

**DESIGNING STRATEGY FOR KVK TRAINERS' TRAINING
IN TRAINERS' SKILLS THROUGH DISTANCE
LEARNING—A STUDY IN NORTH INDIA**

Thesis

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By

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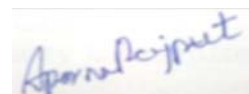
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CERTIFICATE

This is to certify that the thesis entitled “**Designing Strategy for KVK Trainers’ Training in Trainers’ Skills through Distance Learning – A Study in North India**”, submitted in partial fulfilment of the requirements for the degree of **DOCTOR OF PHILOSOPHY** with major in **AGRICULTURAL EXTENSION & COMMUNICATION** and minor in **SOCIAL SCIENCES** of the College of Post-Graduate Studies, G. B. Pant University of Agriculture and Technology Pantnagar, is a record of *bonafide* research carried out by **Ms. Aparna Rajput, Id. No. 28065**, under my supervision and guidance, and no part of the thesis has been submitted for any other degree or diploma.

The assistance and help received during the course of this investigation have been duly acknowledged.

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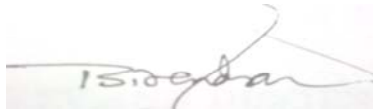
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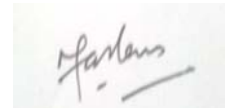
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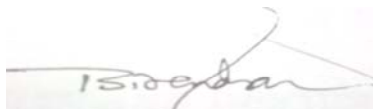
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LIST OF ABBREVIATIONS

ATICs	Agriculture Technology Information Centres
ATMA	Agricultural Technology Management Agency
DE	Distance Education
DoEE	Directorate of Extension Education
EEI	Extension Education Institute
FTCs	Farmers Training Centre
GBPUAT	Govind Ballabh Pant University of Agriculture and Technology
GTCs	Gram sevak Training Centres
ICAR	Indian Council of Agricultural Research
ICT	Information and Communication Technology
ICTs	Information and Communication Technologies
IT	Information Technology
ITD	Information Technology Development
IVLP	Institution Village Linkage Programme
KVK	Krishi Vigyan Kendra
NAARM	National Academy of Agricultural Research Management
NARS	National Agricultural Research System
NGOs	Non-Governmental Organizations
NIRD	National Institute of Rural Development
SAMETIs	State Agricultural Management and Extension Training Institute
SAU	State Agricultural University
SAUs	State Agricultural Universities
SD	Standard Deviation
SEm	Standard Error of the mean
SIRD	State Institute of Rural Development
SMS	Subject Matter Specialist
T&V	Training & Visit
TTC	Trainers Training Centre
WMS	Weighted Mean Score

INTRODUCTION

"Agriculture is the backbone of the Indian Economy"- said by Mahatma Gandhi six decades ago. Even today, the situation is still the same, with almost the entire economy being sustained by agriculture, which is the mainstay of the villages. Not only the economy, but also every one of us look up to agriculture for our sustenance too.

Indian agriculture has progressed a long way from an era of frequent droughts and vulnerability to food shortages to becoming a significant exporter of agricultural commodities. This has been possible due to persistent efforts at harnessing the potential of land and water resources for agricultural purposes. Indian agriculture, which grew at the rate of about 1 per cent per annum during the fifty years before independence, has grown at the rate of about 3 percent per annum in the post independence era. Increased outputs have been achieved chiefly by adopting, since mid sixties, a strategy aimed at increasing food grains production by concentrating public sector efforts and resources in regions with high potential for quick and substantial productivity gains through increased cropping intensity and average yields. These were the areas favoured by agro climatic resource conditions and where irrigation facilities already existed or could be developed relatively rapidly. The main elements of this strategy were: (i) expansion of irrigation coverage, (ii) increased provision and utilization of key inputs – high yielding varieties (HYVs) of crops, mainly of wheat and rice and chemical fertilizers and plant protection chemicals, (iii) expansion and improvement of institutional support services such as research and extension and (iv) price policies favorable to producers of major food grains. Steady globalization of trade has profound implications for future agricultural development. The diversity of India's agro-ecological setting, high bio-diversity and relatively low cost of

labour provide potential for agricultural competitiveness in a globalized economy. It is expected that with increasing globalization of markets over the years there will be demands for agricultural intensification. This will also be favored because of greater backward and forward linkages between agriculture and food industry. Therefore, increase in production and productivity are bound to be strategically important to economy. Intensification will not only favour alleviation of rural poverty but will also improve resource conservation particularly in the small farming sector where farmers can be encouraged to take up organized production of high value crops such as fruits, specialty vegetables, flowers medicinal and aromatic herbs etc. Stronger demands for crops of the small farmers will not only improve incomes and welfare but will also make investments in technology and resource conservation more attractive.

Training for Agricultural Development: A Historical Perspective

Training has been recognized as crucial for catalyzing rural development right since pre-independence era. It is noteworthy to mention that provision of training of youths and farmers had been made in several voluntary efforts of agricultural extension during pre-independence era to impart improved skills.

The origin of farmers' training can be traced back to the early voluntary works of Yamunapar project of Allahabad Agricultural Institute, Naini, Allahabad, U.P. where concerned efforts were made towards training of extension workers (called as gaon-sathi or village-friends) and farmers. The earliest mention of farmers' and youths' training is found in the rural reconstruction efforts at Shriniketan, West Bengal.

The farmers' training during British regime remained largely unorganized and scattered through voluntary efforts had been made under Grow More Food Campaign in the wake of the Second World War

in order to meet the emergency and feed the militia. With initiation of Etawah Pilot Project, farmers' training received significant attention through organization of village leaders' training camps where all aspects of rural development were covered. Farmers' training was given real boost with launching of the Community Development Programme in 1952. Training for the village leaders was an important part of community development programmes also in order to secure extensive peoples' participation. In view of greater importance of agricultural production in the Third Five Year Plan, the demand for fuller utilization of progressive farmers' had increased **(Kumar, 1994)**.

The process of in-service training was later expedited through the establishment of first Extension Education Institute (EEI) at Nilokheri in 1959, followed by other three at Anand (1962), Hyderabad (1962) and Jorhat (1987). The first EEI was established during second five year plan (1957-1961) for training of trainers of GTCs. However, the activities of EEIs have undergone change from time to time depending upon the requirement placed on them **(Mishra, 1990)**. At present EEIs are regional level training institutes aimed at training middle level extension personnel on basic and advanced training methodologies. With the establishment of first State Agricultural University at Pantnagar (1960) and subsequently in other states of the country, it becomes possible to train the trainers of state training institutes and to develop master trainers for research stations and universities.

The Intensive Agricultural District Programme (IADP) in 1961-62, popularly known as the Package Programme was started on pilot basis in 1961 in seven selected districts. The programme aims at combining technical know-how, credit and production supplies for stepping up agricultural production. During 1973-74, the Programme was in operation in 30.1 thousand villages in 15 selected districts of the country. During 1974-75, 15 more districts-2 each in Bihar and Karnataka, 4 in Punjab and 7 in Madhya Pradesh have been covered by

this approach. The operation of IADP contributed to a significantly in the use of critical inputs like improved seeds, fertilizers and plant protection measures. It was moderately successful and in 1964-65 expanded to become Intensive Agricultural Area Program (IAAP), which served 115 districts and several crops, the High Yielding Variety (HYV) programme 1966-67 had resulted in substantial increase in food grains production and the Small and Marginal Farmers' Development Programmes (SMFDP) in 1969-70. Though these programmes had a perceptible impact the efforts did not get replicated over different areas and categories of farmers. In mid seventies based on pilot level project in Rajasthan Canal and Chambal command area a 'Training and Visit' (T&V) system of extension was promoted in different states. T&V system was a new extension service approach. The concept of T and V system was evolved in 1974 by Israeli extension expert Daniel Benor. It is a systematic time bound programme of training based on intensive field visits by the extension workers under close supervision.

