



EDUCATION OF TEACHER EDUCATORS REGARDING THE INFUSED CURRICULUM'- A SUGGESTED FRAMEWORK

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Abstract

The present study focuses on understanding the perspectives of the teacher educators regarding the infused curriculum. The purpose is to study their awareness and their potential needs with regard to the infused curriculum. The work also tries to suggest a framework for the education of the teacher educators regarding the infused curriculum based on the identified needs. The suggestions are given about the Designing of the Education Programme and the Implementation of the Education Programme. These suggestions regarding the designing and implementation of the programme are based on the principles of curriculum construction, principles of learning and the components of the integrated curriculum and are allied mainly on the infusion of the three models of Teacher education namely the Applied Science Model, the Craft Model and the Reflective Model.

Key words: - Teacher educators, Infused curriculum, Needs analysis, Framework for education of teacher educators.



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Introduction

A curriculum can be defined as a plan for action or a written document that includes strategies for achieving desired goals or ends. (<http://www.stcoll.edu>. Tyler, 1949).

The Secondary Education Commission (1952-53) states that ‘Curriculum does not mean the academic subject taught in a school, but it includes total experiences that a child receives at a school.’

According to Paul Hirst (1973) ‘A programme of activities designed so that pupils will attain as far as possible, certain education ends or objectives is known as curriculum.’

Some of the important principles of curriculum construction are:-

- Principle of learner centered education.
- Principle of relation with life.
- Principle of utilizing creative and constructive powers.
- Principles of inter relation of play and work activities.
- Principle of knowledge of culture and civilization.
- Principle of totality of experiences.
- Principle of utility.
- Principle of future orientation.
- Principle of variety and flexibility.
- Principle of correlation.

The different types of curriculum are:-

- Subject centered or learner centered.
- Task centered or Activity centered curriculum.
- Objective centered curriculum.
- Experience centered curriculum.
- Correlated curriculum.
- Core curriculum
- Integrated curriculum. (Satya Narayana, Krishna & Rao, 2006).

Integration means ‘fusion’. It can be of subjects and experiences. It has a basis in the Gestalt Theory which states that the ‘Whole is something more than the sum of its parts.’ Integration or infusion helps students to have a comprehensive understanding across various disciplines. Integration can be according to subjects, themes, skills or even attitudes. **Curriculum integration or curriculum infusion** has been advocated for a number of benefits it has, in terms of students learning. It is found to develop higher level of understanding, improve retention, help to closely relate content, facilitates their active engagement, and make real life connections. It has been implemented across a number of subjects like arts, nursing,

technology, literature, social, emotional and civic learning, environment, inclusion, multiculturalism, health, etc.

A major driving force behind integrated teaching and learning is the belief that when themes, subjects, or projects are combined students begin to see meaningful connections between the subject matter. Material then serves as a vehicle for learning rather than simply pieces of information. In addition to this, repetition of material from one subject to the next is essentially eliminated.

There are two strong arguments supporting an integrated curriculum. First, there is simply too much information to be covered in the traditional structure of a forty or fifty minute class period. Secondly, most subjects are taught to students in isolation from other related information. Advocates of an interdisciplinary curriculum believe that individuals learn best when encountering ideas that are connected to one another. A strong belief system exists supporting that "all things are connected."

Components of Integrated Curriculum

- Focuses on basic skills, content and higher level thinking
- Encourages lifelong learning
- Structures learning around themes, big ideas and meaningful concepts
- Provides connections among various curricular disciplines
- Provides learners opportunities to apply skills they have learned
- Encourages active participation in relevant real-life experiences
- Captivates, motivates, and challenges learners
- Provides a deeper understanding of content
- Offers opportunities for more small group and industrialized instruction
- Accommodates a variety of learning styles/theories (i.e., social learning theory, cooperative learning, intrinsic motivation, and self-efficacy) and multiple intelligences.

The concept of implementing an integrated curriculum, or running an interdisciplinary classroom as some may call it, is positively correlated with Albert Bandura's theory of social learning. In an interdisciplinary classroom, students work together in a collaborative manner to solve problems, construct knowledge, and make connections between existing curriculums. An interdisciplinary classroom is an environment in which cooperative learning is the basis of instruction. In cooperative learning settings, students work in small groups to achieve a common goal. An interdisciplinary classroom or the use of an integrated curriculum affords

students the opportunity to work collaboratively while making real-world connections with a variety of disciplines. (Contardi et al, 2000)

The findings support the positive effects of curriculum integration. Lipson (1993) summarizes the following findings:

- Integrated curriculum helps students apply skills.
- An integrated knowledge base leads to faster retrieval of information.
- Multiple perspectives lead to a more integrated knowledge base.
- Integrated curriculum encourages depth and breadth in learning.
- Integrated curriculum promotes positive attitudes in students.
- Integrated curriculum provides for more quality time for curriculum exploration.

