, social & psychological aspects of education & develop interpersonal relationship among learners.
- **Blended Learning-** A blend is an integrated method for delivering on promises about learning & performance. It means a mash up of different training delivery methods-ILT, word documents, PDFs, pod casts, movies, online course, tests etc. Blending involves a planned combination of approaches, such as coaching wise supervisor; participation in an online class; breakfast with colleagues; competency descriptions; reading on the beach; reference to a manual; collegial relationships; and participation in seminars, workshops, and online communities. Moreover, it is the process of incorporating different types of learning styles to accomplish the learning process through the use of virtual and physical resources. Learning styles refers to the different ways in which people learn. Through blended learning, this can be accomplished by creating a variety of learning assignments and activities with the use of technology and instructor/peer interaction. Technology

(Internet & software application) is the key driver towards the development of existing state of blended learning, which used to be ILT (Instructor Led Training) earlier. Blended learning is a hot and understandably so, combining the best features of online learning (e.g.24X7 accessibility) with the best features of classroom instruction (e.g. live, face-to-face interaction). No doubt it's here to stay. Options for blended learning go beyond the classroom. They're formal and informal, technology- and people- based, independent and convivial, and directive- and discovery- oriented. It becomes all the more effective when people (learners, teachers, administrators) from more than two countries are involved. They get a chance to interact with each other know and experience each other's cultures. If such seminars, conferences are organized that give people from different countries to interact the benefit is not only in terms of knowledge gain but also in terms of having a feel of each other's culture. Like participants of the conference would have gained something they would not have had they been only relying on Internet or e- learning, which leads to improved participants interaction and satisfaction.

The table below presents the possibilities of what can constitute a blended learning approach:

<p>Live face-to-face (formal)</p> <ul style="list-style-type: none"> • Instructor – led classroom • Workshops • Coaching/mentoring • On- the job (OTJ) training 	<p>Live face-to-face (informal)</p> <ul style="list-style-type: none"> • Collegial connections • Work teams • Role modeling
<p>Virtual collaboration/synchronous</p> <ul style="list-style-type: none"> • Live e-learning classes • E-learning 	<p>Virtual collaboration/synchronous</p> <ul style="list-style-type: none"> • Online bulletin boards • Online communities

<p>Self-paced learning</p> <ul style="list-style-type: none"> • Web learning modules • Online resource links • Simulations • Scenarios • Video & audio CD/DVDs • Online self assessments • Workbooks 	<p>Performance support</p> <ul style="list-style-type: none"> • Help systems • Print job aids • Knowledge database • Documentation • Performance/decision supports tools
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Source : Strategies For Building Blended Learning
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As stated before, one obvious advantage of blended learning is its ability to maximize effectiveness by matching the best medium for each learning object.

- **Project Based Learning** - “Project based learning” is an authentic instructional modal or strategy in which learner plan, implement, and evaluate projects that have real world application beyond the classroom (Blank, 1997; Dickinson, etal,1998; Harwell,1997). Learning activity that are interdisciplinary, long term, and student centered are emphasized, rather than short, isolated lessons (Challenge 2000 Multimedia Project, 1999). Project based instructional strategies have their roots in the constructivist approach evolved from the work of psychologist and educators such as Lev Vygotsky, Jerome Bruner, Jean Piaget and John Dewey. Constructivism views learning as the result of mental construction; that is , students learn by constructing news ideas or concepts based on their current and previous knowledge (Karlin & Vianni,2001). Most important, students find projects a fun, motivating, and challenging because they play an active role in choosing the project and in the entire planning process (Challenge 2000 Multimedia Project, 1999; Katz, 1994).
- **Case Study** - The case study method forces the teacher to grapple the exact kind of decisions & dilemmas that they confront everyday. This is the effective method of teaching pedagogy. It is the most practical way of providing the student with a variety of problems to apply the knowledge & skills that they acquire in their studies. It allows the selection of problem & decision-making scenarios & the level of complexity in a controlled environment & in a relatively short span of time. It helps transfer knowledge from the classroom to real practice, develop interpersonal skills, illustrate particular points,

develop judgment wisdom, self-analysis, attitudes confidence & responsibility, enliven teaching & bring realism into instructional settings. Its strength is-