Extension efforts of the Indian Council of Agricultural Research (ICAR) through its research Institutes and the State Agricultural Universities were largely limited to demonstration of new technologies through such programmes as National Demonstration Project, Operational Research Project, the Lab to Land Programme and the Krishi Vigyan Kendras. Training was an essential aspect of all these programmes. However a turning point and novel effort was undertaken by launching KVKs at Pondicherry in 1974(9). KVK was supposed to be a grassroot institution for imparting vocational education to farmers, farm women, youth, school drop outs & village level extension workers. At present large network of frontline ICAR-SAU extension system consists of 589 Krishi Vigyan Kendras (KVKs), 10 Trainers' Training Centre (TTCs), 70 IVLP centres and 44 ATICs in the country. It was expected that Krishi Vigyan Kendras (KVKs), Non-Governmental Organizations (NGOs) and Farmers Organizations, Cooperatives, corporate sector and para-

technicians in agricultural extension will be encouraged for organizing demand driven production systems. Development of human resources through capacity building and skill up gradation of public extension functionaries and other extension functionaries will be accorded a high priority. In 1986, National Institute of Agricultural Extension Management (MANAGE) was established at Hyderabad to train the trainers of research stations and universities on extension, managerial and training methodologies. MANAGE was also expected to serve as think-tank and centre for excellence in HRD for extension in the country. Indian NARS (National Agricultural Research System) is one of the largest systems in agricultural research in the world employing over 25,000 scientists, who work in institutes distributed throughout the entire length and breadth of the country. Judicious and proper management of this vast manpower poses a formidable challenge to the system. Keeping in view this objective, the Government of India has established the National Academy of Agricultural Research Management (NAARM), Hyderabad. Since its inception in 1976, the Academy has expanded its horizon of activities over the years. Through its innovative training and research programmes in the specialized areas of Agricultural Research and Education Management, it has helped the systems in evolving appropriate policies to improve the efficiency and effectiveness of research and education in particular and agriculture at large. The other institutes like National Institute of Rural Development (NIRD) and State Institute of Rural Development (SIRD) was established in all states of the country catering to the needs of Panchayat and Development workers.

Training was given a place of utmost importance in Training and Visit (T & V) system of agricultural extension. However, there appears much to be desired in the way that extension programmes are conceived and implemented. Thus, in order to decentralize decision making to district level, ATMA came into existence. ATMA is a registered

society of key stakeholders working for sustainable agricultural development in the district. It is an autonomous institute with greater flexibility in structural and operational aspects, headed by the Director Extension Education of the University, as its Director. The ITD-NATP has been focusing on group learning and group action instead of training of contact farmers and a few individual farmers. As regards to technical competency, more emphasis has been given on in service training under ATMA initiative. Moreover, attitude of the functionaries shifted from professional as it was under T & V system to more of facilitators under ITD-NATP. Besides these, State Agricultural Management and Extension Training Institute (SAMETIs) are strengthened under Agricultural Technology Management Agency (ATMA) at state level to provide quality training and consultancy support to state extension mechanism. To sensitize and reorient the farmers to respond to new challenges in agricultural marketing and management, by using trainings as a vehicle of extension, the SAMETI Uttarakhand was established at the Directorate of Extension Education, G.B. Pant University of Agriculture & Technology, Pantnagar on August 25, 2005 to support the State Agricultural Extension Programmes. The Institute provides training, managerial equipments, communication support and programme cost to strengthen the functioning of ATMA.

Training is part of Human Resource Development. Human Resource Development has been defined as an organized learning experience, conducted in a definite time period to increase the possibility of improving job performance and growth. According to **Kumar and Kashyap (2004)**, training acts as tool for Human Resource Development (HRD). Even though HRD was originally used in the context of organization; it has relevance to people in general. All human being have potentials for growth and development. Training can help in gaining technical as well as behavioral skills to perform effectively in life and vocations.

Training is one of the major activity of KVKs these KVKs impart training in different field to the farmer, farm women, rural youth and extension workers. Training is not a totally new concept, has its roots very long back in Training and Visit programme. But now Government is more focused towards providing training especially for Human Resource Development. So, in present scenario training is matter of major concern especially if we are talking about agricultural extension personnel development working in KVKs.

Krishi Vigyan Kendras – Innovative Grassroot Training Institution

The Education Commission (1964-66) recommended that vigorous effort be made to establish specialized institutions to provide vocational education in agriculture and allied fields at the pre and post-matriculate levels to cater the training needs of a large number of boys and girls coming from rural areas. The Commission, further, suggested that such institutions be named as ‘Agricultural Polytechnics’ .The Ministry of Education, Ministry of Agriculture, Planning Commission, Indian Council of Agricultural Research (ICAR) and other allied institutions. Finally, the ICAR came up with the idea of establishing Krishi Vigyan Kendras (Farm Science Centres) as innovative institutions for imparting vocational training to the practicing farmers, school drop-outs and field level extension functionaries.

The ICAR Standing Committee on Agricultural Education, in its meeting held in August, 1973, observed that since the establishment of Krishi Vigyan Kendras (KVKs) was of national importance which would help in accelerating the agricultural production as also in improving the socio-economic conditions of the farming community, the assistance of all related institutions should be taken in implementing this scheme. The ICAR, therefore, constituted a committee in 1973 headed by Dr. Mohan Singh Mehta of Seva Mandir, Udaipur (Rajasthan), for working out a detailed plan for implementing this scheme. The Committee submitted its report in 1974.

First KVK, on pilot basis was established in 1974 at Pondicherry under the administrative control of Tamil Nadu Agricultural University, Coimbatore. In 1976-77, the Planning Commission approved the proposal of ICAR to establish 18 KVKs during the Fifth Five Year Plan. By the end of the Fifth Plan, thus 19 KVKs (including one established on pilot basis at Pondicherry) were established in the country. Krishi Vigyan Kendra (KVK) is a project of ICAR for testing and transfer of agricultural technologies, to bridge the gap between production and productivity and to increase self employment opportunities among the farming communities. The trainings offered here follow the principles of "Learning by doing" and "Seeing believes". It offers skill and knowledge oriented trainings in multidisciplinary areas like crop production and plant protection, horticulture, Animal Sciences and Fisheries, Home Science and Agricultural extension. The KVK is the light house of knowledge to the farming community of the State. Realizing the increasing demand of trained manpower in agriculture sector, several training programmes and institutions were also started.

The Indian Council of Agricultural Research (ICAR) has come up with the revised mandates of KVK and these are Technology assessment, refinement and demonstration of technologies/products like activities of KVK:

On-farm testing to identify the location specificity of agricultural technologies under various farming systems, front-line demonstrations to establish production potentials of technologies on the farmers' fields, training of farmers to update their knowledge and skills in modern agricultural technologies and training of extension personnel to orient them in the frontier areas of technology development.

To excel in competitive environment, every organization needs to have employees with high performance and high potential level. The employees do need regular training to keep updated with latest

developments in their field. Even if training need of different extension personnel is almost same but still content require different orientation for different positions. The philosophy of total quality management (TQM), too, explains that quality improvement is a continuous process, and that men have a vital role in the mission of total quality (TQ). It is, therefore, imperative for organizations to train and develop the work force on a continuous basis to avoid human obsolescence. This is also true for trainers at grassroots level like those in KVKs. **Lipitt et al. (1971)** pointed out that successful trainers should have the following characteristics:

- Group experience: In addition to the professional background of some kind, training personnel should have practical experience of working as group leader.
- Self-Understanding: A trainer should have sufficient understanding of own motivation and sufficient control on his own mechanism of defense to enable him to cope with inter-personal problems in training process.
- Training skill: With proper background and maturity, one can learn enough of training skill necessary in modern training design to become an effective member of training staff. The wider is range of skills the more effective the training can be.
- Democratic outlook: Trainers should have democratic outlook towards the training function so that he can encourage learning situation in which persons learn for themselves.

Trainers in KVK have the major role of providing training to farmers and other in-service candidate. So it becomes even more important that along with farmers government should also focus on their training because unless trainer is well acquainted with training methodologies how will he /she able to use them.