Factors that need to be considered in an integrated curriculum are (Gehrke 1991; Jacobs 1989; Lipson 1993; MacIver 1990):

- Common definitions of terms (such as theme, strand, or outcome)
- Available resources
- Flexibility in scheduling
- Support services
- Subjects and concepts that will be integrated
- Links between integration and broader outcomes
- Curricular scope and sequence
- How evaluation will occur
- Parent and community support
- Themes that promote the transfer of learning and connections
- Team planning time that is used to exchange information about content, students, special areas of teacher expertise, and teaching methods. (Lake, 2000)

Curriculum infusion is an educational approach that uses real-life issues as the context for teaching academic skills and knowledge. It is sometimes called *curriculum integration*.

Fogarty (1991) proposes 10 models of curriculum integration:

- Fragmented
- Connected
- Nested
- Sequenced
- Shared
- Webbed

- Threaded
- Integrated
- Immersed
- Networked

These models represent a range of options: from integration within single disciplines to integration across several disciplines to integration that occurs within the mind of the learner.

Drake (1993) provides three frameworks for curriculum integration:

- Multidisciplinary approach
- Interdisciplinary skills approach
- Transdisciplinary/Real world approach

(<http://www.ncrel.org/sdrs/areas/issues/envrnmnt/drugfree/sa3curri.htm>)

Joseph S. Renzulli (2014) University of Connecticut in his article ‘The SEM Infusion Based Approach to Curriculum Enrichment: Jazzing Up the Common Core’ has explained the application of the ‘The School wide Enrichment Model (SEM)’ which uses an *infusion based* approach to dealing with prescribed curricular content. The SEM strikes a balance between traditional approaches to learning and approaches that promote thinking skills, hands-on learning, and creative productivity on the parts of all students. The goals are to minimize boredom and “school turn-offs” and to improve achievement and creative productivity by infusing what we call The Three E’s (Enjoyment, Engagement, and Enthusiasm for Learning) into the culture and atmosphere of a school.

Traditional ways of learning, even under the best of circumstances, cannot compete with students who find texting under their desks more engaging than listening to their teachers and professors or memorizing factual material for a forthcoming test. Another development in technology that will aid infusion is the unlimited amount of information now available through the Internet. Free or inexpensive software now enables teachers to prepare and upload their own lectures and assignments for student use anytime and anywhere. Finding activities for infusion is now easier than ever using the Internet-based search.

While it is not practical to use infusion for every topic or course, this approach makes learning more engaging and creates an enthusiasm for learning that seldom results from covering curricular material in traditional ways. The guidelines for infusion are easy to follow:

- Select an activity that does not always have a single, predetermined correct answer.
- Find things that students do rather than sit and listen to.

- Give students choices that they will enjoy pursuing.
- Select activities that have various levels of challenge to which interested students can escalate. (Renzulli, 2014)

A study conducted by Aksamit and Alcorn (2015) titled 'A Pre-service Mainstream Curriculum Infusion Model: Student Teachers' Perceptions of Program Effectiveness'. This study investigated the perceptions of student teachers completing a pre-service teacher education program that has relied on the curriculum infusion model to prepare regular classroom teachers for mainstreaming. Participants rated the extent to which mainstream curriculum had been covered in their courses, their own current knowledge of the curriculum, and their confidence in teaching handicapped students. Contact with handicapped learners during student teaching was also reported and responses to an open-ended question were solicited. Results indicate that participants perceived both the coverage of mainstream curriculum and their own knowledge as less than adequate. Contact with handicapped learners was also less than anticipated. Implications are discussed and recommendations are made for programs that rely on curriculum infusion to prepare regular classroom teachers for mainstreaming. (Akasmit and Alcorn, 2015)

