A Narrative Interpretation of a Focus Group Discussion Episode on Emerging Educational Taxonomies by a Novice Investigator

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ABSTRACT: *The chief goal of education is to bring about a change in human behavior. For an effective educational program, 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 ongoing doctoral dissertation. It aims at exploring the impact of applied instructional objectives in science classrooms through an organized Focus Group Discussion. Also, the initial level observations of futuristic implications based on the Focus Group Discussion are formulated. Though the expressed views may not have any direct impact on the investigation outcomes, the investigator firmly believes that the ideas shared by the educational experts provide an assurance over the discussed themes, which would be of great benefit for the findings of the ongoing investigation.*

KEYWORDS: *21st Century Learners, Educational Taxonomy, Focus Group Discussion, Instructional Objectives, Teaching.*

I. INTRODUCTION

Education has always been awash with new ideas about learning and teaching. Teachers and administrators are regularly bombarded with suggestions for reforms. They are asked to use new curricula, new teaching strategies, and new assessments. They are directed to prepare students for the new state standardized test or to document and assess students' work through portfolios and performance assessments. Education should bring about an amendment in human behavior. The aims and objectives are to be avowed evidently to ensure the efficacy of an educational program. The learning outcomes expressed by means of information, attitudes and skills elucidate the instructional objectives. Hence the framing of instructional objectives and their implementation in the instructional design should be done with utmost precision. Discussions of any sort are supposed to help us develop a better perspective on issues by bringing out diverse viewpoints. Whenever we exchange differing views on an issue, we get a clearer picture of the problem and are able to understand it. The understanding makes us better equipped to deal with the problem. Through group discussions, the participants express views and opinions and share with other participants. It is a systematic oral exchange of information, views and opinions about a topic, issue, problem or situation among members of a group who share certain common objectives. Group discussions have quantitatively increased in recent times due to their increasing role as effective tools in problem solving, decision-making, and personality assessment. Effective skills are inevitable for students, job seekers, professional engineers as well as company executives. In any situation of problem, the perceptions of different people are discussed, and possible solutions are suggested. The group chooses the best option. While taking a decision, the matter is discussed, analyzed, interpreted and evaluated.

II. BACKGROUND OF THE STUDY

The investigator is currently pursuing research in education. As a part of the research activities, she had to identify the elements in the existing taxonomies of educational objectives, which require an upgrade and facelift in the 21st century scenario. Moreover, she needed additional information to prepare for a study of large scales. This prompted the investigator to conduct a focus group discussion so that manifold dimensions of the issue would come by. Since it is a new area of research, insights were needed into. The main purpose was to investigate the topic where opinions or attitudes are conditional.

III.   ON FOCUS GROUP DISCUSSION

A Focus Group Discussion (FGD) is a good way to gather together people from similar backgrounds or experiences to discuss a specific topic of interest. The group of participants is guided by a moderator (or group facilitator) who introduces topics for discussion and helps the group to participate in a lively and natural discussion amongst them. The strength of FGD relies on allowing the participants to agree or disagree with each other so that it provides an insight into how a group thinks about an issue, about the range of opinion and ideas, and the inconsistencies and variation that exists in a particular community in terms of beliefs and their experiences and practices. FGDs are used to explore the meanings of survey findings that cannot be explained statistically, the range of opinions/views on a topic of interest and to collect a wide variety of local terms. In bridging research and policy, FGDs are useful in providing an insight into diverse opinions among different individuals involved in the change process, thus enabling the process to be managed more smoothly. It is also a good method to employ prior to designing questionnaires. A tutorial video on how to organize a focus group discussion can be viewed through the following link, http://www.youtube.com/watch?v=TGsDGFeff5I

FGD sessions need to be prepared carefully through identifying the main objective(s) of the meeting, developing key questions, developing an agenda, and planning how to record the session. The next step is to identify and invite suitable discussion participants; the ideal number is between six and ten. A sample video link of a focus group discussion on 'Digital Media: New Learners of the 21st Century' can be viewed through the link http://www.youtube.com/watch?v=S2qduNPevhg

The crucial element of FGD is the facilitation, during which even participation of the group members, careful wording of the key questions, maintaining a neutral attitude and appearance, and summarizing the session to reflect the opinions evenly and fairly, are to be ensured. A detailed report should be prepared after the session. Any observations during the session should be noted and included in the report. FGDs can be also done online. This is particularly useful for overcoming the barrier of distance. A video link showing an online focus group discussion is http://www.youtube.com/watch?v=Zr5F7jqylzE. While discussion is constrained, the written format can help with reporting on the discussion.