1.1 Statement of Problem

Training has a science of its own to design, develop, deliver and evaluate instructional strategies appropriate for the participants. Trainers need to be experts not only in the subject matter but also in methods of learning. Trainers have been to play different roles as subject matter experts, instructional designer, delivery agent, media planner, manager of training and evaluator. Thus, trainer to be effective needs training in specialized area called as trainer's skills. American Society for Training & Development (ASTD) world's largest association dedicated to workplace learning and performance of professionals has prescribed functions of trainers and requirement of training to operate as trainer. Similarly, different organizational societies emphasized on the attitude, knowledge and skills required to be a trainer. Indian Society of Training and Development (ISTD) have drawn a diploma course in training & development through correspondence. Similarly, curricula have been drawn by different organizations for developing trainer's skills. The need for training of trainers as professionals has been amply emphasized. **Mishra (1990)** remarked that we appear to have forgotten that trainers too require training, irrespective of the fact that they are called trainers of trainers. Trainers require training not only in subject matter areas of their specialization but, equally importantly, in training skill and extension methods.

KVK are innovative institutions started for imparting need based location specific training at the grassroots. This is a unique model of training and technology transfer where a team of specialized and qualified subject matter specialist are available for training of farmers, farm women, entrepreneurs, youths, school drop outs and village level extension functionaries right in the village or closer to village. KVK initially were planned to be supported by specialized Trainer Training Centres (TTCs) in different parts of the country like Hyderabad (AP), Bhubaneswar (Orissa), Cochin(Kerala), Indore(MP) ,Bhopal(MP), Karnal

(Haryana), Bangalore (Karnataka), Jharnapani (Nagaland) in order to train the trainers on regular basis. In the early phase of growth and development of KVKs, TTCs started training courses for trainers with focus on both subject matter and pedagogy. Recognizing the value of trainers' skills, Indian Council of Agricultural Research (ICAR) spearheaded a movement in 1990 with the help of USAID to train the trainer across the country. To begin with, selected master trainers were sent to USA for advanced training in trainers' skill and on return they organized training of KVK trainers at different locations in the country. Thus, a well designed trainers' training programme was set in motion to emphasize on trainers' skills. Later on with reorganization of KVKs into zones and project directorates, efforts have been made by the ICAR and SAUs to keep this focus of training of trainers. However, it is felt that with increasing number of KVKs less and less staff is getting opportunities for such training. Even if they undergo, short term training, it is not enough to provide them requisite trainers' skills. Studies conducted on KVK trainers have indicated that training methodologies adopted for them in past as well as present mostly comprise of face-to-face instruction including methods like lecturing, demonstration, and discussion. A range of other learning experiences are not even touched. To the contrary trainers' training in corporate sector is very systematic and regular affair.

Major limitations/weakness in these face-to-face methods are that they require trainees to leave their work place for training period. After communication revolution we have set of tools and techniques that can be employed to train KVK trainers like ICTs (Information Communication Technologies) and open learning options involving learning from the distance commonly called as distance learning. Distance education for farmers and small agri-entrepreneurs need to be explored and strengthened through television, radio, interactive audio and video systems, besides print and programmed learning materials

which would be the distinguishing feature of extension teaching and learning process. Training institutes of high quality should be established on urgent basis to provide better training to both in-service and outside personnel in agriculture. Distance learning methods are recommended to meet the high demand on training **(Swaminathan, 2007)**.

Perhaps the key promise of distance learning is that it allows people to learn when, for whatever reason; they are unable to attend formal educational institutions. This is of particular relevance in countries where there are limited educational opportunities, problems of infrastructure, shortage of qualified personnel, or where people need to work as well as study. As **Judith Adler Hellman (2003)** points out, distance learning offers flexibility of scheduling, the possibility of proceeding at one's own pace, the opportunity to study without having to travel and indeed without leaving home. Through the use of distance learning techniques such as e-mail forums and chat and other ICT in developing interactive learning materials, expertise can be more widely distributed. In this way, human resource capacity and knowledge can be utilized more efficiently. It is possible to train more people effectively at reduced cost through distance learning material. As the world moves towards information-based society, the importance of distance learning becomes more visible.

The digital revolution is driving major changes in the way education is being delivered. Sharp and continuous fall in the cost of storing, retrieving and transmitting information offer possibilities of developing a sustainable system to meet increasing demand for life-long learning. So people will be able to study what they want, when they want, where they want, and in the language they prefer, and that too electronically.

The Indian Council of Agricultural Research has provided e-connectivity facilities to Krishi Vigyan Kendras (remotely located) and

Zonal Project improve e-linkage of KVKs with different stakeholders of agricultural development, including technology generation systems (Agricultural Universities & ICAR Institutes), technology dissemination systems (state and national level extension organizations), technology utilization systems (Farmers organizations, Self Help Groups, etc.), and technology support system (technological input and service delivery organization). This will provide an opportunity to the KVK professionals to interact with researchers, extensionists and farmers in better way and by sharing experiences of each other. Through this facility, the linked centres are able to have access to global e-content on agriculture. KVKs are in the process of developing web pages which include information on district data base on agriculture, technical information, input availability, weather/ disease forecasting, market intelligence information, etc.

KVK hub has been established at the ICAR, New Delhi in order to monitor and supervise the activities of KVK. Provisions for two-way audio and one-way video broadcasting facility have been made in the KVK hub. Weekly lectures of agricultural experts are broadcasted through KVK hub which is viewed by all the centres under e-linkage project. The viewers can interact with the expert through two way audio system during the weekly lectures. As KVKs are under supervision of ICAR and SAUs so even if some KVKs are not well equipped with latest IT facilities due to their location we can make use of ICAR institutions and SAUs for providing training through distance mode because ICAR and SAUs are fully equipped with required technologies like computer, internet, even the video conferencing . For providing counseling or any sort of clarification academic institutions are also having sufficient number of trained and knowledgeable teaching staff in different subject's area of concern. At present we have around 589 KVKs (www.icar.org.in) working all over the country in collaboration with SAUs. 44 ATIC (Agriculture Technology Information Centre) working

under ICAR institutes and SAUs. In each SAU Directorate of Extension Education (DoEE) is functioning with facilities of printing and media production such as publication, video production etc. Thus, by utilizing available human resources and infrastructure, training of KVK trainers can be planned through distance learning mode. SAUs can very economically start distance learning programmes for trainers by using KVKs as study centres. At present each district has at least one KVK. Regular financial and professional supports are being provided to SAUs for modernization and strengthening of academic facilities, infrastructure and faculty improvement by the ICAR. It is also being thought that SAUs will have opportunity to operate on dual mode of education in coming future i.e. both face to face teaching & distance mode. In TNAU (Tamil Nadu Agriculture University) Coimbatore video conferencing unit has been set up for strengthening the distance learning programme and inter-campus e-Learning programme. Most of the above mentioned facilities for study centres are available in KVKs. **Padhan and Choudhary (2004)** concluded that distance education continues to be an important input in the in-service education of teachers and other personnel in the area of elementary education. It will supplement the face-to-face training by using multimedia packages like audio-video programmes, radio broadcast, teleconferencing, etc.

Taking all the above concerns in view and to answer such and similar questions the research study entitled **“Designing Strategy for KVK Trainers’ Training in Trainers’ Skills through Distance Learning – A Study in North India”** is being proposed to be taken with the following objectives-

1.2 Objectives

- 1) To study socio-personal, professional, psychological & situational characteristics of KVK trainers.
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- 2) To seek opinion of KVK trainers and training experts about training areas and methods of distance learning.
- 3) To find out relationship between selected socio-personal, professional, psychological& situational characteristics of trainers and their opinion about training areas.
- 4) To seek opinion of KVK trainers about constraints in acquiring skill through distance learning.
- 5) To design a distance learning strategy for training of KVK trainers in trainer's skills.

1.3 Scope of the Study

- It will help in getting comparative understanding between traditional training methods and distance learning material.
- It will throw light on the problems faced by learner during distance learning process.
- It will provide better understanding of distance learning package in order to provide suggestions about package preparation.
- It will study about the critical factors which affect the perception of trainers about distance learning.
- It will find out how the KVK trainers of different profile perceive distance learning methods.

1.4 Limitations of the Study

In spite of the effort to make the study as objective systematic and comprehensive as possible, the study faced certain limitations. They are:

1. The investigation was mostly based on expressed responses of the trainers and their co-operation.
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2. As the study was conducted only on KVKs of Northern states trainers. Thus the findings cannot be generalized for other KVKs.
3. The study was mostly done on SAUs KVKs, so it will not be generalized for other non-government KVKs.

