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Research Article

AN OBJECTIVE DEPICTION OF THE THEORETICAL AND PRACTICAL FACETS OF FINK'S TAXONOMY IN THE TEACHING OF SCIENCE

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ABSTRACT

Education has to be predominantly concerned with bringing about an explicit change in human behavior. The realization of this change involves the inclusion of child-friendly approaches, which foster self-learning. The different kinds of learning behaviours that we wish to develop in our students are accomplished by means of educational taxonomies. They provide useful tools in distinguishing the appropriateness of particular learning outcomes within our classrooms. Several distinctive educational taxonomies have evolved with the intention of thrusting the classroom instruction beyond rote learning. This paper is an upshot of the intense reviewing and analysis of the major educational taxonomies developed by renowned educators. Among the major educational taxonomies, the 'Taxonomy of Significant Learning' or Fink's Taxonomy developed by L. Dee Fink in 2003, which emphasises the perspective that each category of significant learning has a distinct value for the learner, was thoroughly examined, and an infographics on the Fink's Taxonomy was designed. The investigator framed the phases as well as constructed lesson templates based on these phases, for each of the major educational taxonomies, including Fink's Taxonomy, to make them compatible for classroom instruction. Also, the practical difficulties in the implementation of the Fink's Taxonomy in actual classroom situations were identified through a Frequently Asked Question (FAQ) Generation Session.

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INTRODUCTION

There are numerous distinct educational taxonomies proposed by prominent educationalists, each of which is complete in itself. Among them, Bloom's taxonomy has created a remarkable impact in the entire educational practices. But Bloom's Taxonomy had often been misapplied and misinterpreted by educators. It failed to acknowledge that learners might perform at varying levels of proficiency within each type of higher order thinking skill. In practical contexts, it gave emphasis to the attainment of the cognitive domain objectives alone. These are all the problems with the implementation of Bloom's taxonomy in actual classroom situations and not the theory itself. Ample educational taxonomies evolved subsequent to Bloom's taxonomy with the intention of thrusting the classroom instruction beyond rote learning. Each one of them was outstanding with regard to its spotted traits. They provide a transparent depiction of the fashioning of the classroom instruction to gratify the requisites of the existent generation. Also, each of these taxonomies has a

strong theoretical backup and is relevant.

Fink's Taxonomy (2003)

One of the first tasks that teachers face when designing a course is deciding what they want students to learn or get out of their course. Students will constantly learn something, but good teachers need their students to learn something noteworthy, instead of something comparatively irrelevant. This leads to the ways in which learning can be significant. If we can develop a verbal and a conceptual structure for identifying the numerous ways in which learning can be significant, then teachers can choose which of several kinds of significant learning they need to adopt and uphold in a given course or learning experience. It was with this thought in mind that Dee Fink worked on and eventually put together a new taxonomy of learning called 'Taxonomy of Significant Learning' in 2003. Fink delivers a taxonomy, which is not hierarchical, unlike other taxonomies. Furthermore it deals with a wider sample of domains with the exclusion of a psychomotor domain. This taxonomy is comparable to Anderson's taxonomy in its emphasising on

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metacognition, which indicates learning to learn, and also encompasses more affective characteristics such as the 'human dimension' and 'caring'.

In the course of creating this taxonomy, Fink was directed by a particular viewpoint on learning, that is, he described learning in terms of change. For learning to happen, there has to be some form of change in the learner. And significant learning requires some kind of lasting change that is important in terms of the learner's life. With this perspective in mind, he created a taxonomy that includes six kinds of significant learning. Each assembly of significant learning contains numerous more precise types of learning that are associated in some way and has a characteristic value for the learner.

The six categories in Fink's Taxonomy of Significant Learning are described below:

Foundational Knowledge: At the base of most other kinds of learning is the need for students to know something. Knowing refers to students' capability to understand and recall specific knowledge and ideas. It is important for people today to have some valid basic knowledge about science, history, literature, geography, etc. it is also mandatory for them to understand the major ideas or perceptions, for example, what evolution is (and what it is not), what capitalism is (and is not), and so forth. Foundational Knowledge provides the basic understanding that is necessary for other kinds of learning. It includes the understanding and remembering information and ideas.

