AN EXPEDITION THROUGH THE OUTCOMES OF A FOCUS GROUP DISCUSSION ON THE IMPACT OF APPLIED INSTRUCTIONAL OBJECTIVES IN SCIENCE LEARNING

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Abstract: **The chief goal of education is to bring about a change in human behaviour. For an effective educational programme, the purposes and objectives are to be stated clearly. Instructional objectives define the outcomes of a learning intervention in terms of knowledge, skills and attitudes. Conventional wisdom says we should take great care in defining learning objectives and then use these as a basis for assessment and design. This paper is an upshot of a Focus Group Discussion entitled 'Pros and Cons of Objective Based Instruction and the Streamlines of Educational Taxonomies in Action', conducted by the researcher as a part of the on going doctoral dissertation. This paper aims atexploring the impact of applied instructional objectives in science classrooms through an organized Focus Group Discussion. Also, the initial level futuristic implications based on the Focus Group Discussion are formulated. Though the expressed views may not have any direct impact on the thesis findings, the investigator firmly believes that the ideas shared with the educational experts provide an assurance over the discussed themes, which would be of great benefit for the findings of the on-going investigation.**

Keywords: **Instructional Objectives, Science Learning, 21st Century Learners, Focus Group Discussion.**

I. INTRODUCTION

The primarymove in designing a finest course is the definitionof the educational goals and objectives in a clear-cut manner. Educational goals are wide-ranging, all-encompassingideas that will directthe course. Objectives are crisp and unambiguous statements that portrayprecisely the expected content for the students to learn and the anticipated skills to be acquired by themthroughoutthe course. Establishing clear and detailed statements about your teaching goals and objectives can help you select appropriate teaching techniques, create learning activities, and choose evaluation and assessment methods. Even if you are not developing the course yourself or are a teaching assistant, it is still important for you to consider your goals in teaching your students and how you will reach those goals. Once you meet with students, it is important to take into consideration their personal goals for the course and their prior knowledge as well.

A behavioural objective or performance objective is a statement of aperceptible behaviour, which the learner is to demonstrate at the completion of a learning session, educational programme or course. Expressed in another way, a behavioural objective is anaccount of the learner'spropositioned behavioural modification in either the cognitive, affective or psychomotor domain of learning, which the teacher aspires to generate in a learner. It involves the different kinds of performances that can be indicated, comprisingrecognising certain information (categorised as the cognitive domain), displaying certain individualvirtues or attitudes (categorised as the affective domain), andaccomplishing certain physical actions (categorised as the psychomotor domain).

Science teachers may write the learning objectives that communicate and describe intended learning outcomes. Objectives can be stated in terms of what the student will be able to do when the lesson is completed. Objectives include verbs to define specific, observable, and measurable student behaviour. Learning objectives are assertions of explicit performances that promote the achievement of goals, whereas goals designate global learning outcomes. Learning objectives help to direct curriculum development, instructional strategies, selection of instructional resources, and improvement of assessment patterns.

A Focus Group Discussion (FGD) is aneffectivetechnique to bring togetherindividuals from comparable experiences orcircumstances to examineand discourse a particularsubject of interest. The cluster of participants is directed by a moderator (or group facilitator), who initiatesthe discussion by presenting the areas for discussion and encourages the group to participate in anenergetic and normal discussion amongthemselves. The strength of a Focus Group Discussion depends on permitting the participants to approve or oppose with each other so as to offer an understandingof how a group keeps thinking about atopic, about the span of approaches and mind-sets, and the discrepancies and alternatives that happens in a particular community based on their viewpoints, practices and experiences.

In bridging research and policy, focus group discussions are useful in providing an insight into different opinions among different parties involved in the change process, thus enabling the process to be managed more smoothly. It is also anappropriatetechnique to usepreviousknowledge and experiences to scheming questionnaires.Focus Group Discussions have to be organisedjudiciouslyby pinpointing the main objective(s) of the gathering, framing crucial questions, building up aschedule,

and proposing how to record the meeting. The subsequent step is to recognise and invite appropriate discussion participants; the perfect number being between six and eight. The vitalcomponent of the discussion lies in its facilitation.

II. RATIONALE OF THE STUDY

Because of the behaviouristic approach to learning, it was important that instruction be guided by clear objectives. Behavioural objectives turn out to beappreciatedby many educators by way of a book by Robert F. Magerentitled *Preparing Instructional Objectives*, published in 1962. This book facilitated educators to get a clear awareness about objectives and to equip them to frame well-defined objectives. His work is still used today to guide educators in instructional design. Benjamin Bloom further refined objectives in his taxonomies of learning. He developed a hierarchical model of learning outcomes, and stressed that lessons should be designed to assure that learners are moving toward the higher levels of knowing, which include synthesis and evaluation, rather than just focusing instruction on factual recall. He provided key verbs for educators to use in writing objectives to assure that they meet the desired learning outcomes. He also stressed the importance of designing assessment that demonstrates whether the specific outcomes were met. The argument about the significance of objectives in relation to the planning and delivery of instruction has lasted for several years. Nevertheless, behavioural objectives are extensivelyacknowledged as indispensable componentsin the process of instructional designing.

III. STATEMENT OF THE PROBLEM

'An Expedition through the Outcomes of a Focus Group Discussion on the Impact of Applied Instructional Objectives in Science Learning'

IV. OBJECTIVES OF THE STUDY

1. To explore the impact of applied instructional objectives in science classrooms through an organized Focus Group Discussion.
2. To formulate the initial level futuristic implications based on the Focus Group Discussion.