1.5 Organization of Thesis

There are six chapters in the thesis. The first chapter is 'Introduction'. It deals with the problem and its objectives, scope of the study and limitation of the study. The second chapter 'Review of Literature' throws light on past studies related with this research. 'Conceptual Orientation' is the third chapter which deals theoretical background and frame work for the study. The fourth chapter 'Research Methodology' deals with sampling, tools and techniques of data collection, statistical analysis and operationalisation of definitions. Fifth chapter is 'Result and Discussion'. Finally in sixth chapter 'Summary and Conclusion', summary of findings and their implications have been reported. The literature consulted and cited in the body of presentation has been given under the head 'Literature Cited'. This is followed by 'Appendices'.

REVIEW
of
LITERATURE

The chapter Review of Literature deals with researches conducted in past in the area under investigation so that findings can be justified and explained. This also provides in-depth understanding of different aspects of research investigation. An attempt has been made in this chapter to present studies related directly or indirectly with the study and arranged under the following heads:

- 2.1 Socio-personal, professional, psychological and situational characteristics of trainers/trainees.
- 2.2 Perceived effectiveness of content and methods of distance learning material.
- 2.3 Relationship between socio-personal, psychological, professional & situational characteristics of learners.
- 2.4 Constraints in distance learning process.
- 2.5 Distance learning strategy for training.

2.1 Socio-personal, psychological, professional, and situational characteristics of trainers/trainees

Singh (1990) reported that 50 per cent of master trainers in Bihar had Master's degree and the rest 50 per cent had Ph.D. degree in their field of specialization. As regards extension education experience, only 20.00 percent had 1-5 years experience. Majority of the master trainers (56.25%) had experience of working as trainer of monthly workshop (mw) for more than six years and small percentage of master trainers (22.92%) had experience of working as trainer of 1-5 years.

Pal (1991) reported that majority of master trainers at Pantnagar were of rural-agricultural background with favorable attitude towards the monthly workshops conducted under T & V system, Ph.D. in their

respective fields of specialization, having less than one year's experience as master trainer.

Agarwal (1992) found that majority of the extension personnel were of middle age group, graduate in agriculture, had less than three training and medium service experience. Most of them (79.70%) had medium level of job satisfaction and achievement motivation (57.89%).

Singh (1992) found that majority of master trainers (86.67%) were in the age group of 36-45 years. Most of them (90.00%) had rural family background and doctoral degree. In case of service experience it was found that 63.33 % of the respondents had 11 to 20 years of service experience. Two fifth of the master trainers had not received any training.

Kumar and Singh (1994) found that majority of the KVK trainers were in the age group of 25-38 years, with post graduate qualification and rural agricultural background. Most of them had 1-12 years of total service experience, training as first job preference and no exposure to any in service training. Service to rural people was indicated by large majority as desirable work value and recognition as most stimulating motivation for working more. The study further revealed that majority of the respondents was slightly satisfied with their job.

Pandey and Kumar (1994) revealed that majority (77.28%) of the KVK trainers belonged to rural area, had master's degree (56.82%), and 6-10 years of service experience (43.18%). The study also stated that 20.45 percent trainers were 'highly satisfied with their present job, followed by moderately satisfied (34.05%) and not at all satisfied (45.50%).

Kristen (1998) reported that majority of the non-participants were faculty in the Columbia School of Arts and Sciences, followed by the School of Medicine and Health Science, and the School of Business and Public Management. Non-participants taught an average of 4.19

courses a year, had been working at GWU George Washington University for an average of 12.66 years, and had been involved in postsecondary education for an average of 16.99 years. In addition, 17 non-participants reported that they had taken a course via distance education and six reported that they had taught a course via distance education.

Sahoo and Khan (1998) conducted study with trainees of Basic Training Institute level who were undergoing in service distance teacher training in the state of Madhya Pradesh. He reported that most trainees belonged to urban areas, in spite of their service places in forward areas were from (government aided) private schools and most of the belonged to deprived caste background like schedule caste, schedule tribe and backward caste. Large numbers of trainees had higher secondary school certificate qualification, and few having graduate qualification.

Yadav and Verma (1998) found that all trainers of selected training institutions of Haryana were above 30 years of age and 75.00 percent of them post- graduate. Training exposure level of trainers was found to be quite low, wherein 45.00 percent of them had not attended a single training for job improvement followed by 30 per cent who had attended single training. In case of job satisfaction of the trainer, it was found that majority (90.00%) of the trainers were somewhat satisfied with their job. Eighty per cent of the trainers had moderate level of appreciation for profession.

Becker (1999) studied the use of Internet by teachers and students. He observed that two-fifth of the teachers had internet access in their classroom and majority of teachers used internet for finding information and other resources. Majority of teachers considered internet as essential component in the classroom. The researcher found the greatest level of student use of Internet in classrooms with LAN-based internet connections. The teachers under the age of 30 were found to be using more of the internet. The more constructivist teachers

were found using the internet more and they viewed the internet positively. Level of classroom connectivity, teacher's computer expertise, constructivist pedagogy, participation in staff development programmes on internet use, involvement in professional leadership activities, having informal contacts with other teachers at their school, teacher's age and not being a mathematics teacher, were the important variables which had independent relationship to teachers' internet use and valuation outcomes.

Bhattacharya and Talukdar (1999) revealed that academic qualification and training experience are good predictors and determinants of trainers' performance.

Meena (1999) in his study "Training programme of KVK in Rajasthan, An analytical study" studied the profile of trainers in which he reported that majority (72.72%) of ICAR and (50%) of NGO KVK trainers are of middle age group i.e. (31to50yrs) and in SAU majority (52.63%) were of young age group(30yrs).

Williams *et al.* (2000) found that teachers' perception of their own abilities, levels of ICT competence amongst teachers were not high. He found that the resources with which at least 90.00 per cent of primary school respondents were familiar were word processing, externally produced educational software packages which were used most frequently. He further found that 66.00 per cent of primary teachers feel competent with ICT in classroom practice, much smaller proportions feel at least competent in using ICT for professional development (39.00%), personal use (35.00%) or for administration (29.00%). Very few describe themselves as very competent in any of these categories.

Biswas (2001) in a study on distance learners of the PGDDE programme of IGNOU found that age, sex, and previous academic

qualifications have no effect on the academic performance of the distance learners of PGDDE programme of IGNOU.

Sarangi, Singh and Roy (2001) in their study on “Socio-personal and psychological attributes of the trainers of Regional Institute of Rural Development (RIRD)” reported that majority of trainers (71.87%) were highly educated (>Graduates) whereas (18.75%) medium (>High School<Intermediate) and 9.37% had low (<High School) level of education. Majorities (53.12%) of the respondents were found to have rural background and majority of trainers were found to be highly experienced.

Bisht (2004) observed that majority of the scientists were old aged, holding Ph.D. degree and the post of Associate Professor/S.R.O., were having job experience of more than 26 years. The findings further revealed that there was positive and significant relationship between training received in ICT and utilization of ICT and non-significant relationship was found between age, status and job experience.

Pew/Internet (2005) reported that more women than men used enthusiastic online communications and that they use e-mail in more robust way. Women were more likely to use e-mail to write to friends and family about a variety of topics such as sharing news and worries, planning events, forwarding jokes and funny stories. Women were more likely to feel satisfied with role e-mail plays in their lives, especially when it comes to nurturing their relationships. Men used e-mail more than women to communicate with various kinds of organizations.

Kranti et al. (2006) revealed that majority of the SMSs (73.35%) were in the age group of 48-59 years. Most of them had more than 20 years of service experience. It was also found that 58.44 per cent SMSs

were not exposed to any training. A little more than one-fifth of them had undergone a week's training followed by a month (11.24%) and more than a month (8.98%).

Matsepe (2006) found that mostly respondents were middle aged, holding position of Associate Professor, Ph.D. as their highest educational qualification, teaching as major job responsibility, and got training in the field of ICT. He further concluded that there was positive and significant correlation between training received with extent of use of ICT and perceived utility of ICT.

More (2006) eighty-nine percent of learner said that they have internet access at their home/residence with 93.5 per cent responding that they go online daily which is lower than the 99.9 per cent rate of daily internet usage. When asked how much time they spend online per week most students responded that they spend between 3-8 (21%) or 6-8 (23.9%) hours per week. Participants were asked to self-select a ranking for their level of computer expertise. The majority of participants (51.4%) responded that they were intermediate computer users. An addition 17.4 per cent categorized themselves as computer experts, while 29 per cent said that they had some experience, and 2.2 per cent considered themselves computer novices. Seventy-four percent of the respondents said that they have studied keyboarding and 82.9 per cent said that they own a computer.