Badiyyah Waajid, Pamela W. Garner and Julie E. Owen (2013) conducted a study on 'Infusing Social Emotional Learning into the Teacher Education Curriculum'. In this study the researchers, used qualitative methods to examine whether they could successfully infuse an undergraduate curriculum and instructional course with social emotional learning content. . Results showed paradigm shift in participant's views from being teacher centric to student centric. The participants also stated that infusion helped them to value their preparation to develop a strategy. The study also highlights the fact that the teacher-training programs need to incorporate practicum experiences that allow for real-world experience for pre-service teachers before they get to the classroom. One area for future research would be to have students practice delivering the content they developed and to have them participate in activities that allow for deeper reflection, practice, coaching and appropriate feedback, and revision, elements that should be part of any curriculum development process. (Waajid, Garner & Owen, 2013)

A paper titled 'Frame Work for Effective Curriculum Delivery for Climate Change Education Curriculum' by Benjamin Terdoo Doggoh and Abdullahi Dada Aliyu (2010) examined what it takes to prepare teachers for effective delivery of climate change Education curriculum on the apex levels of Education in Nigeria. It also highlighted models of Teacher Education

delivery that can be employed for effective preparation of the teacher for this task such as the applied science model, the craft model, Reflective model and integrational approach.

Research findings in the areas of life sciences, anthropology, climate change, etc., when included in the curriculum of teacher education, will increase its relevance and make it more functional. It will also require inclusion of additional inputs of theoretical, pedagogical and practical components as well as proper allocation of time and resources for improving the quality of teacher education. The teachers must be fully exposed to philosophy and purpose of this curriculum framework.

Teacher Education Models

There are different teacher education models which could be taken advantage of in the course of preparing teachers for climate change education delivery. Prominent among them include:

The Applied Science Model

The Applied Science Model is the traditional and perhaps is still the most prevalent model underlying most teacher education models. This model was proposed by Michael J. Wallace in 1991 based on the Technical Rationality of Donald A. Schön. The model gained prominence as a result of the achievements recorded in empirical science, most especially in the 19th and the 20th centuries. The Applied Science Model emerged on the following assumptions:

- i. Teaching is a science and as such can be examined rationally and objectively.
- ii. Teachers learn to be teachers by being taught research-based theories.
- iii. These theories are being conveyed to the students only by those who are considered to be the experts in the particular field.
- iv. Teachers are said to be educated when they become proficient enough to apply these theories in practice.

The Craft Model

The Craft Model is the oldest form of professional education and is still used today in teacher education, albeit rather limitedly. Its conceptual basis, however, is widely utilized in practicum courses in which students work with classroom teachers, often called cooperating teachers. Its use in one course in a programme of teacher education cannot be regarded as a model for an entire programme. The basic assumptions underlying this model are as follows:

- i. In its most basic form, Craft Model consists of the trainee or beginner working closely with the expert teacher.

ii. The practitioner is supposed to learn by imitating all the teaching techniques used by the experienced teacher.

iii. Knowledge is acquired as a result of observation, instruction, and practice.

The Reflective Model

The ultimate goal of teacher education as far as this model is concerned is to empower prospective teachers to develop a spirit of inquiry leading to informed decision making while applying values to action. The Reflective Model is based on the assumption that teachers develop professional competence through reflecting on their own practice. In other words, a teaching experience is recalled and considered to reach an evaluation and to provide input into future planning and action.

The Integrational Approach

Integration in education entails combining various learning areas into one learning area. It adopts a holistic view of knowledge (Mdikane, 2004). The integrational approach has to do with teacher educators' ability to make use of more than one teacher education model at a time. Using more than one model at a time has some multiple advantages, which may include: creating novelty in the education process; meeting learner's needs and dispositions; and responding to the dynamics of teaching and learning. (Doggoh & Aliyu, 2010)

Mary Hooker (2008), in her document on Models and Best Practices in Teacher Professional Development, states that to be effective and successful teacher professional development (TPD) should be of high quality and relevant to the teacher's needs. TPD is the instruction provided to teachers to promote their development in a certain area. Though the recipient of the TPD is the teacher, the ultimate beneficiary is the student. According to Gaible and Burns (2005:25) TPD can be divided into three broad categories:-

- Standardized TPD: - The most centralized approach, best used to disseminate information and skills among large teacher populations.
- Site- based TPD:- Intensive learning by groups of teachers in a school or region, promoting profound and long-term changes in instructional methods.
- Self- directed TPD:- Independent learning, sometimes initiated at the learners discretion, using available resources that may include computers and the Internet. (Hooker, 2008)

In majority of the earlier researches the focus has been on actual infusion of different subjects at school level or teacher education level. The studies also focus on the importance of teacher education w.r.t the designing and implementation of an infused curriculum. The

suggestions regarding education of teachers are specifically given with respect to the subject that has been infused in the curriculum in the undertaken study. Very few studies indicate the attempts taken for education of the teacher educators. However more research needs to be done with respect to the strategies, themes and pedagogies to be used in the classroom especially related to Teacher Education. Findings have shown the benefits of infused curriculum from the point of view of students. Infusion has been found useful and effective in teaching of various subjects and has been beneficial in terms of not only increasing the achievement but also in attitude development. The integrated approach in education has been advocated in the school education programmes.