Application: This well-known type of learning occurs when students learn how to involve in some new sort of action, which may be intellectual, physical, social, etc. Learning how to involve in various styles of thinking (critical, creative, practical) is an important form of application learning. But this classification of significant learning also encompasses attaining definite skills or learning how to cope with complex projects. Application learning allows other kinds of learning to become useful. It includes skills; critical, creative, and practical thinking; and managing projects.

Integration: When students are capable of seeing and recognizing the associations between different things, an important kind of learning has happened. Sometimes they make connections between specific ideas, between whole realms of ideas, between people, and/or between different realms of life (e.g., between school and work or between school and leisure life). The act of integrating, that is making new connections, gives learners a new form of power, especially intellectual power.

Human Dimension: When students acquire something significant about their own self or about others, it empowers them to interact more efficiently with themselves or with others. They discover the personal and/or social consequences of what they have learned. What they learn or how they learn sometimes offers students a new understanding of themselves or a new image of what they want to become. At other stages, they acquire a better grasping of others: how and why others act the way they do, or how the learner can interact more effectively with others. This kind of learning informs students about the human significance of what they are learning. It includes learning about oneself and others.

Caring: Occasionally a learning experience transforms the extent to which students care about something. This may be replicated in the form of new feelings, interests or values. Any of these changes indicates students now care about something to a greater degree or in a way than they did before. When students care about something, they then have the liveliness they need for learning more about it and making it a part of their lives. It includes developing new feelings, interests and values.

Learning How to Learn: This occurs when students learn something about the process of learning itself. They may be learning how to be a skilled student, how to engage in a particular kind of inquiry, or how to become self-guiding learners. All these comprise significant modes of learning how to learn. This kind of learning enables students to continue learning in the future and to do so with greater effectiveness. This domain helps in the moulding of a better student; inquiring about a subject; self-directing learners.

Statement of the Problem

An Objective Depiction of the Theoretical and Practical Facets of Fink's Taxonomy in the Teaching of Science

Objectives of the Study

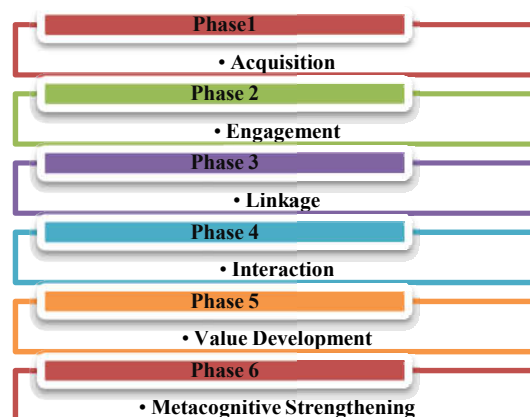
1. To create and develop a fundamental structure in the form of phases for the Fink's Taxonomy of Significant Learning, so as to make it compatible for classroom instruction.
2. To develop a lesson template on the Fink's Taxonomy of Significant Learning, based on the phases developed.

METHODOLOGY

The concept of Fink's Taxonomy of Significant Learning has been theorized since 2003. But the practical application of this concept in actual classroom situations it seldom traced. Through this study, the investigator attempts to create and develop a fundamental structure for the Fink's Taxonomy of Significant Learning, in the form of phases, which facilitates its implementation in the real classroom settings. Consequently, a sample lesson template on the Fink's Taxonomy of Significant Learning is constructed to illustrate the model, on the topic 'Controlling Fire' from Physics.

Construction of Phases for Fink's Taxonomy

The phases constructed by the investigator for the Fink's Taxonomy of educational objectives are diagrammatically represented and described below:



Phase 1: Acquisition

The teacher presents the issue to the students through a video, Power point presentation, lecture or group discussion. The students acquire in-depth knowledge of the key concepts related to the issue and restate it in their own words.

Phase 2: Engagement

The teacher asks the students to work in small task groups to analyze the issue, brainstorm on the different causes of the issue, devise essential skills and develop effective strategies to manage the situation.