IV.   HOW THE INVESTIGATOR USED THIS METHOD

The Focus Group Discussion conducted by the researcher as a part of the ongoing doctoral dissertation is 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 Focus Group Discussion was moderated by the investigator. Dr K Y Benedict, the Research Mentor, gave a brief description of the procedure initially, and facilitated the discussion. The personalities who actively participated in the discussion and expressed their valuable thoughts were Dr A Sukumaran Nair, Dr C P Sreekantan Nair, Dr Esther Gladis, Dr V M Sasikumar, Dr C Praveen, Smt M Reeja, Smt S Sheeba, Dr A K Asha, Smt Neena Thomas, Smt V Sreeja, Sr. Soumya and Smt Jyothi James. The essential technical support throughout the session was granted by Sri V Vasundharan and Sri V Vinesh. Audio and video recording facilities were also provided.

The details of the participants of the focus group discussion are presented in Appendix I.

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 in the design of classroom activities
- Existing taxonomies of educational objectives
- Integration of the existing taxonomies in education
- Future classrooms

The video link of the focus group discussion conducted by the investigator is as follows:
https://www.youtube.com/watch?v=paujZ9lGK48&feature=youtu.be

An infographics displaying the summary of the focus group discussion is shown in Appendix II.

V.   IMAGES OF THE FOCUS GROUP DISCUSSION

The images of the focus group discussion conducted on 4th May 2013 at the Samanuaya Pastoral Centre, Pattom, Thiruvananthapuram, Kerala on '*Pros & Cons of Objective Based Instruction and the Streamlines of Educational Taxonomies in Action'* are attached.

Image 1

Image 2

Image 3

Image 4

Image 1 depicts an overview of the session and discussion initiation by Dr A Sukumaran Nair,
Image 2 shows the sharing of views by Dr K Y Benedict,
Image 3 gives a picture of the discussion at a glance, and
Image 4 portrays the lively interaction by the participants.

The images of the focus group discussion are available at
https://plus.google.com/photos/106757409040312580120/albums/
6033539399095681121?banner=pwa

VI.   DETAILED ANALYSIS OF THE DISCUSSION HELD

Interesting ideas emerged from the participants, as their experiences and attitudes were broader. All the participants felt free and comfortable in expressing their opinions on the subject. Based on their valuable viewpoints, the investigator amalgamated the essence of the discussion so as to frame certain futuristic implications, which would be helpful enough for translating educational persuasions into action. The underneath analysis depicts specific areas of the Focus Group Discussion, along with the proposed prospective recommendations and practices, that are soon anticipated within the eyeshot.

Grid Approach of Outcome Indicators and Predictors in Classroom Process Design

One of the most significant opinions shared by a participant of the Focus Group Discussion was *'to spell out the expected outcomes in the beginning of the teaching process'.*

It is often said that no two individuals are exact duplicates; they differ from each other in some way or the other. The variations or similarities among children may be on some of the important psychological aspects such as intelligence, personality, interest, and aptitude. The domains in which they can excel vary. Once we know these differences systematically, we can utilize their capabilities efficiently for their healthy development.

In the 21st century, the emergence of a new set of technological tools can offer students a more authentic learning experience based on experimentation and action. Consequently, the students possess a new goal direction and objective setting, and their needs fluctuate. So while designing the curriculum, all the domains of child development have to be satisfied.

This scenario calls our attention to an integrated approach to curriculum design, wherein the expected outcome indicators and predictors could be verbalized in the form of a grid.

A grid is an interconnecting system of links made up of a series of intersecting lines, used to structure content. It serves as an armature on which the teacher can organize the learning objectives in a rational, easy to absorb manner. The grid approach confirms the attainment of the basic levels of learning before moving to the higher levels. It stresses a learning outcomes based approach to ensure that the curriculum design evolves from a more teacher- centered to a more student- centered focus. Identifying learning outcomes enables both the teacher and students to clearly identify what a student is expected to have achieved or have made progress towards achieving on completion of a module.

The grid approach could also rectify the intricacies of time management and strength of students in each class, which hinder the application of various efficient taxonomies. Classroom management strategies too could be accommodated in the revision process. The grid approach to education is thus an aid, which permits a number of possible uses and each learner can look for a solution appropriate to his personal style.

Attempting Subject Specific, Process Oriented, Objective Area Classification

One of the participants critiqued that *'the instructional objectives are obscure to even the top-level experts in all subjects'*.