This emphasizes on the necessity of the teacher education programmes to educate the pre service teachers regarding curriculum infusion both at the theoretical and the practical level. It is imperative then that the teacher educators are themselves aware about the concept as well as the various techniques of teaching and evaluation and the competencies essential for designing it to its implementation. In India very few studies have been taken to understand the perspective of the teacher educators regarding the infused curriculum. Studies also need to be conducted on the teacher educators to focus on their approaches and attitudes towards the infused curriculum. Further the teacher education programmes in India have as yet not included provision of educating and training the pre service teachers in implementing the infused curriculum.

The current study focuses primarily on the identification of the needs of the teacher educators regarding the education to be given to them in context of their perspectives regarding teacher education. The researchers have tried to represent the analysis with respect to the specific research questions and characterize the patterns in the responses keeping in mind the research questions. The researchers followed the following steps: acquaint themselves with the data (by going through the answers given by the respondents), coding and organizing the data and restructuring and representing the data (by categorizing and with respect to the research questions, in terms of identified patterns).

The inquiry in the present research study is focused through the following questions:-

- ✓ Are the teacher educators aware regarding the infused curriculum in terms of its characteristics and benefits to students?
- ✓ What are the training requirements/needs of the teacher educators if they have to implement the infused curriculum?

- ✓ What according to teacher educators are the competencies required in the teacher educators for implementing the infused curriculum?
- ✓ What preparation does the teacher educators regard important before implementing the infused curriculum?
- ✓ Can a framework be developed for teacher educators regarding the infused curriculum?
- ✓ What aspects will have to be considered while planning such a programme?
- ✓ What competencies would be required in the trainers who would conduct such a programme?
- ✓ How can technology be adopted for effective implementation of the programme?
- ✓ What type of materials and resources should be used during the training programme?

Method

This was a Qualitative study to get information regarding all the above mentioned questions. The focus was on getting insight into the perspectives of the teacher educators regarding the infused curriculum. The main aim was to comprehend the ‘Perspectives of the teacher educators regarding the infused curriculum,’ make a ‘Needs analysis’ and to suggest a ‘Model for education of Teacher Educators’.

A Survey was conducted and a questionnaire developed by the researchers was used in the study for data collection. The questions were open ended questions and the data collected was qualitative in nature.

Informants

Responses of 36 teacher educators were included in the study. Figure 1 given below represents the details of these informants.

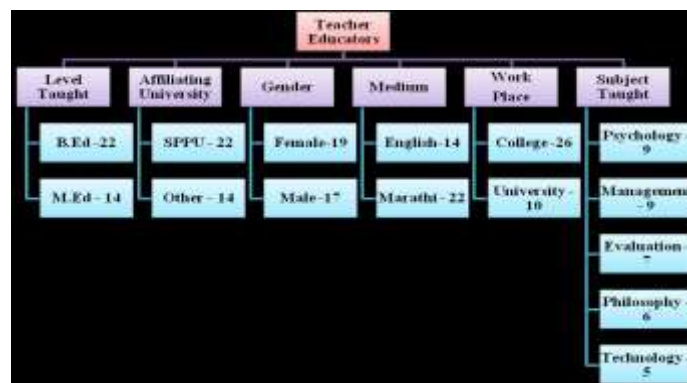


FIGURE 1 Details of the Informants

A thematic analysis of the written answers of the participants was made and coded. Coding involved first having the researchers read through the entire answers given by the teacher educators. The researchers then extracted quotes from the responses that were specifically related to the perspectives of the teacher educators with respect to:-

- ✓ Awareness regarding infused curriculum.
- ✓ Training needs for implementing the infused curriculum.
- ✓ Competencies required in the teacher educators for implementing the infused curriculum.
- ✓ Preparation they would have to do for implementing the infused curriculum.

These were then grouped according to the identified relationships.

