1.1 Introduction

This chapter deals with meaning of e-learning conceived by various experts, meanings of blended learning, importance of teacher education in changing times, emerging new trends in teacher education programmes, need for the study, significance of the study and statement of the problem.

1.2 Meaning of e learning

The computers with their tremendous working capacity coupled with excellent progress in the field of electronics and communication technology have bestowed enormous power and abilities to human beings. As per S.K. Mangal (2010) teaching and learning that entirely happened to be a domain of the human factors –teachers and students is now no longer limited to its traditional boundaries or ways and means. It has gradually evolved into a subject of technological progress. Research in the field of computer operation, net working and development of various hardware and software tools have almost revolutionized the field of teaching and learning.

Instead of total dependency on the instructions imparted by the teachers and the subject matter available in the printed media, the learner can access the computer data base and network information not only to seek information but also to interact with them on line in the way it happens in the real class room environment.

e learning is an abbreviation of the term electronic learning. It is a very broad term and is used to describe any type of learning environment that is computer enhanced.

The term e learning in the most general sense refers to the use of computers and communication technologies in the teaching learning process, with the intention to enhance its effectiveness.
e learning may be understood as an innovative technique or a form of ICT used in providing learning experiences to the students through online by using internet services and web technology. However in practice the use of the term is not limited to internet and web technology alone. Therefore present day e learning can be termed as learning carried out, supported and facilitated by the advanced multimedia facilities as well as internet and web technology delivered to the end users in computers, laptops and mobile ICT applications.

Whatever be the definition of e learning the common phrase that pops up as an advantage of e learning is any time, any where and any pace learning.

1.3 Meaning of blended learning

e learning may be in general classified as (i) support e learning (ii) blended learning and (iii) complete e learning

1.3.1 Support e learning

e learning can play a mere supporting role to the teaching learning activities in the class, as a result a teacher may make use of it and learner can also learn better by using multimedia, internet and web services to enhance their class room activities.

1.3.2 Blended learning

In this type attempts are made for making use of a combination of traditional and ICT enhanced e learning practices. Blended learning describes the learning environment that either combines teaching methods, delivery methods, media formats or mixture of all these. It also refers to the integrated learning activities such as mixture of online, off line and face to face learning. In other words blended learning is a mixture of traditional and e learning strategies. It is the combination of face to face learning with web based on line
approaches the combination of media, methods and pedagogical approaches, to enhance control over learning, critical thinking and assessment.

1.3.3 Complete e learning

In this mode of learning the traditional class room teaching-learning is totally replaced by the virtual class room teaching-learning. There is no existence of class rooms, school and teaching learning environment. The learners are free to take their learning tasks independently with the help of properly designed e learning courses. Most of the learning activities are carried out on line at the same time they can have access to well stored information and learning packages in any of the e format.

1.4 Importance of teacher education

National Policy on Education (1986) stated that “the status of the teachers reflects the social cultural ethos of a society it is said that no people can raise above the level of its teacher”

The role of present generation teacher is having its own complexities to act as a regulator amongst the gush of knowledge resources.

The role of modern teacher is something different. They are varied and diversified. Previously he was considered as a transmitter of knowledge. But now he is considered as a change agent catalyzing the technological storm taking place in the globalized educational scenario.

In order to perpetuate the organized system of society teacher education moulds the suitable persons as expected by the society to nurture the young minds as teachers. The strength of an educational system largely depends on the quality of its teachers. How
ever high the aims, however up to date the equipments, however efficient the administration the performance of children is determined by the teachers.

It is high time that we develop a class of teachers who are well prepared academically, trained professionally and can sustain the formidable task of nation building with confidence. These teachers must also posses experimental attitude with wholesome philosophy of education which calls for innovative approaches to prepare teachers at all levels. These teachers must be able to comprehend with findings of educational research, translate them into practice, and feed the same to the up coming generation for further research and development.

1.5 Emerging new trends in teacher education programme

The prospective teacher must be made to realize his duties and responsibilities in an emerging society. He must be taught what is relevant to the needs of the society. The teacher education programme should be competent enough to inculcate the qualities, abilities, attitudes, ideals etc…..expected out of good teacher along with the ability to grab and refine the repot ire of information available in the World Wide Web, to scaffold the knowledge base of the learner instantly.

Educational systems around the world are under increasing pressure to use new Information and Communication Technologies (ICTs) to teach students the knowledge and skills they need in the 21st century. As per the UNESCO world education report (1998) “Teachers and Teaching in a Changing World” - with the emerging new technologies the teaching profession is evolving from an emphasis on teacher centered lecture based instruction to student centered, interactive learning environments.
Designing and implementing successful ICT enabled teacher education programmes is the key to fundamental and wide ranging educational reforms.

The report also emphasizes that teacher education institutions may either assume a leadership role in the transformation of education, or be left behind in the swirl of rapid technological change. For education to reap the full benefits of ICTs in learning, it is essential that pre- and in-service teachers are able to effectively use these new tools for learning. Teacher education institutions and programmes must provide the leadership for pre-and in-service teachers through ICT and design the new pedagogies and tools for learning.

It is the universal truth that a teacher can not be substituted by any electronic gadget. Many times the newer gadgets are playing a supplementary role along with the teacher’s aim of maximizing the learning experiences. In this context the teacher can be said well informed and fully competent only when he is well versed with the usage of web resources and optimal use of them in the required proposition along with his sturdy commitment to discharge his lively role.