Phase 3: Linkage

The students represent the accumulated aspects of the issue by making significant connections between them by means of a concept map or flowchart.

Phase 4: Interaction

The teacher asks the students to design an effective plan to save the environment and people from the hazards of the issue. By devising the plan, the students acquire a better understanding about their own self and about others, and discover how they can interact more effectively with others.

Phase 5: Value Development

Here, the students develop new feelings, interests or values, and express changes in the degree to which they care about the issue. The teacher asks the students to frame a slogan or oath revealing their care and commitment towards others.

Phase 6: Metacognitive Strengthening

The students become motivated and self directed to be a better citizen, or engage in a particular kind of inquiry. They identify and note down their limitations in tackling the issue.

Lesson Template Creation on Fink's Taxonomy

A sample lesson template on the Fink's Taxonomy of Significant Learning is constructed on the topic 'Controlling Fire' in Physics, based on the phases developed. This is attached as APPENDIX.

Infographics Creation on Fink's Taxonomy

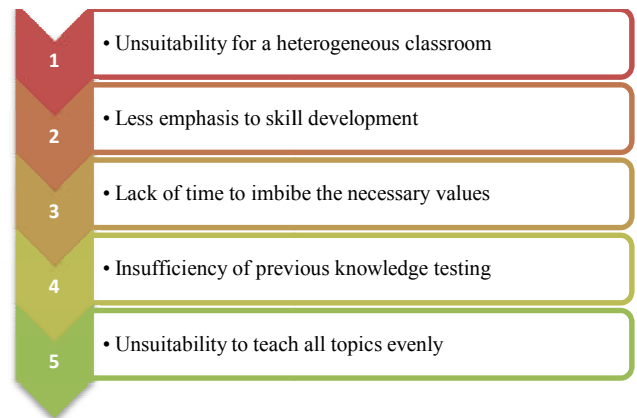
The infographics of the Fink's Taxonomy created by the investigator is shown below.



Implementation of the Frequently Asked Question (FAQ) Generation Session

A Frequently Asked Question (FAQ) Generation Session was conducted to identify the practical difficulties in the implementation of the existing major educational taxonomies. The session aimed at creating awareness about different educational taxonomies among the student- teachers and to extract maximum genuine doubts in the form of Frequently Asked Questions (FAQs). It was conducted among the student-teachers of Department of Teacher Education, Government College of Teacher Education and Mar Theophilus Training College.

The difficulties identified in the implementation of the Fink's taxonomy were as follows:



FINDINGS AND DISCUSSION

One important feature of the Fink's taxonomy is that it is not hierarchical but rather relational and even interactive. It is intended to show that each kind of learning is related to the other kinds of learning, and that achieving any one kind of learning simultaneously enhances the likelihood of the other types of learning being attained. This interactive characteristic is important for teachers because it means the various kinds of learning are synergistic. When a teacher finds a way to help students achieve one kind of learning, this can in fact enhance, not decrease, student achievement in the other kinds of learning. When a program or learning experience is able to foster all six kinds of learning, then the individual has had a learning experience that can accurately be regarded as significant. And, the more that these kinds of learning occur, the more significant the learning experience is. Moreover, the most significant learning experience is one in which students attain all six types of significant learning. And that is achievable if teachers learn how to design their courses properly with these goals in mind.

CONCLUSION

The insertion of values and soft skills discloses the scope for shared and multicultural problem solving, and devising and sharing information for worldwide communities, thereby creating completely society- supported learners in the 21st century. With revised standards on the horizon and with a renewed emphasis on values, educators should be aware of the impact that this may have on instructional design and curriculum development. With the addition of these new expectations, the educational system demands an exposure to

skills for which students have not been held directly accountable. In the light of the current theoretical compulsions, the needs of the students change. Students will need to develop their knowledge and skill through need guided learning opportunities and teachers will need to develop learning materials. This includes incorporation of the real history of ideas, thereby utilizing the imagination of teachers. Consequently, the taxonomies implemented today require an upgrade and facelift. As years pass by, the classroom picture transforms still more, along with the students' needs. In this context, it is indispensable to modify and upgrade the existing taxonomies.

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