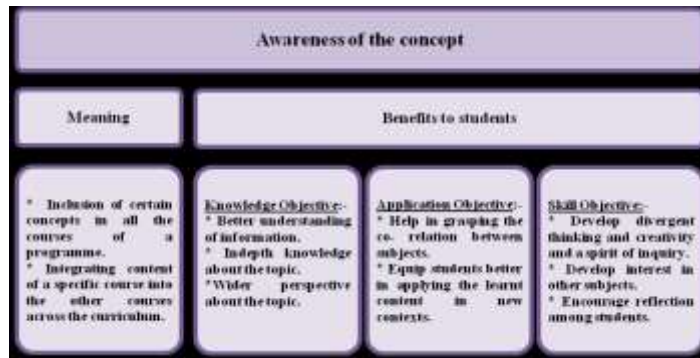


FIGURE 2 Responses regarding the Awareness of the Concept

The responses given by the teacher educators in Figure 2 depicted above shows that they have an idea about the infused curriculum and realize its benefits in terms of students learning. They realize that the infused curriculum would be beneficial to the students from the Knowledge, Application and Skill perspective.

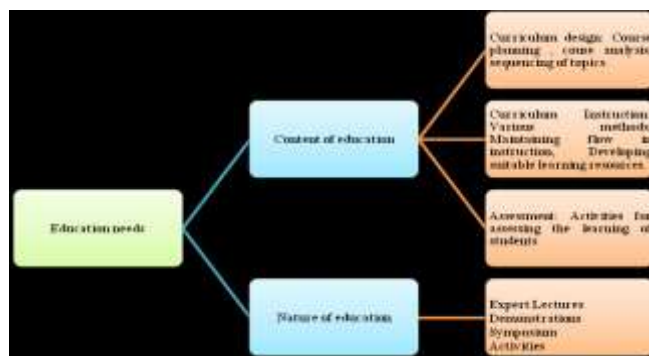


FIGURE 3 Education Needs

From the above Figure 3 we can observe that the teacher educators have given two aspects of the education needs for implementing the infused curriculum namely- the aspects related to

the content included in the education and secondly the nature of education. They have mentioned that right from the explanation of the concept, designing of the curriculum, to the methodologies / techniques to be used (especially in the context of the course which has been infused) and the assessment that would have to be done they would like to have education. With respect to the nature of education they have mentioned that lectures by experts should be organized which should be followed by practical activities. Thus they have emphasized the need for blending theory and practice in the education.



FIGURE 4 Essential Competencies for Implication

As seen in Figure 4 given above it is very important to note that the teacher educators are aware of the various competencies they would be requiring if they have to implement an infused curriculum.

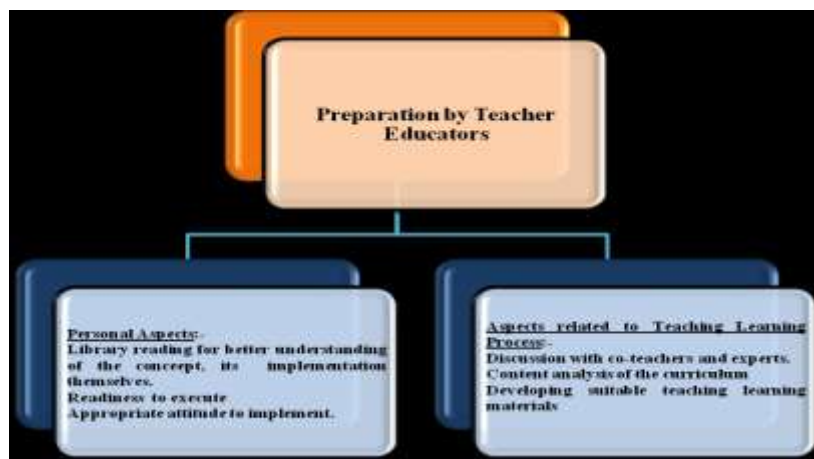


FIGURE 5 Equipping with the Prerequisites

The responses depicted in Figure 5 emphasize the awareness among teacher educators regarding the preparation they would be expected to do before implementation of an infused curriculum.

- **Discussion of the findings:** - The findings of the present study show that teacher educators are aware regarding the infused curriculum to some extent. They are also conscious regarding the potential benefits it may have on the students in the context of Knowledge, Application and Skill Objectives. They are also aware regarding the essential competencies that would be required in them for the successful implementation of an Infused curriculum. These findings are supportive to the earlier findings.