V. METHODOLOGY

The investigator collected the data by means of Focus Group Discussion, document analysis, small group and expert level discussions. The Focus Group Discussion comprised of a team of esteemed and distinguished personalities. Audio and video recording facilities were also provided.

VI. FINDINGS AND DISCUSSION

In the 21st century, the development of a novelarray of technological devices can present students more genuine and realistic learning experiencesgrounded on experimentation and action. Consequently, the students require a new goal direction and objective setting. This situation demands an immediate and drastic change in the entire educational pattern. With this view, the investigator analysed the existing patterns of taxonomies. This analysis paved the way for a Focus Group Discussion entitled 'Pros and Cons of Objective Based Instruction and the Streamlines of Educational Taxonomies in Action'. This was conducted with the purpose of reviewing the existing patterns of instructional objectives with a view to cater the needs of the 21st century citizens.

The major themes evolved as a result of the discussion were based on

- Objective based instruction
- Needs and qualities of the 21st century learners
- Current theoretical developments
- Existing taxonomies of educational objectives
- Integration of the existing taxonomies in education
- Future classrooms

The Focus Group Discussion was moderated by the investigator. Dr. K. Y. Benedict gave a brief description of the procedure initially, and facilitated the discussion. The educational experts who actively participated in the discussion and expressed their valuable thoughts and opinions were Dr.A.Sukumaran Nair, Dr. C. P.Sreekantan Nair, Dr. Esther Gladis, Dr. Praveen. C, Smt.Reeja, Smt. S.Sheeba, Smt. A. K.Asha, Smt.Neena Thomas, Smt. V.Sreeja, Sr. Soumya and Smt.Jyothi James.

The table below depicts the specific areas of the Focus Group Discussion, along with the proposed futuristic implications for the same.

Sl. No.	Areas of Outcome of the Focus Group Discussion	Futuristic Implications
1	Spelling out the expected outcomes in the beginning of the teaching process	Grid Approach of outcome indicators and predictors in classroom process design
2	Obscurity of the instructional objectives to even the top-level experts in all subjects	Attempting subject specific, process oriented, objective area classification
3	Misinterpretation of the term 'evaluation' in taxonomies in many contexts	Refining the terminologies with the 21st century trends and practices in the classroom
4	Equating an idea with life, as the highest level of acceptance	Extension of classrooms beyond the four walls is to be integrated in the taxonomy revision
5	Understanding the terms and the operational definitions of the terms in the taxonomies in depth as the primary step in the creation of a new taxonomy	An attempt of 'Thesaurus' of terms and concepts relevant for educational objectives and instructional design
6	Development of new terminology, along with significant subcategories	Endeavouring of subject specific sub- categorization of major domains of development
7	Aiming at reaching complex outcomes rather than mere variations of verbal expressions, through teaching	Weightage to process oriented ICT integrated classes with flipped approach
8	Impartation of the targeted objectives to students through improvisation	Framing of objectives to sharpen the creative and presentation skills, and spark imagination and physical expression in students
9	Incorporation of the real history of ideas, thereby utilizing the imagination of teachers	Preparing students for jobs that have not yet been created, technologies that have not yet been invented, and problems that have not yet been aroused
10	Confirmation of the attainment of the basic levels of learning before moving to the higher levels	Breaking of hierarchy of instructional objectives
11	Necessity of individual taxonomies for separate subjects and streams of education in the light of the needs of the 21st century learners	Creation of subject cataloguinginitially, and then extending and generalizing it to other subjects
12	Changingthe structure of learning so that soft copies replace hard copies completely	Scope of the use of digital tools and paper free classroom practices
13	Commencing with action instead of beginning with cognition, because the easiest thing for a child is to do something	Child centric rather than teacher or practitioner centric approach in the proposed revision of taxonomy
14	Replacement of science labs with virtual labs	Inclusion of digital tools in real- virtual flipping situation
15	Completely society- supported learners in the 21st century	Scope for collaborative and cross-cultural problem solving, and designing and sharing information for global communities

16	Reflection of the taxonomy revision in the syllabus	Employing open source curriculum requirement authoring tools
17	Consolidation of the students' actions meaningfully, within and outside the classroom	Exposure of students to open-source online homework systems like WebWork
18	Manipulation of the theories to suit the learner needs	Construction and implementation of a Prevalence-Preference Analysis schedule
19	Necessity of a taxonomy based on values in the present times	Values and positive soft skills and habits to hold a prominent position in the revised taxonomy
20	Unavoidability ofthe process aspect of learning for the 21st century learners	Attempting child-friendly approaches which fosterself-learning
21	Time management and strength of students in each class as the factors that hinder the application of various taxonomies	Accommodation of classroom management strategies in the revision process

The attached table unfolds the verbalized experiences, memories and viewpoints shared by the participants (experts) of the focus group discussion. The futuristic implications are predicted on the basis of the ideas and thoughts conversed by the participants. However, these implications do not claim any confirmation, but provide an assurance over the discussed themes, which would be of great benefit for the findings of the on-going investigation.

VII.CONCLUSION

It is estimated that in our world today knowledge is doubled every eighteen months. We can no longer be satisfied with teaching students mere facts. We need to teach them how to access and apply information effectively in their lives. We need to teach them to be problem solvers and to think outside the box, because in today's world, the box changes constantly. As Mahatma Gandhi said, "As human beings, our greatness lies not so much in being able to remake the world . . . as in being able to remake ourselves." A good instructional design allows learners to achieve both of these goals.

VIII. RECOMMENDATIONS

1. The present focus group discussion was conducted at Thiruvananthapuram. Similar focus group discussions can be conducted in other districts also.
2. The discussion, which concentrated on the needs of the high school students, may be extended to the higher secondary level too.

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