- Relies on learning by analysis & discussions.
- Help students in decision making skills
- Participants to learners to present their ideas clearly
- Allow learning of social skills
- **Simulated Teaching** – It is recent innovation in teacher education program, which aim at modifying teacher’s behavior according to specified objectives. This practice makes training a continuous process with scope for daily improvement and to develop confidence and required competencies in student teachers, not limiting it to teaching practice only.
- **Peer Learning** – The high achievers acted as peer-tutors, who extended academic support under the guidance of the concern teacher. Co-operative learning strategy, peer tutoring and self-learning materials can be immense use for the teachers for handling heterogeneous group of learners. This pragmatic strategy may be applied at secondary and higher level. The must know this strategy so that they can eliminate learning gaps among the learners to a large extent.
- **Tutorials** – The main purpose of tutorials is to develop learner ability to think independently, to search for knowledge on their own and to be able to tackle new problems independently. So, the basic theme of this strategy is that all learners should have minimum knowledge of the concern subject.
- **E-Learning**- E-Learning technique in teacher education are still at a nascent stage. It is actually web-based teaching with inputs of techniques like animations, visualization, virtual environments, simulations & games, text audio, video & lots of activity building teaching programs. This helps the learners to get trained at their own place, based on their own convenient time & is of course self-paced. Through e learning, they will not only acquire crucial concept of the subject but e-simulations & e-games also give them practical exposure to the teaching-learning process.
- **In Circle Time** - "In circle Time" pioneered by British educationist Jenness Mosley. Learners have to stand/sit in circle with each one encouraged open up and talk about issues, which promote esteem and positive behavior. It enriches learner’s vocabulary communication skills, and boosts their self-confidence. Moreover, it is a unique strategy that focuses on dialogue and an open exchange of ideas to develop new practices and action

plans on-site. The learning circle approach helps enhance your experience and stimulate creativity and innovation.

- **Team Teaching**

- Team teaching is another innovative approach in teaching large groups in which, two or more educators share the responsibility for a group of students, an individual teacher no longer has to be all things to all the students.
- It allows the teacher to apply his/her strength, interest, skills & ability to the greatest effect, knowing that children would not suffer from his/her weakness because there is someone with a difference set of abilities to back his/her up.
- Truly professionalize teaching.
- Just as good law firm has mix of associate, and junior partners, school should have a greater mix of teachers who have appropriate levels of responsibility based on their abilities & experiences level as much of lawyers work occurs outside the courtroom.

Advantages

- The best teacher in an institution are shared by most students
- It undertakes the act of teaching by a group of teachers (2or more) rather than by single teacher
- A team of teachers of the same subject work together to deal a significant content to same group of students jointly
- Teachers make better use of teaching techniques & teaching devices. It results in the improved instruction of the teachers & quality learning of the students.
- Mind Mapping - Mind maps are a dynamic way to capture significant points of information. It is a technique that ruins your brain to see the whole picture & details to integrate logic & imagination. The three A’s of mid mapping are Accept, Apply& Adapt. It is more effective because-
 - It helps association easily
 - Very attractive
 - Helpful in summarizing information
 - Enable to increase the retention
 - Improve mental abilities.

A mid map can be drawn using the following steps-

- Begin by putting the central theme in all directions in the middle of the page
- Work out word from the central theme in all directions in the form of main branches
- Use symbols, colors, words pictures, images etc. against the branches
- Use thick lines to represent the main branches & thinner lines to represent the sub- branches.

- Print the key words per lines. Provide white space between the information
- Make the mind map bold, memorable & colorful
- Practice it before the teaching-learning process.

Instructional strategy helps teachers in planning instruction-selecting and sequencing content matter, selecting appropriate instructional methods and media, providing appropriate learning experiences and selecting appropriate evaluation techniques. In addition, it helps in determining effectiveness of instruction and taking appropriate corrective actions to enhance effectiveness of instruction. It also enables teachers to communicate more effectively what they teach.

So, for innovation and effectiveness in instructional strategy and design, a wholistic approach is adopted from a system point of view where the components of the system are interdependent and interrelated. Change in any component cannot be done in isolation because the change made can affect the system either adversely or favorably. Development of instructional strategy and design is a systematic process comprising a series of steps ranging from need analysis to diffusion, ensuring maximum success in implementing such instructional strategy in the actual classroom situation. Because, in the higher education student interaction levels are very high, listening, responding verbally/non-verbally, talking case of individual difference are part of the professionalism exhibited by the teacher. In this context, **Intel-Teach programme provided contemporary ICT training which has enabled teacher educators and student teacher to integrate technology into their lessons, and promote problem solving, critical thinking, and collaboration in their classrooms.** Above all, now it is essential for teachers learn the art of reinforcement, acknowledging the progress of the learner and praising them, to assure them that they are learning and doing well, and as a teacher he is accepting that the desired learning is the taking place.