Salaway et al. (2006) reported that eighty-nine percent of students said that they have internet access at their home/residence with 93.5 per cent responding that they go online daily.

Mishra and Panda (2007) reported that among the respondents 33.3 per cent were female and 66.7 per cent were male. The average age of the sample was 43.7 years with the mean falling in the 41-45 year age group. The average teaching experience of the sample was 15.97 years with the mean falling in the range of 16-20 years. The respondents were highly experienced in the distance education system

with an average of 11.69 years. Most of the respondents (43.6%) had 16-20 years of experience in the university. The majorities of the respondents were familiar with computers and used them on an almost-daily basis. Only 7.7 per cent respondents had undergone some courses as a student through e-learning. It may be noted here that although many online projects were going on in the university at the time of the study, there was no current strategic policy on e-learning.

Barman (2008) reported that majority of extension personnel and trainers belonged to the age group of 36 to 50 years. Maximum of extension personnel had graduate (professional) degree. In case of trainers majority of them had doctoral degree. Maximum of extension personnel and trainers had 10 to 25 years of service experience.

Levy (2008) found that participants in the study included 209 graduate students attending an online learning program. This study extended the first phase done in a prior research to uncover the CVFs (critical value factors) of online learning activities, statistics and demographics of the data collected. Gender distribution is about 71 per cent males and 29 per cent females. Additionally, age appears to be normally distributed, ranging from 18 to 63 years old. The majority of participants in this study (67%) reported having extensive experience with online courses. Moreover, a large majority of the students participating in this study (over 83%) reported working full time or more.

Mishra (2008) found in study on designing a training module for extension trainers that majority of trainers (67.82%) were belonged to the age group of 31-48 years, were male (71.30%), PhD (85.22%) in their respective fields of specialization and hailed from rural areas. Majority of trainers had 10-25 years of service experience.

As revealed from reviews, that mostly trainers belonged to the middle age group of 30-60 years , most of them possessed highest degree as Ph.D. and hailed from rural background. Majority of the trainers had 1-20

years of service experience and some of them received training in distance learning or online courses. It was also found that majority of the KVK trainers expressed 'training' as first job preference. The reviews further revealed that some of the trainers had exposure to ICT and have internet facilities.

2.2 Perceived effectiveness about Content and Method of Distance Learning

Krishnan (1965) reported that content and methods of training should be such that it suits the intelligence, education, and understandability to trainees.

Nagaraju (1982) reported the dissatisfaction of the majority of the student teachers with the training they were receiving. The duration of the personal contact programme and learning experiences during PCP were perceived to be inadequate.

Smith (1994) in his study at a technical college reported that students rated distance education courses similar in quality to traditionally taught courses; however, students and faculty members indicated a preference for conventional instruction over distance education.

Shneiderman et al. (1998) found that learner were highly satisfied with their experiences and indicated that they would take another distance education course. He also found that technology-enhanced learning could lead to statistically, significant, higher levels of perceived skill development; self-reported learning, and evaluation of classroom experiences as compared to collaborative learning in a traditional educational setting.

Sreekumar (1998) found that various media employed in distance teaching such as the print media, i.e. self-instructional material, audio lessons, video lessons and counseling, facilitated the development of managerial skills. Among these, the print media was

found to be more effective in developing the managerial skill as preferred by learners of the management programme. This is followed by other media such as audio, counseling and video.

Atan *et al.* (2000) conducted a study on students' perception regarding the effectiveness of audio-graphics tele-tutorial as a delivery system for science courses in distance education. The study reported that the students perceived good sound for system and intelligible graphics on the T.V. screen to be some of the important pr-requisite effective audio-graphics delivery system.

Jung (2001) in his study on issues and challenges of providing online inservice teacher training in Korea obtains the learners' views, found that of the 680 teachers enrolled in 11 online courses, 54 per cent responded positively to the online training courses, those who responded negatively cited a lack of appropriate instructional design strategies that allowed learners to use various features of the Internet such as online conferencing, e-mail and hyperlinks with other databases, approximately 43 per cent of teachers used Internet in their schools and 42 per cent used it in the computer laboratory at the Provincial Office of Education or KMEC because of their high-speed connections and no transmission fees. Only 15% of the teachers studied at home and more than 70% of respondents indicated that they preferred online training to the conventional method because of its flexibility and attractiveness.

Nayando (2001) reported that the learners found the study materials user-friendly and appropriate and support from administrative staff and tutors adequate.

Sharma (2001) concluded that there is an urgent need to bring improvement in preparation and delivery of course material. Student support services need special attention. Due importance must be given to the teaching of practical components of the programme, and provision of continuous and comprehensive evaluation should be made.

Atan *et al.* (2002) conducted a study to compare the differences in the learning outcomes of the interactive audio-graphics teaching with that of the traditional face-to-face teaching for students enrolling in the undergraduate science courses and found that learning outcomes of the audio-graphics delivery system were as successful as the conventional face-to-face one for all courses investigated. The study was done in a controlled condition that reflected the true capabilities of the audio-graphics teletutorial system. The system can provide a good teaching and learning environment through the high level communicative audio and graphics exchanges that are essential for successful and effective learning experience.

Neuhauser (2002) did study on participants enrolled in differing types of online courses. Found that highly interactive components such as exercises, activities, animations, and video tended to help engage the student in the learning process, as opposed to more static print and graphic media.

Sanders and Morrison-Shetlar (2002) examined students' attitudes with regard to the web-enabled learning component in a general biology course for undergraduate non-majors. Their results showed a positive effect on student learning, problem-solving skills, and critical thinking skills, with females responding more positively than males.

Derouza and Fleming (2003) compared undergraduates who completed quizzes online with students who took traditional paper-based quizzes and found that the marks revealed that students who took the quizzes online significantly outperformed students who took the pencil-and-paper quizzes.

Dikshit *et al.* (2003) studied learning attitude, motivation and preferences of online learners concluded that IGNOU students perceived the good aspects of online/distance learning teaching materials, tutor access, assessment and quality assurance, and tutorial quality. YCMOU students rated access, library resources and assessment mode as high.

Das and Debi (2004) reported the postgraduate programme in English offered by a traditional, campus-based university like Gauhati University, an institution of local pre-eminence which incorporates the system of distance, off-campus learning. With assessment and evaluation getting a high profile in learners' perceptions, it was essential to know whether students found SLM capable of giving proper guidance for students to perform well in their exams and internal assessment procedures. The respondents in our minor survey were almost (55% v.45%) equally divided on the choice of whether the SLMs "fulfilled the goals of teaching M.A. English". While all the respondents rated the SLM as "helpful" (except one respondent who did not), almost all found counseling by the teacher a necessary accompaniment. This can be partly explained on the basis of the novelty of the 'open' system which provides for self-learning as against the older passive form of learning by rote and dependence on the teacher. To the options given as markers of the advantages of distance education (the design of the study material; the contact programmes; the facility of counseling; library support; the number of chances allowed for improving examination results), most respondents tended to prefer the contact sessions as the most helpful feature of the programme.

Padhan and Choudhary (2004) concluded that distance education continues to be an important input in the in-service education of teachers and other personnel in the area of elementary education. It will supplement the face-to-face training by using multimedia packages like audio-video programmes, radio broadcast, teleconferencing, etc.

Padhan and Choudhary (2004) reported about identified needs of states, various categories of personnel such as officials from State Project Office, SCERT faculty, DIET faculty, teachers, DPCS, BRCCS,

CRCCs, VEC members, Mother Teacher Association (MTA) members, Gram Pradhans (village heads), village ward members, etc. were trained through using different DL materials and mode as mentioned below:

- Print materials such as self-learning materials on curricular and contextual areas; reading/reference materials for teleconference such as booklets, charts, clippings, graphs, captions, teaching aids, etc., and promotional/advocacy materials such as brochures, posters, calendars and case studies.
- Audio cassettes/CDs on curricular and contextual areas.
- Video cassettes/ CDs on curricular and contextual areas.
- Interactive teleconferencing sessions.
- Classroom radio broadcast and radio programmes on curricular areas and contextual issues.
- Interactive radio phone-in programmes.

