Developing Courses of Technical Education Applying Multiple Intelligence Theory

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Abstract: In the present situation, the existence of heterogeneity in any class is a reality as well as challenge, which requires due attention in planning of all the academic activities. Several issues pertaining to developing the course needs to be addressed for making it purposeful, so far it has to fulfill specific requirements, emerging due to heterogeneity. The Multiple Intelligence theory proposed by Howard Gardner in 1983, on one individual trait of Intelligence, looks to be suitable for such situations. According to this theory, all humans are born with different sets of intelligences, due to which there are differences between people in their mental and cognitive abilities and they tend to excel in one area over another as having different types and levels of intelligences. While different individuals are capable of processing several information in different ways, each individual also varies in the degree of skill possessed in each of these intelligences, which have distinct characteristics. In this paper an effort has been made to examine the theory of multiple intelligences and find out the elements, applying and incorporating which the courses of technical education can be developed in such a way, proving the Multiple Intelligence theory to be purposeful for technical education too. Although, few elements would be common to any such situation, but the matter of heterogeneity is more peculiar and prominent, while dealing with the classes of the technical education. So, this theory becomes more relevant to the field of technical education. Adopting this comprehensive model in course development for technical education, several skills will be developed in the students like reading, word identification, spelling, oral reading, vocabulary, comprehension, and effective writing etc. So, in the field of the technical education, the adoption of the Multiple Intelligence theory, will support the students in making them skillful and will also enhance their creative and innovative potential.

Keywords: Biomaterials, bone, toughness

1. INTRODUCTION

Policy wise it is always advisable to Plan for future, in every field, based on the experience undergone. With respect to the field of higher education also we need to plan for the coming generations, keeping in mind their thoughts, point of views and values in light of the social requirement. In recent past the sector of Technical education has grown tremendously so, here in this field also we need to adopt certain policy and plan accordingly to address the current issues and challenges with technical education.

Through proper preparation of the educational curriculum only any education can prove to be purposeful the society can achieve the goals of its people. Along with the preparation of the educational curriculum there should be regular efforts for improvement of the curriculum to keep pace with the cognitive revolution taking place in the world. In recent years research has been focused on the mental as well as cognitive abilities, which is the basis of the multiple intelligence theory. It has caused emerging of a variety of teaching and learning methods and tools to be effective in the classroom teaching [1].

2. MULTIPLE INTELLIGENCE THEORY

The concept of the multiple intelligence theory was proposed by Gardner, who challenged the traditional educationalists to change the traditional methods of teaching and adopting new educational patterns and designs of learning and teaching that meet the needs of the new educational situation [2]. As per this theory different persons have different types of intelligences, because different people are having different mental and cognitive abilities.

Further explaining the theory a student not participating in a classroom doesn't mean that the student is weak, rather the student might be having other intelligences that would enable him to be creative in some other areas, or person with excellent verbal intelligence may find it difficult to learn music [3-4]. This simply means that a person may possess all or some of the multiple intelligences. Mass of the students in technical education nowadays, generally comprised of a heterogeneous mass, representing differences in class, culture, background as well as lot many differences on individual level. And the courses offered at

various levels have been generally developed, with more focus to the quality and quantity only of the contents of the course. So, the course developed gets connected to every student, in a readymade way, and takes no consideration of the differences among the students. Obviously, if the process of the course development too, involves the factor of class heterogeneity, then, the course developed will be more meaningful, effective and purposeful.

3. MULTIPLE INTELLIGENCE THEORY AND TECHNICAL EDUCATION

Although time to time any educational system requires re-examination of the achievements with respect to the aims, content, methods and course with which operating at present. Based on this, future road map may be prepared to move ahead with significance. The Gardner's theory of multiple intelligence has proposed nine types of intelligences, with respect to which prospects of preparing course curriculum for technical education has been explored in order to enhance the effectiveness of the courses of the technical education.

4. TYPES MULTIPLE INTELLIGENCES

The theory of multiple intelligence has proposed nine types of intelligences, which we are discussing here finding out their relevance with Technical Education.

4.1. VERBAL-LINGUISTIC INTELLIGENCE

It is the most universal of the various other intelligences, and may be called as the intelligence of words. It includes the mastery of phonology, syntax, semantics and pragmatics. Through this auditory skills are developed, and word games etc, make reading and/or writing enjoyable. It is about having the ability of using the words fluently and effectively in speaking, writing, remembering the information as well as forming words with meanings. This way they be able to possess well-developed vocabularies, spell words accurately and easily as well as use language fluently.

Students of technical education have to deal with many new definitions, concepts, technical terms, typical names, description of some mechanism etc where developing Verbal-Linguistic Intelligence would be of significant help. Also through this approach they would learn to read more effectively.

4.2. MATHEMATICAL LOGICAL INTELLIGENCE

It is the intelligence of numbers and reasoning. It is essential requirement in the technical education to be logically & mathematically sound for being able to do analysis of the problems, involving mathematical equations. Also students of technical education like to explore patterns & relationships and enjoy doing activities in a sequential order. People with this intelligence have the ability to understand cause and effect relationship. They often like mathematics,

experiment to test things they do not understand, enjoy opportunities to problem solve, and reason logically and clearly. They learn to present the information in an orderly, logical & systematic way.

4.3. MUSICAL INTELLIGENCE

In general young people are sensitive to the sounds in their surroundings. They enjoy tune, rhythm and prefer listening to music when studying or reading, As being surrounded by music, also influences the way you think. Everyone has music inside him/herself and how to express it should be learned. They appreciate pitch, rhythm, and timbre and often sing songs to themselves. Gardner proposed three levels to listening to music [5].