Learning taxonomies are commonly utilized as a way of describing different kinds of learning behaviours and characteristics that we wish our students to develop.They are often used to identify different stages of learning development and thus provide useful tools in distinguishing the appropriateness of particular learning outcomes for particular module levels within our classrooms. Objectives can cover knowledge and skills as well as attitudes. An emphasis should always be placed on the student's ability to integrate information to solve realistic problems as opposed to the acquisition of information alone.

It is essential for the curriculum constructors as well as the instructors to analyze thoroughly, the existing taxonomies of educational objectives. The terms and the operational definitions of the terms in the taxonomies ought to be grasped in depth, which in turn serves as the primary step in the creation of a new taxonomy. New terminology, along with significant subcategories could be developed. Subject specific sub-categorization of major domains of development could be attempted.

The emerging trends in the society calls for the necessity of individual taxonomies for separate subjects and streams of education in the light of the needs of the 21st century learners. This could be accomplished through the creation of subject cataloging initially, and then extending and generalizing it to other subjects. Students do not soak up knowledge like a sponge absorbs water. For students to learn, they need to react and respond, perhaps outwardly, perhaps only inwardly, emotionally, or intellectually. But if learning is a process of changing behavior, clearly that process must be an active one. This brings about the process aspect of learning inevitable for the 21st century learners. The teachers must attempt child-friendly approaches, which foster self-learning. They have to commence 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 has to be brought in to the proposed revision of taxonomy.

An attempt of 'Thesaurus' of terms and concepts relevant for educational objectives and instructional design could be fashioned, which makes available a list of difficult or unfamiliar words with an explanation of their meanings, accompanying a piece of specialist or foreign-language text. The educational objective thesaurus, structured specifically around ideas related to educational objectives, could serve as a treasury of knowledge, worth compatible for the needy.

Refining the Terminologies with the 21st Century Trends and Practices in the Classroom

Another noteworthy observation by one of the participants was *'misinterpretation of the term 'evaluation' in taxonomies in many contexts'*.

Educational Taxonomy is a convenient way to describe the degree to which we want our students to understand and use concepts, to demonstrate particular skills, and to have their values, attitudes, and interests affected. It is critical that we determine the levels of student expertise that we are expecting our students to achieve. Evaluation in taxonomies generally refers to the decision-making capability of students. It is natural for people to respond to different personalities in a positive or negative manner. Decision-making helps students in making a choice between different alternatives and supports them to identify factors that influence options and choices before an accurate assessment of the situation can be made. Since decision-making is more natural to certain personalities, they have to focus more on improving the quality of their decisions. Students who are less natural decision-makers are often able to make quality assessments, but then need to be more decisive in acting

upon the assessments made. Problem solving and decision-making are closely linked, and each requires creativity in identifying and developing options, for which the brainstorming technique is particularly useful.

In decision-making, cognitive biases influence people by causing them to over rely more credence to expected observations and previous knowledge, while dismissing information or observations that are perceived as uncertain, without looking at the bigger picture. While this influence may sometimes lead to poor decisions, the cognitive biases enable individuals to make efficient decisions with assistance of heuristics. On the basis of the accumulated knowledge and experiences, the students are to be enabled to identify what are to be accepted, discarded, modified and so on. If we give students the opportunity to make decisions about their education, and the influences on their education, then we put up their capacity to become efficient problem solvers, thereby moulding them to be better citizens in the future.

Students learn to make good decisions when they understand which ones get them more of what they want, and which ones result in more of what they don't want. A curriculum focused on elements of administrative process such as cognition, communication, coordination, and control and delivered through a tested strategy to achieve mastery provides a road map on which to move forward.

Inclusion of Digital Tools in Real- Virtual Flipping Situation

A noteworthy recommendation by one of the participants was the *'replacement of science labs with virtual labs'.*

According to Howard Gardner, children should understand the world so that they will be positioned to make it a better place. An important part of that understanding is to know who they are and what they can do. Ultimately, they must synthesize their understandings for themselves. Children learn best from experience by doing, using their senses, exploring their environment of people, things, places and events. They learn from first-hand and concrete experiences. Children do not learn as effectively when they are passive. Active engagement with things and ideas promotes mental activity that helps students retain new learning and integrate it with what they already know.