Ojo and Olakulehin (2006) reported that the National Open University of Nigeria (NOUN) is the first full fledged university that operates in an exclusively open and distance learning (ODL) mode of education. NOUN focuses mainly on open and distance teaching and learning system, and delivers its courses materials via print in conjunction with information and communication technology (ICT), when applicable. This "single mode" of open education is different from the integration of distance learning system into the face- to- face teaching and learning system, which is more typical of conventional Universities in Nigeria and other parts of the world. This study assesses the attitudes and perceptions of distance teaching and learning by students enrolled in the NOUN and of the National Teachers' Institute (NTI) compared to their experiences at conventional universities. One hundred and twenty randomly selected NOUN and NTI students of NOUN were the subjects of the study. The Students' Attitude and Perception Rating of Open and Distance Learning Institutions Inventory

(SAPRODLII), developed by the researchers, were administered to the subjects to measure their attitudes and experiences. Results of the study showed that students generally hold a positive perception and attitude towards ODL, compared to traditional forms of higher education.

Mahadeo et al. (2007) in the study showed that organizations will eventually gain from this type of learning provided they improve on certain issues as per discussions below: Learners were particularly satisfied with this flexible mode of learning. They welcomed being able to study in their own time and at their own pace. Even the language used was easily understood by all, they agreed that the course was fairly interactive. This shows that learners had no problems with the course materials as such. In fact they were satisfied about same and even confirmed the ability to use the concepts learnt at the workplace. However from the findings of the survey, a need for occasional face-to-face interactions has been felt. To fill this essential gap with respect to adult learners, the e-course could be coupled with some face-to-face sessions to enable learners to share their views and discuss their difficulties. To fully adhere to the e-learning concept, the training centre could provide for chat and discussion forums through email. Moreover online support could also be provided to the students when they have problems and queries.

McCann (2007) concluded that while traditional face-to-face instruction is still perceived more favorably than distance learning. Internet-based instruction can be used effectively within the Extension Service, while opinions of learners, many of whom had little exposure to the distance learning format, did include statements describing online instruction as a "necessary evil," the majority were in favor of more courses delivered in this manner.

More (2008) when individual course components were examined, learners responded favorably to the availability of online lecture notes,

discussion section, availability of web links, and inclusion of calendar entries. Online exams were viewed as convenient (72.8%) and learner appreciated that they received an instant grade and feedback after taking exams (89.7%). Additionally, less than half of the students (45.6%) said that they prefer to take quizzes and exams in person with 27.2 per cent neutrality. The most popular feature noted in this study was the assignment section with 79.8 per cent agreeing/ strongly agreeing that they enjoyed submitting assignments online, 66.6 per cent agreeing/ strongly agreeing that they prefer the online submission of assignments, and an overwhelming 99.1 per cent responding that they liked that they had the ability to check assignment grades online.

Overall, most students said that they were satisfied with the content available on the course website (51.1% agree and 33.1% strongly agree); however, in order to conduct a more in-depth analysis a variety of features were examined. Most students were satisfied with the online lecture notes (89.5% agree/strongly agree), considered them a valuable resource (79.6% agree/strongly agree), found them easy to print (75.2% agree/strongly agree), and were glad they were delivered in PowerPoint format (74.8%). The hyperlinked calendar section was frequently visited (68.2% agree/strongly agree) and was considered a valuable resource (78.1% agree/strongly agree). Students considered the links on the course Website to be a valuable resource (72.7% agree/strongly agree) and visited them regularly (54.2% agree/strongly agree and 29.5% neutral/undecided).

Above mentioned reviews showed that various media employed in distance learning were print media, i.e. self-instructional material, audio lessons, video lessons and counseling. Among these, the print media was preferred by learners. It was revealed that distance learning supplement the face-to-face training by using multimedia packages like audio-video programmes, radio broadcast, teleconferencing, etc. So, it can be concluded that there is an urgent need to bring improvement in

preparation and delivery of course material and in student support services used in distance learning.

2.3 Relationship between socio-personal, psychological, professional and situational characteristics of the learners

Malik and Patel (1990) reported that age, qualification, experience in teaching, research and extension, total experience, training received, salary, perception of work load, achievement motivation and level of aspiration were non-significantly correlated with job satisfaction.

Tyagi (1993) concluded that educational qualification, professional dedication, achievement motivation and organizational climate were positively and significantly correlated with the job-satisfaction of the teachers, whereas age and experience on the present job had negative correlation with job-satisfaction.

Becker and Riel (2000) examined the relationship between professional engagement and teaching practice involving computer use. The researchers found that the teachers who were extensively involved in professional activities, used computers more in teaching in the ways much consistent with a constructivist philosophy. Sufficient access to computers enabled them to involve themselves in informal collaborations with peers and help other teachers move towards being more accomplished users of computer technology.

Hakkarinene et al. (2001) analyzed relations between teachers' skills in using the new information and communication technology, their pedagogical thinking and their self-reported practices. The results indicated that only a small percentage of teachers had adequate technical ICT skills although a majority had access to computers either at home or at school. The study furnished evidence that in the classroom, teachers who actively used ICT emphasized the importance of using information technology for supporting research- like process of

inquiry, collaborative learning, learners' active engagement in knowledge-formation process, and the learnability of intelligence.

Lindner et al. (2001) found that tenure status and academic rank have an effect on the adoption of distance education models. Non-tenured, Assistant Professors had the highest distance education competency scores. This led to the conclusion that newer faculty are being hired with the expectation of using distance education technologies and already possess the self-efficacy and skills to integrate technology. It is further noted that faculty who have the comfort and competence are the ones discouraged from participating in distance education due to current policies for promotion and tenure. The study also found that female faculty had the highest distance education value scores and stated a need for further research in this area.

Jegade et al. (2007) investigated the relationship between ICT competence and attitude as well as attitudinal constructs of teachers. Findings revealed that attitude bears significant relationship with and also predicts competence. It was observed that as teachers perceived computers to be useful in their pedagogical enterprise, the interests become aroused which in turn help their computer skills.

Bisht (2008) concluded that the correlation between socio-personal, professional and psychological characteristics (independent variables) and ICT competence (dependent variable) were calculated. Age and work experience were found to be negatively correlated with ICT competence at one per cent level of significance.

Mishra (2008) stated as 'level of education', 'rank', 'family background', 'in-service training received', 'gender', 'job involvement', 'job preference', 'job commitment', 'motivational profile', 'job satisfaction' and 'achievement motivation' of trainers do not have relationship with their training needs in training management. Positive and significant correlations were observed with 'job values' and 'communication

channel used'. This implies that increase in these variables had significant impact on the level of training need of trainers.

Above listed review showed that attitude towards audio-visual aids was no way related to use of audio-visual aids. Age and work experience were found to be negatively correlated with ICT competence at one per cent level of significance whereas age, qualification, experience in teaching, research and extension, total experience, training received, salary, perception of work load, achievement motivation, level of aspiration were non-significantly correlated with job satisfaction. Positive and significant correlations were observed with 'job values' and 'communication channel used'.

2.4 Constraints in distance learning

Sawant and Khuspe (1986) found that difficulty in availability of aids/tools, lack of knowledge to use and practice aids, non-availability of aids because of insufficient funds and time consumption in preparing tools were the important.

Anupriya (1987) found that poor physical facilities and non-availability of electricity were important constraints for the use of communication material as perceived by the trainers of extension personnel.

Rowntree (1991) goes even further in specifying the barriers that open learning seeks to eliminate. He lists 10 common barriers as lack of information, unsuitable content, unsuitable methods, the qualification gaps, timing, place, costs, anxiety, domestic pressures and physical disabilities.

Nalley (1995) had stated that failure in distance education is a matter of not learning from experience .It is intended that instructors in, and designers of, multimedia distance learning environments may learn from the findings, analysis and conclusion of study.

Betts (1998) reported that although only 17 non-participants had been asked to participate in distance education, 94 non-participants indicated they had contemplated becoming involved in distance education. Eighty-five of the 94 non-participants did not become involved in distance education. Their overall reasons for not becoming involved included: (1) lack of time to become involved in distance education; (2) concern about the not having the student-faculty (face-to-face) interaction that is found in the traditional classroom; (3) lack of opportunities to become involved in distance education; (4) concern about a lack of support in distance education (e.g., technical, administrative, and financial); and (5) lack of skills needed to become involved in distance education. The remaining, 341 non-participants, stated they had never contemplated teaching, co-teaching, or designing a distance education courses.