1. Sensuous: listening for pleasure

2. Expressive: paying attention to mood and meaning

3. Musical: attending to melody, harmony, rhythm, timber, tone colour and texture. When musical students clap their hands, snap their fingers, chant words or move rhythmically, the rhythm can be used to engage them in the learning process. Through this process they are able to retain and apply information. For the students of technical education it will develop the ability to undertake complicated analytics with a lighter and relaxed mind set.

4.4. VISUAL-SPATIAL INTELLIGENCE

Visual Spatial intelligence or picture intelligence is the ability to perceive the visual-spatial world accurately. Spatial students enjoy art activities, read maps, charts and diagrams, and think in images and pictures. They are able to visualize clear images when thinking about things, and can complete jigsaw puzzles easily. They often need to see pictures before they can comprehend the meaning of words. Pictures can provide contextual clues to words and assist students in learning to read and/or spell. People with this visual intelligence have a special sensitivity for the artistic world. Visual thinkers have a dynamic idea-finding procedure. For the students of technical education the development of this intelligence is very helpful in growing the ability of imagination and visualization that is required in so many situations of Project Realization or Product development.

4.5. BODILY-KINESTHETIC INTELLIGENCE

It is the intelligence of the physical self. It is actually processing knowledge through bodily sensations and using body in differentiated and skilled ways, as "The body expresses what the mind harbours and vice versa"[6]. Students use all of their mind and body as a whole or parts, in learning and being able to express their ideas and feelings and be able to solve problems in a way that goes with the individual mental abilities. Physical movement is an important factor in thinking processes, so people have to

help mind and body work together. They need opportunities to move and act things out, and tend to respond best in situation that provide physical activities and hands-on learning experiences. Developing this intelligence is very helpful for the students of technical education, who as professional has to work at conceptual as well as real world, deal with theoretical and practical aspects of the problems.

4.6. INTERPERSONAL/SOCIAL INTELLIGENCE

It is the ability to understand the feelings of others, their motives, interests, differentiate between them and ultimately work with others. In general young students enjoy being around with people, have many friends, and participate in many social activities. People with this intelligence are socially very responsible and have the ability to go inside the skin of others and view the world from their perspective. For the students of technical education they have to develop this ability for relating and participating in cooperative/ collaborative group activities, that is mostly part of their duty.

4.7. INTRAPERSONAL/SELF INTELLIGENCE

This intelligence gives a kind of self realization, which help individuals in understanding them self, their motives and feelings etc. Self intelligence develops ability to access our own feelings and discriminating different emotional states. This imparts an enrichment to our self as it familiarizes with our own inner world, and we become able to assess our own strengths and weaknesses. So by this intelligence the students of technical education can become independent, goal oriented, self-disciplined, often having a deep sense of self-confidence, and a strong will power. They can motivate themselves to do well on independent projects.

4.8. NATURALIST INTELLIGENCE

It is the ability to develop understanding of the different natural processes along with our limitations and to get to know the different aspects of nature. By virtue of this intelligence a person achieves expertise in the recognition and classification of the numerous species–the flora and the fauna of the environment[6].

So by this intelligence the students of technical education gets sense of the power of the natural resources on one side and the limitation and boundary of human activities on the other side. Particularly, in today's context this intelligence is very important for Technical professionals as they are directly involved with planning, appraisal and implementation of developmental projects. So this intelligence will provide a natural awareness which will discourage and refrain the professionals from any planning and proposal which will be damaging to nature.

4.9. EXISTENTIAL INTELLIGENCE

This intelligence is concerned with ultimate life issues. This develops ability of asking questions related to the human existence [7,8&9]. Existential people succeed in locating themselves within the cosmos or within the features of the human condition. The professionals/researchers in technical field get benefited from this classification while proposing or designing and developing something, following overall realization by considering all the aspects of the process so that ultimately nothing adverse is going to happen with anything or anybody.

So we observed various types of intelligences under Multiple Intelligence theory. There are great prospects for the technical professionals, while adopting and applying the Multiple Intelligence theory. We could see how Verbal intelligence is helpful in developing the ability to deal with reading, writing, remembering and expressing etc. Logical intelligence enhances mathematical, analytical and logical ability, helping in solving problems scientifically. The Spatial intelligence imparts ability of realizing the universe through visual/spatial way. Physical Intelligence has shown scope of developing individual mental abilities. Musical intelligence is having potential of enhancing learning ability. Natural intelligence inculcates a sense of natural responsibility and sincerity. The Social Intelligence can train oneself by developing the art and ability to work with people successfully. Self intelligence provides an honest understanding of oneself, according to which things happen truthfully. The existence intelligence involves the ability to see through the matter correctly. This way we find the application of Multiple Intelligence theory will be very purposeful in developing the courses in the field of Technical education.

5. CONCLUSIONS

This study reveals that the interest will be developed in the course as well as Knowledge of the students will enhanced, by adopting course properly. The teachers role is mostly conventional type i.e., the traditional talk and chalk method, demonstration, and storytelling etc. Courses developed using Multiple Intelligence theory, will be more purposeful, as if the students are taught using their different intelligences, then they will perform significantly better than those who are doing it conventionally. Several abilities are naturally present in the human being. But a kind of activation is required, as well as further possibilities are to explored, as these needed to be developed. As adoption of Multiple Intelligence Theory triggers various intelligences in the students, enabling them to develop interest, acquire better understanding of the subject, as well as developing ability to comprehend and so applying it further. It will be possible by designing & developing courses through Multiple Intelligence.

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