All the responses of the teacher educators have been useful to identify their education needs. On the basis of this analysis the researchers have attempted to suggest a framework for the teacher educators. An attempt has been made to present the various aspects reviewed and incorporated in this suggested framework for the education of teacher educators through the Figure 6 given below.

FOUNDATIONS FOR DEVELOPING THE INTEGRATED FRAMEWORK FOR EDUCATION OF TEACHER EDUCATORS

Implications from the present study



FIGURE 6 Implications regarding the Design of the Programme

Aspects considered from the theoretical and research review

Designing the Content of the programme

Principles of Curriculum construction	Principles of Learning	Components of the curriculum
<ul style="list-style-type: none"> •Learner centric. •Relation with life. •Creative and Constructive. •Totality of experiences. •Utility. •Future orientation. •Variety and flexibility. •Correlation. 	<ul style="list-style-type: none"> •Three E's: Enjoyment, Engagement and Enthusiasm in learning. •Bandura's Social learning. •Co-operation and collaboration. •Real life connections. •Challenging tasks. •Use of technology. 	<ul style="list-style-type: none"> •Basic skills, content and higher level thinking. •Lifelong learning. •Learning around themes. •Connection among different disciplines. •Opportunity to apply skills. •Active learning in real life situations. •Small group learning. •Focus on different learning styles.

FIGURE 7 Programme Design: Content

Mode of Delivery and Implementation of the programme



FIGURE 8 Programme Design: Mode of Delivery

Suggested Integrated Framework For Education Of Teacher Educators

Based on the above figures (Figure 6, Figure 7 and Figure 8) a framework for the education of teacher educators following the Infused Curriculum has been suggested. It has been illustrated from Figure 9 to Figure 15 given below.



FIGURE 9 Programme Design: Features of the Programme



FIGURE 10 Programme Design: Objectives of the Programme



FIGURE 11 Programme Design: Content of the Programme

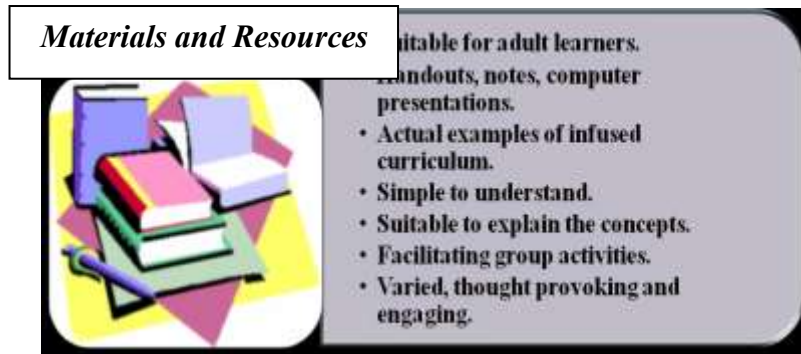


FIGURE 12 Programme Design: Materials and Resources

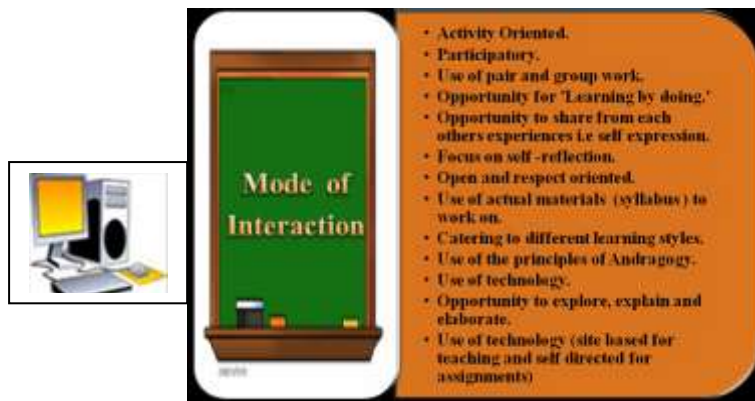


FIGURE 13 Programme Design: Mode of Interaction



FIGURE 14 Programme Design: Educator Competencies



FIGURE 15 Programme Design: Teacher educators (Learners) competencies

- **Conclusion:** - The present study has highlighted the need of education of the teacher educators regarding the infused curriculum. The major contribution of the present work is the framework suggested for the teacher educators on the basis of their identified needs by understanding their perspectives regarding the infused curriculum.

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