1.6 Statement of the problem

Teachers are the pillars of any nation. It is imperative to make them technically sound and professionally confident to create knowledge society. This formidable task of nation building can be achieved only with the help of hybrid learning environments. It is the need of the hour to think of the various possibilities of integrating the conventional face to face class room environment with e learning environment. Hence the problem of the present study is stated thus “Development, Validation, and Effectiveness of Blended Learning on Teaching of Science at B.Ed Level.”
1.7 Need for the study

As per UNESCO (2002) planning guide, “Information and Communication Technologies in Teacher Education” education is at the confluence of powerful and rapidly shifting educational, technological and political forces that will shape the structure of the educational system across the globe for the remainder of the century.

Many countries are engaged in a number of efforts to effect changes in the teaching learning process to prepare students for information and technology based society. ICTs may provide an array of powerful tools that may help in transforming the present isolated, teacher centered and text-bound class rooms into rich, student focused, and interactive knowledge environments.

To accomplish this goal, it requires both a change in the traditional view of the learning process and an understanding of how the new digital technologies can create new learning environments in which the students are able to take greater responsibility for their own learning and for constructing their own knowledge.

Blended learning strategies and practices can obviously be made use of in the Indian sub continent. The traditional way of teaching has made the teaching profession, a sluggish one. This type of teaching produces less competent teachers and in turn many of the youngsters are reluctant to take up teaching profession. Blended learning strategy is partially technology dependent and gives very big role to the teacher. This strategy provides opportunities to try other modes of alternative or supportive instructional channels with in our existing class room and school climate.

In this approach the prescribed curriculum can be dealt well with in the fixed period of time, and can be believed to maximise the learning out comes. The teacher is
free to use his own instructional techniques and web resources to suit the needs of the learner.

Blended learning strategy can maximize the utilization of minimum resources. It can promote relearning in terms of drill and practice without space constraint. Through blended learning strategy educational cost becomes cheaper, and that makes it cost benefit and cost effective. Storage, preservation of content and timely retrieval of them are easy in blended learning. In case of non formal education it is the powerful medium and can very well replace class room teaching and books as it can provide content with media and animation to promote modernization of education.

Blended learning strategy will be more entertaining and encouraging to the students of all age group. If it is employed appropriately the positive attitude towards education can be fostered among young learners which will make learning with out burden a reality. When the ignited learners acquire unquenchable thirst for knowledge, then mastery of learning will be achieved easily. Blended learning strategy can address two important expectations of policy makers namely learning with out burden and mastery of learning.

1.8 Significance of the study

The policy makers are more concerned about the productivity of the educational process and its impact on the deserving communities of the society. Apart from economic status and lack of awareness of the family, uninteresting methods also account for dropouts. Once the blended hybrid strategies of delivery is adopted, it can very well increase the attendance of the students and chances are more for learning with out burden to take place.
Mastery learning provides compact and interesting ways of increasing the likelihood of more students attaining satisfactory level of performance in school subjects. So it is vital to try the new strategy in teacher education to train the budding teachers to use modern gadgets those are cost effective.

This study is very significant as it investigates the effectiveness of blended learning strategy in teacher education which is the foundation stone of all education. The novice teachers can be trained in all the modern hardware and software as well as their effective utilization to arouse the interest of the learners. This strategy will ensure mastery in learning and foster self regulated learning with latest study media and material available in the web, to make learning with out burden, a reality.

1.9 Operational definition of key terms

Blended learning strategy, achievement, e quest, and ICT readiness are the key terms related to the present study.

1.9.1 Blended learning strategy

Blended learning strategy is blending of different learning methods, techniques and resources and applying them in an interactively meaningful learning environment. Learners should have easy access to different learning resources in order to apply the knowledge and skills they learn under the supervision and support of the teacher inside and outside the classroom. This approach will combine face-to-face instruction with computer-mediated instruction. It also applies science or IT activities with the assistance of innovative educational technologies using computer, cellular or I-phones, Sky TV channels and other electronic media.
1.9.2 Achievement

Achievement means academic achievement indicated by scores awarded to the students’ performance during the examinations.

1.9.3 e Quest

World Wide Web is a place where seekers and learners alike bonded together in search for knowledge. The unquenchable thirst of learning mass in search of information in the electronic media has been termed as e quest by the investigator. What for the individuals are searching or what skill that they feel will improve over browsing have been collectively named as e quest.

1.9.4 ICT readiness

The mental preparedness of the pre service and in service teachers to utilize the ICT revolution in their teaching learning process and appreciating the positive impact of technology in education is termed as ICT readiness.

1.10 Objectives of the study

The following are the objectives of the study.

1. To integrate the personal touch of conventional face to face learning and e-learning in teacher education.

2. To identify the level of achievements through blended learning modules in science subjects.

3. To analyse the achievement of student teachers with respect to personal variables through blended learning.

4. To evaluate the effectiveness of blended learning modules in science subjects.

5. To find out the e quest of student teachers learning science through blended learning.

6. To study the ICT readiness of student teachers learning through blended learning.
7. To find out the relationship between e quest and ICT readiness of student teachers learning through blended learning strategy.

1.11 Delimitations of the study

1. The investigator has studied the e quest, ICT readiness and achievement of students learning science at B.Ed level only.

2. Since the study is an experimental study, the investigation is restricted to experimental and control group.

3. The size of the sample selected is limited.

4. The medium of instruction is restricted to English.

1.12 Chapter scheme

The first chapter explains the meaning of blended learning strategy, need and significance of the problem and delimitations of the study. Chapter II presents the theoretical back drop to the study. Chapter III attempts to provide a review of related literature and the insight gained by the investigator. Chapter IV deals with research paradigm, selection of samples, construction of tools, reliability and validity of the tools. Analysis and interpretation of data are explained in Chapter V, chapter VI gives the summary of findings, educational implications of the study and the conclusion.

1.13 Conclusion

The present study is related to the development of blended learning modules by integrating the freely available e resources and the class room input of the teacher. An attempt is also made to investigate the effect of the modules on e quest, ICT readiness and achievement in science education at B.Ed level.