Maximizing the Power of the Instrumental Strategies (IS^x)

The success of the instructional strategies selected for the course in initiating and sustaining change in teachers' practice can be attributed to the design process. The complex nature of the problems generated by the research-to-practice gap in education required the creation of two theoretical frameworks for the design process. The theoretical frameworks for the course served as an organizing agent for the creation of core and structural features of the course.

The synthesis of theories from andragogy, pedagogy, and heutagogy resulted in the development of a theoretical framework for the course that intentionally demonstrated respect for the skills and orientations that teachers bring with them. The intentional design of the course was directly responsible for overcoming four major reasons for the existence of the research-to-practice gap (a) poor communication between researchers and practitioners, (b) limited opportunities for meaningful professional development, (c) teacher beliefs and assumptions, and (d) the failure of research to produce usable interventions.

If the power to influence teachers' attitudes towards change is in the process, how do you determine the power of instructional strategies (IS^x)? The analysis of the results confirmed the value of meeting learner needs (LN) and the power of attributes of innovations (IA). The results were supported by pre-existing research knowledge in the areas of professional development, instructional design, change, and educational change and were verified by the review of the literature.

Calculating the Power of Instrumental Strategies (IS^x)

The power of instructional strategies in the course developed for this study can be calculated by determining their degree of alignment with learner needs (LN) and attributes of innovations (IA). Specifically selecting strategies that are aligned with identified learner needs (LN) and designing learning experiences that enable participants to experience the innovation through attributes of innovations (IA) increases the power of the strategy to influence a participant's attitude toward acceptance of the innovation. The power of the instructional strategy (IS^x) increases through the purposeful design of the learning environment and the creation of learning experiences that maximize the effectiveness of the instructional strategies. Maximizing the power of the instructional strategies can occur through the design of both the core and structural features of the course.

The process of maximizing the power of instructional strategies (IS^x) will be illustrated through application of the process. The process begins by utilizing research knowledge to assist in the identification of learner needs (LN). The review of the literature uncovered the following research based learner needs: curriculum map, application of knowledge, research knowledge, collective participation, reflection, coherence, and self-directed learning. After that the instructional goal for the course is defined. The instructional goal for the course created for this study was to increase each participant's ability to plan learning

environments that engage students in performance understandings that require the student to extend, synthesize, and apply what they know.

Conclusion

The assessment of innovation appears to be a novel, or can it be said, an innovative notion. The entire empirical enterprise includes both a product and process and a proximal-distal orientation. The notion incorporates a singular yet unique definition for the purpose of delineating both assessment and innovation. Once the definition is solidified, it will serve as the product. Further, the process must include a conceptual framework to serve as a template against which to measure curricular and programmatic outcomes. This process continues to rejuvenate it through the various and innovative iterations of new educational researchers entering the process. Thus, the challenge is available to all teacher educators in all venues of education to assess their practices according to a defensible rubric that will determine its innovativeness.

The results of this themed issue can lead to the formulation of a robust mechanism to move from research to practice, for example, by establishing rigorous and consistent norms for research methods to assess innovation in teacher education as well as for reporting results. Finally, Goldsmith and Foxall (2003) suggest that the purpose of measuring the impact of an innovation is "to enlist the cooperation of innovators in redefining and improving new products" (p. 323). To that end, this issue of *Teacher Education Quarterly* challenges innovators and assessors to cooperate in reorganizing the landscape of teacher education.

The power of instructional strategies (IS) to influence teachers' attitudes is not inherent in the strategy itself. The application of the process allowed the power of instructional strategies to increase exponentially. The reflective mirrors in design path one and design path two enabled the exponential increase of the power of the instructional strategy through linking identified learners' needs (LN) with effective instructional strategies, and designing learning experiences that enable participants to experience the innovation through attributes of innovations (IA). The power of instructional strategies can be increased exponentially through the instructional design of the course.

Lastly, teaching is a passion, not a vocation. The single highest challenge a teacher faces is to keep the interest of the class alive. This can happen only if the teacher uses always innovative instructional strategies of teaching-learning like imagination, injecting the right dose of humor & practical example and involve the entire class in the session-

answering questions should be every body's prerogative not the prerogative of the chosen few. This involves hard work, constant updating of instructional strategies (IS) through innovation, communication skill, & constant & burning desire to add & deliver value to your instructional strategies (IS) & design. So, it is necessary to innovate pedagogies to enrich the classroom experience. By fusing above instructional strategies with teaching, a teacher can decorate their learner's experience to make it meaningful, memorable and enjoyable. Latest ICT make this quite easy.

The message is clear – either innovate or perish

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