When children engage in firsthand experiences, their minds are as active as their bodies. By handling objects and observing things in their world, children begin to compare them. They classify and sequence objects and things, relating new information to their existing ideas of how the world works, fitting it into their mental schema or ideas. When information doesn't fit their existing ideas, they change these or create new ones. As they do so, they are constructing their own knowledge and storing it as concepts, rules, or principles. Subsequently, they get authentic experiences linked parallel to the society.

Teaching should primarily aim at reaching complex outcomes rather than mere variations of verbal expressions. The availability of hands-on labs in engineering and science education that require costly equipment and instruments is restricted for little and limited periods of time for a huge number of students. Solutions to bypass these problems are through the introduction of virtual labs. A virtual lab is a software simulation; an imitation of a real experiment represented by a mathematical model. This gives simulated learning experiences on a computer or on- line instead of really existing. Virtual labs enthuse students to conduct experiments by arousing their curiosity. This would help them in learning basic and advanced concepts through remote experimentation.

The concept of augmented reality is momentous in this context wherein the real scene viewed by the user is pooled with a virtual scene generated by the computer. This aids in supplementing the scene with additional information. It blurs the line between what is real and what is computer-generated, and enhances what we see, hear, feel and smell. It superimposes graphics, audio and other sensory enhancements over a real-world environment in real time by adding graphics, sounds, feedback and smell to the natural world. (The researcher has presented a paper on augmented reality entitled 'Forecasting Augmented Reality as a Giant Leap in e-Learning', at the State Level Colloquium on Emerging Trends in Science and Technology in Classroom Practices).

All these concepts point to a variation in stimulus received by the students, which endows them with a sort of flipping experience, sandwiched between the real and the virtual. Thus education ought to give weightage to process oriented ICT integrated classes with flipped approach, thereby making learning interesting, innovative and fun packed.

Scope of the Use of Digital Tools and Paper Free Classroom Practices

'*To change the structure of learning so that soft copies replace hard copies completely*', was a striking suggestion.

Online resources can save our valuable time and money while reducing the clutter in the classroom. These alternatives use technology to help us reduce the amount of paper products purchased, printed and

photocopied. One daily newspaper subscription can generate hundreds of pounds of waste each year. Many newspapers are available online free of cost, and we can minimize the amount of print outs by reading articles together on a classroom computer or projecting them on a whiteboard.

Instead of printing handouts, we can use email to send documents home to parents with Internet access. Also, a classroom website could be started to post homework assignments, supplemental materials, announcements, and more. Creating a blog is free, and it could be used to keep parents and students informed of classroom activities. Open source curriculum requirement authoring tools could be employed, and students could be exposed to open-source online systems like WebWork. WebWork is an open-source online homework system for math and sciences courses, and includes over 20,000 homework problems. It was developed with the intention of improving teaching and learning.

The impact of going green in the classroom goes far beyond the immediate school grounds. Students will carry the lessons they learn about the environment with them, and the eco-friendly habits they develop will spread as they travel to new classrooms. By encouraging eco-consciousness, teachers could make students develop a better sense on how their actions affect the environment and the many ways they can reduce their carbon footprint. Teachers must encourage eco-conscious habits and behavior in students, with a view to link them into the core of the environment.

The span of the application of digital tools in education has to be reflected in the taxonomy revision, which should in turn be mirrored in the curriculum framework. Thus the newly framed taxonomy should ingeniously be capable of 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.

Values and Positive Soft Skills and Habits to Hold a Prominent Position in the Revised Taxonomy

One of the participants of the focus group discussion underscored the *'necessity of a taxonomy based on values in the present times'*.

The world has witnessed the amazing growth of many insights through scientific learning, about how the mind works, and those factors that attribute to learning. The ways that learners process information are being perceived more each day with discoveries about the mind, cultural attributes that affect learning, and how to make learning positive for today's learners. There are many ways through which we accomplish these ventures. In many countries and cultures, the issue of incorporating soft skills and values into the curriculum empowered the students to maintain a momentum in recent years. The ultimate aim to inculcate soft skills in students is to enable the country to meet human resource requirements, which will be more competitive in the advent of a borderless world.

It is a well-accepted fact out of our experience that a positive climate can be brought about when all members of the school community feel safe, comfortable, and accepted. A core set of values, agreed upon by members of the school community, has been established and will be integrated into the school curriculum to provide students the guidelines for positive choices. It is the school's goal that through the students' embracement of these virtues, they will be able to independently monitor their own behavior and have the patience to understand the perspective of others.

With revised standards on the horizon and with a renewed emphasis on soft skills, educators should be aware of the impact that this may have on instructional design and curriculum development. With the addition of these new expectations, we will be exposing a 'hidden curriculum'– skills for which students have not been held directly accountable will now become major components of the formal curriculum. 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.