Tasci (1999) mentioned that if there is a problem in distance education, it is in the average quality of the materials rather than in the characteristics of the process and the individual skills of the process controllers.

Maru (2003) Agricultural Education & Research System (such as ICAR and SAUs in India) is a large repository of agriculture information. However, poor ICT infrastructure, lack of ICT, information management and communication skills are constraints in generating digital contents.

Mahajan and Sonone (2002) concluded that multimedia revolution has produced radical changes in delivery of distance education. Interactive networking is highly useful for organization of resources but very difficult to operate in Indian context. Networking needs well thought out planning collaboration and sharing of resources and facilities.

Perris et al. (2004) reported that students found difficulty with online learning and its use as a tool to support content in comparison

to print-based materials. Students are more accustomed to using print-based materials for reading, making notes, etc.

Reviews showed that main problems faced in distance education by students were average quality of the materials. And even today students found difficulty with online learning in comparison to print-based materials. Some other constraints usually experienced by learners in distance education courses were related to poor electricity, ICT infrastructure and information management and communication skills in generating content.

2.5 Distance learning strategy for training

Senders (1968) commented that to make communication effective or increase the fidelity, training should be based on how people learn through seeing with their eyes, hearing with ears and saying with mouth. From this, it is clear that where and how proper emphasis should be given in training programme for effective learning. He found that maximum change in behavior took place as a result of combination of demonstration, lecture, news article, radio, group discussion, field trip, role playing, movies, slides and reading.

Asia-Pacific Development Administration Centre's seminar on training strategies for IRD (1977) had strongly recommended that the training programme for government officials should make use of the 'case study' method to make them practical oriented.

Patel and Kher (1978) concluded that the training programme can be made more effective and useful, if judicious use of A-V aids are made, latest information on the topics to be given, more time spared for discussion and field trips are arranged.

Khan (1982) reported while developing instructional material for illiterate, the audience researcher should try to find out background characters of audience with special reference to level of understanding dialects, age, financial position, reference groups, social customs,

taboos, personal benefits, environmental conditions, education and communication behavior.

Kelly (1990) suggested that careful planning is crucial for delivery of distance education courses. Need of the learner are paramount to the planning of distance education courses.

Rohfeld and Hiemstra (1995) suggested ways to overcome the challenges of the electronic classroom: (1) establish the tone early in the course; (2) to overcome the text-based nature of online discussion and to build group rapport and cohesion, introduce participants to each other, match them with partners, and assign group projects; (3) offer training and guidelines to help learners acquire technical competence and manage discussions; (4) provide a variety of activities, such as debates, polling, reflection, and critique; and (5) use learning contracts to establish goals for participation.

Willis (1995) mentioned that to function effectively, students must quickly become comfortable with the nature of teaching and learning at a distance. Efforts should be made to adapt the delivery system to best motivate and meet the needs of the students, in terms of both content and preferred learning styles. Consider the following strategies for meeting students' needs:

- Assist students in becoming both familiar and comfortable with the delivery technology and prepare them to resolve the technical problems that will arise.
 - Focus on joint problem solving, not placing blame for the occasional technical difficulty.
 - Make students aware of and comfortable with new patterns of communication to be used in the course.
 - Learn about students' backgrounds and experiences. Discussing the instructor's background and interests is equally important.
-

- Be sensitive to different communication styles and varied cultural backgrounds. Remember, for example, that students may have different language skills, and that humor is culturally specific and won't be perceived the same way by all.
- Remember that students must take an active role in the distance delivered course by independently taking responsibility for their learning.
- Be aware of students' needs in meeting standard university deadlines, despite the lag time often involved in rural mail delivery.

Dede (1996) suggested the strategies intended to make distance learning more effective. Understand the technology's strengths and weaknesses.

- Provide technical training and orientation.
- Plan for technical failures and ensure access to technical support.
- Foster learning-to-learn, self-directed learning, and critical reflection skills.
- Develop information management skills to assist learners in selection and critical assessment.
- Mix modes e.g., combine e-mail discussion with audio/video methods to enhance the social aspect.
- Structure learner-centered activities for both independent and group work that foster interaction.

Dede (1996) also suggested that, "access to data does not automatically expand students' knowledge; the availability of information does not intrinsically create an internal framework of ideas". To help learners make effective use of distance learning methods, skilled facilitation is essential.

Ghosh (1998) in a study Promotional Strategies for Distance Teaching Institutions Experience at the Calcutta Regional Centre of IGNOU concluded that strategy leads to increase in students' enrolment and position among regional centres in terms of enrolment.

It shows that IGNOU is catching up with public imagination in West Bengal. However there are factors which impede the growth, and the most vital among them being delivery system. In spite of the best possible efforts the delivery system of study materials and other literature has not been in satisfactory shape.

Kumar and Singh (1998) concluded that an ideal KVK or SAU may serve as the venue for the trainers' training in each region. The training may be for one week or two weeks. A group of 20 participants from similar subject matter area would be ideal for having similar examples, exercises etc. Experienced KVK trainers or professors of agricultural university well versed in training methodologies may serve as good resource persons. Occasionally, good trainers may be invited from management field as well.

Rajadekar (2000) suggested that distance education through its various study centres can create awareness in the minds of rural people, use of audio visual media for education of rural people and suggest formation of specialized courses based on local requirements which can be implemented through distance education.

Saxena and Mehra (2000) adopted the following process for development of curriculum : Stage I : training need assessment; State II: identification of competencies/objectives to be achieved during training programme; Stage III : Designing of training programme and Stage IV : evaluation of training programme.

Biswas (2001) studied on learning strategies and academic performance: a study of the successful distance learners of the PGDDE programme of IGNOU found that learners have performed differently,

i.e. some have obtained B grade (60% to 79% marks) and some have obtained C grade (50% to 59.90% marks), definitely there were some factors which have caused some effect on their performance. One important factor was the learning strategy followed by individual learner. When the successful learners of the present study were re-grouped according to the learning strategies they followed, and their level of academic performance was analyzed, some positive effect was noted.

Kelsey and Mincemoyer (2001) reported the results of survey that county extension staff identify time as a major impediment to their participation in in-service training. In Pennsylvania, this is partially related to the travel distances required. County staff would be receptive to county-level distance education for some in-service training. However, because the county was their least preferred training location, distance methods would have to be balanced with regional and statewide sessions.

Mahajan (2002) suggested that networking is highly useful for optimization of resources but very difficult to operate in Indian context. Distance education technology should be feasible, practical, cost effective and meets needs of students. A decision on new technology should be taken very carefully.

Rao and Reddy (2002) found that instructional material has an important role in the distance education set-up. The instructional material should be self paced, flexible, auto-instructional, and economical in time and effort. It must be interesting and arouse the interest of the learner and should be developed using available resources.

Ross et al. (2003) stated that effective distance teaching requires flexible learning opportunities. Using arguments developed in interpretation literature, the authors argue that effective distance learning must also be entertaining, relevant, organized, thematically, interesting and creative.

Kranti *et al.* (2006) revealed that 50.56 per cent SMSs indicated SAU as first choice of venue, followed by KVKs (19.10%). The ICAR institute (16.86), EEIs and RARS (6.74%) were last options. Accordingly, they preferred university scientists most (67.41%), followed by senior officers from SDA (22.47%). Experts from EEIs were indicated by 10.12 per cent SMSs. When the trainers were asked to indicate their choices for method of training, they revealed their liking for field training, group discussion and workshop.

Rao (2008) in a study done on learners of IGNOU regional centre, Pune, India reported that the ODL system wants to take advantage of information and communication technologies to teach large numbers and aims to reach different geographical locations at the same time. Though these media support services are provided to the learners through the study centres they are not fully exploited by the learners for different reasons. The major and primary reason for non-utilizing media support services was that the learners have no information about different media support services extended by the university. It means the university has to follow different strategies to popularize media support services to the learners.