The inclusion of soft skills and values unfolds the scope for collaborative and cross-cultural problem solving, and designing and sharing information for global communities, thereby creating completely society-supported learners in the 21st century.The students identify the notion of 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. The framing of objectives should be so as to sharpen the creative and presentation skills, and spark imagination and physical expression in students.

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

VII. HOW THE RESEARCHER MAY PROCEED FURTHER

Taking into account the intricacy of the research work concerned, it is to be assumed that there is a tough path ahead of the investigator. She has to foresee the portrait of the 21st century classrooms in the light of the students' needs. This scenario demands extensive creativity, insight and imagination from the part of the researcher. The development of an innovative educational taxonomy may thus prove to be a challenging leaf in the entire research process. However, the researcher is bound to take it up confidently. In the light of the concepts evolved from the focus group discussion, a Prevalence Preference Analysis Schedule (PPAS), to assess the needs of the 21st century learners, has been constructed and implemented, and is currently in the analysis phase. In the near future, the researcher anticipates to come up with fresh ideas and accomplish them fruitfully. Moreover, the investigator intends to carry out two similar focus group discussions at different districts in Kerala.

VIII. CONCLUSION

It is estimated that in our present day world, knowledge is doubled in every eighteen months. We can no longer be satisfied by teaching students mere facts. We ought to teach them how to access and apply information effectively in their daily commerce of life. We need to teach them to be problem solvers and to make them out of the box thinkers, because in today's world, the box keeps on changing. 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 educational taxonomy allows learners to achieve both of these goals. The enlightening words of the educational experts, who participated in the focus group discussion, serve as torchlight towards the diverse facets to be accommodated while revising the existing taxonomies of education. They also provide a solid foundation for the development of an innovative taxonomy of educational objectives for the 21st century learners.

The investigator would like to spell out to the world of her humble experiences based on her observations. Anyone who is interested to have a say on this area under discussion, may kindly share his or her valuable perceptions through the blog entitled 'Thoughts On The Changing Patterns Of Educational Objectives', with blog address http://educationalobjectivelab.blogspot.in

As technology advances and becomes more ubiquitous, a taxonomy, which attempts to account for the new behaviors and actions, is inevitable for the 21[st]century learners. The focus group discussion thus turned out to be a stepping-stone to scale the ultimate goal, in addition to a triumph in itself.

IX. ACKNOWLEDGEMENT

The investigator earnestly expresses her heartfelt gratitude to the participants of the focus group discussion for their valuable judgments. In addition to this, the personnel who bestowed technical and moral support to the investigator, for organizing the discussion and making it a grand success, are gratefully remembered. The names and designations of all the supporters of the Focus Group Discussion are mentioned in Appendix 1.

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APPENDIX I
Table 1: Designation of FGD participants

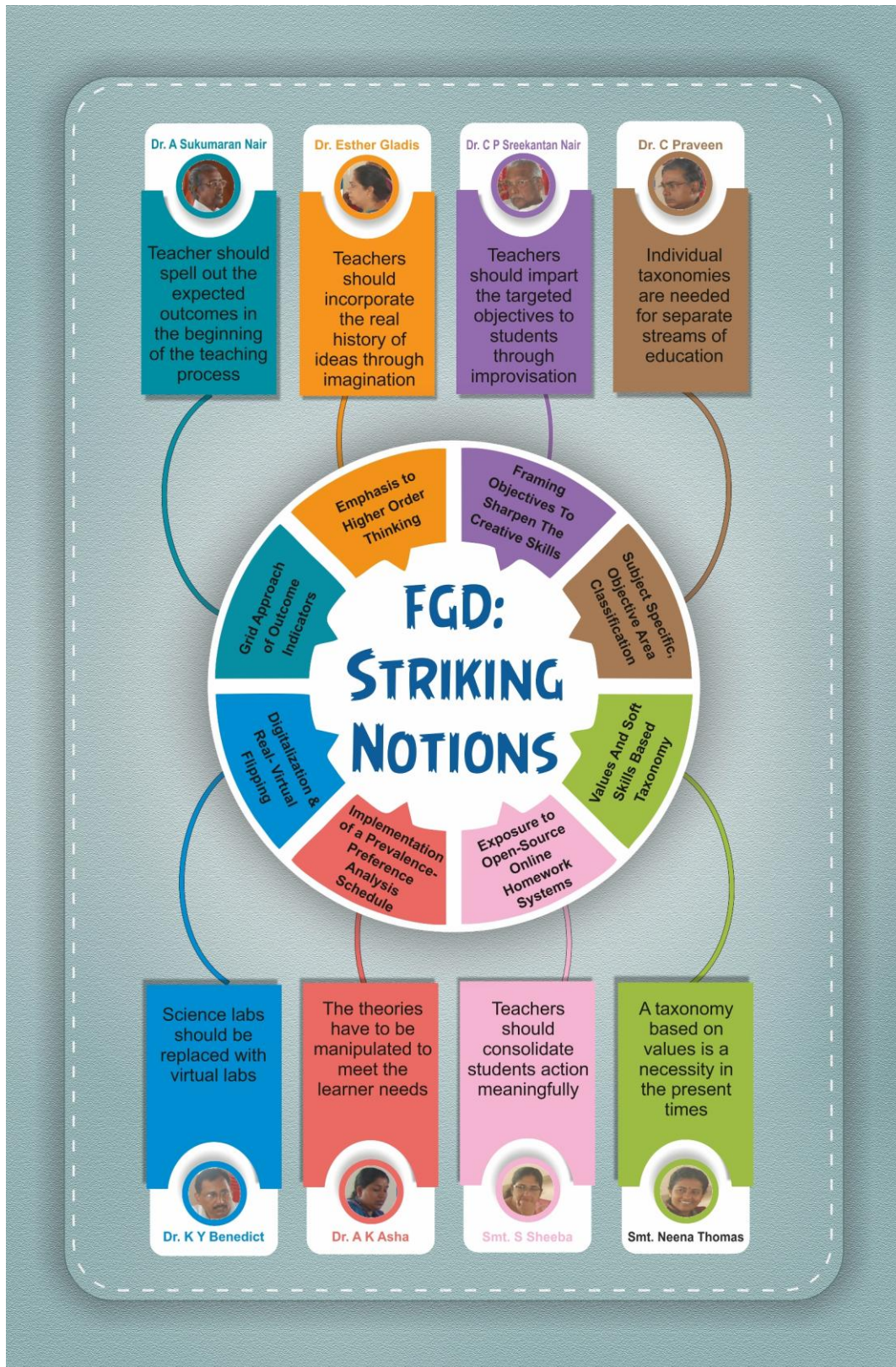| Sl. No.	Name	Designation
1	Dr A Sukumaran Nair	Former Vice-Chancellor, Mahatma Gandhi University, Kottayam; Chairman, State Advisory Board in Education, Government of Kerala.
2	Dr C P Sreekantan Nair	Former Principal, Farook Training College, Kozhikode; Chairman, Council for Teacher Education (CTE), Kerala State Centre.
3	Dr Esther Gladis	Former Principal, Mar Theophilus Training College, Thiruvananthapuram, Kerala.
4	Dr V M Sasikumar	National Vice-Chairman (South Zone), Council for Teacher Education (CTE), Kerala State Centre.
5	Dr C Praveen	Assistant Professor, Govt. Brennen College of Teacher Education, Thalassery, Kerala.
6	Dr K Y Benedict	Research Supervisor, University of Kerala; Associate Professor, Mar Theophilus Training College, Thiruvananthapuram, Kerala.
7	Smt M Reeja	Research Officer, State Council of Educational Research and Training (SCERT), Kerala.
8	Smt S Sheeba	Higher Secondary School Teacher Junior (Physics), Govt. Higher Secondary School, Venjaramoodu, Thiruvananthapuram, Kerala.
9	Dr A K Asha	Assistant Professor, Kerala University College of Teacher Education, Kariavattom, Thiruvananthapuram, Kerala.
10	Smt Neena Thomas	Research Scholar/ Assistant Professor, Mar Theophilus Training College, Thiruvananthapuram, Kerala.
11	Smt V Sreeja	Junior Research Fellow in Education, Kerala University Library, University of Kerala.
12	Sr Soumya	M. Ed Student, Mar Theophilus Training College, Thiruvananthapuram, Kerala.
13	Smt Jyothi James	M. Ed Student, Mar Theophilus Training College, Thiruvananthapuram, Kerala.
14	Sri V Vasundharan	Head of the Department of Chemistry (Retd.), S. N College, Thiruvananthapuram, Kerala.
15	Sri V Vinesh	Software Engineer, Argent, Technopark, Thiruvananthapuram, Kerala.

APPENDIX II

Figure 1: Infographics on FGD