The review quoted above revealed that if distance learning system can make full use of information and communication technologies, it will be very easy to teach large numbers of students effectively. Distance education should be cost effective for reaching students and new technology should be used very carefully. Training programme can be made more effective with the use of A-V aids. It further emphasized in reviews that instead of single combination of demonstration, lecture, news article, radio, group discussion, field trip, role playing, movies, slides and reading proved to be more effective. Experienced trainers or professors having good experience in training methodologies may be taken as resource persons in distance learning. Above all it was suggested that careful planning is crucial for delivery of distance education courses.

CONCEPTUAL FRAMEWORK

Conceptual orientation is essential for providing appropriate orientation to the various concepts and principles related with the research problem at hand. It gives a deeper insight into the theme and provides framework to understand the basic tenets as the study and way to approach them. The chapter has been discussed under the following heads and sub-head:

- 3.1 Concept of Distance learning
- 3.2 History of Distance learning
- 3.3 Trends of Distance learning in Agriculture
- 3.4 Importance of training for trainers
- 3.5 Distance learning strategy

3.1 Concept of Distance learning

Conceptual orientation is essential to provide a framework to understand the basic tenets of the study. The concepts used in the study have been discussed at length in their theoretical context to throw light on the following:

Hodgson(1985) comments “distance learning is seen as an attractive alternative by industry because it means employees can still be developed without the necessity of removing them from the job and the training they receive is both relatively cheap and of the same quality for everyone”.

Schumer (1993) stated that the challenging task of learning requires motivation, planning and the ability to analyze and apply on the part of the learner. In distance education setting, the process of student learning is more complex for several reasons. Many distance

education students are old, employed, and have families. They have to coordinate different areas of their lives, which influence each other, their families, job, spare time and studies.

Ramakrishnaiah and Kumarswamy (1994) reported that distance education can provide instruction to those living in remote areas, where formal education opportunities are scarce. It enables people to acquire knowledge, skills and capabilities without drawing them from their work place. It is flexible approach of education, which enables the learner to learn at his own pace, place and time.

Moore (1996) stated that distance education is planned learning that normally occurs at different place from teaching and as a result requires special techniques, special methods of communication by electronic and other technology as well as special organizational and administrative management.

Braimoh (1998) stated that distance education allows the learner to choose, how to learn, when to learn, where to learn, and what to learn, as far as possible within the resource constraints of education and training provisions, it imposes discipline in order to succeed in the learning process.

Kachroo (1999) found that the distance education system has grown as an alternative system of education. During last two decades, distance education system has a significant impact on the system of education throughout the globe because of its high utility, high productivity, greater flexibility in the scheme of studies and examination, cost-effectiveness and innovative approach.

Mohanty (1999) concluded that the distance education should be effectively used not only for promoting continuing education, but also for providing facilities for training of adults. Distance education promotes literacy, adult education and non-formal basic education, which ultimately lead to rural and social development.

Guha (2000) stated that lifelong education is learning at any time of one's life, at any place or pace and to recreate opportunities for those who have missed out on them by studying vocational, professional and need based courses through distance education.

Sreekumar (2000) observed that distance mode of education is need based in which participants can choose their place, time and mode of study. Distance education caters to the needs of farmers, women and other disadvantaged groups.

Sonone *et al.* (2003) reported that distance education is based on the concept of continuing or life long process that provides for ongoing cultural and professional development, increase technical skills and encourage general public to keep abreast of current topics as well as scientific and technological advancement.

Villi (2003) stated that Open University system has potential, dynamism, flexibility, capacity and capability to take education to large segments of our people, who are geographically isolated, socially and economically disadvantaged, physically challenged and educationally backward.

So, distance learning is mainly an education that provide flexibility of learning to learner at their own pace in their own free time and opportunity for those who because of any reason left their education and want to continue without leaving their job for upgrading their qualification .People who have crossed their age limit for formal education, those are living in far-flung areas or economically weak, women who don't want to leave their household etc. and still want to study. Therefore it can be used to promote continuing education and for providing training to adults.

Distance education is or called with many other name such as wall less education, open learning, open teaching, non-traditional education, distance learning, distance teaching, correspondence

education, independent study, home study, distance teaching at a distance, extension study, external study, external learning etc. in the literature defined by different authors.

The terms 'distance education' and 'open learning' have been used in different contexts with somewhat different meanings. Distance Education has been defined as an educational process in which a significant proportion of the teaching is conducted by someone removed in space and/or time from the learner. Distance Education programmes have often used a combination of educational media, old and new, varying from print to broadcasts to audio and video recordings, and included opportunities for face to face study as well as learning from recorded material.

While the term *distance learning* is widely used, the rapid development of communications technologies in the late 1990s and early 2000s created many variations on the theme. To understand distance learning, it is helpful to examine other closely related terms and concepts like:

Correspondence Study: Correspondence study, which is the oldest form of distance learning, involves exchange of written words, on paper, between teacher and learner. Improvements in transportation technologies (i.e., trains, trucks, planes) have assisted the postal service in making this an increasingly more viable method of study.

Distance Education: Distance education is a systematically organized form of self-study in which student counseling, the presentation of learning material and the securing and supervising of students' success is carried out by team of teachers, each of whom has responsibilities. It is made possible by means of media which can cover long distances. The opposite of distance education is direct education or face-to-face education: a type of education that takes place with direct contact between lecturers and students.

Distributed Education: As electronic technologies provided more assistance to overcome the barriers of time, instead of just distance, some felt that the focus on *distance* had outlived its usefulness. In distributed education, education is available (or "distributed") to any location at any time. Often a mix of technologies is proposed, including face-to-face instruction.

Hybrid Classes: These courses use a mixture of distance learning and face-to-face techniques. For example, a group of learners in a biology class may meet face-to-face for their laboratory work, but the remainder of the instruction may be offered via television or computer.

Open Learning : The term 'open learning' has been used to refer to the process of making learning available to learners no matter who they are or where or when they wish to study. The term 'open' has been taken to imply open access for students regardless of their previous qualifications or age. International experience shows that distance education and open learning tend to complement each other.

In 1988 Lewis and MacDonald gave definition "Open learning describes ways of helping individuals to take responsibilities for their own learning. Learners may, for example, choose: What they, how they learn, where they learn, why they learn, how quickly they learn, who to turn to for help and whether, when and where to have their learning assesses".

Online Learning: Distance learning where the bulk of instruction is offered via computer and the Internet is called online learning.

Thus, distance education is distinctly different form of education where the learner and the teachers are not physically in touch but use of communication media such as; postal or e-mail, telephone, fax, radio, television, computer, modems linkage TV or computers, interactive videodiscs etc. facilities for teaching or learning process are used.

Thus a number of features that distinguish distance learners can be elaborated as below:

- Distance education implies that the majority of educational communication between teacher and student occurs non-contiguously.
- Distance education involves two-way communication between teacher and student for the purpose of facilitating and supporting the educational process. "the process of extending learning, or delivering instructional resource-sharing opportunities, to locations away from a classroom, building or site, to another classroom, building or site by using video, audio, computer, multimedia communications, or some combination of these with other traditional delivery methods."
- In order to use media effectively in instructional process principles of instructional technology are applied to ensure quality.
- Ideally distance learning follows an Industrial model for division of work and their execution by different units so that mass production of instructional material is done systematically, economically and effectively.

3.2 History of Distance learning

While distance learning may seem like a relatively new phenomenon, give its increased popularity in the online format, in reality the spirit of learning from distance by taking courses offered by non-local instructors existed for hundred years. Some of the earliest efforts of distance learning have been reported as far back as 1728 to teach students how to write in short hand through lessons sent to their homes weekly. These simple practical lessons were commonly taught through the mail throughout the 1700's and 1800's and allowed anyone

to gain valuable job skills even if they lived well away from major centers of education and commerce.

Needless to mention expansion of postal services in USA and elsewhere was largely responsible for initiation of correspondence courses. One of the first universities to offer a distance learning degree was the University of London which established an External Programme in 1858. It was soon to be followed in 1873 by the programs at the Society to encourage studies at Home in Boston and the University of Australia's Department of Correspondence Studies in 1911.

In 1840, Englishman Sir Isaac Pitman offered a class on shorthand taught entirely by mail. In 1883, an entire "correspondence university" was established in Ithaca, New York **(Williamson, 2009)**.

But distance education really exploded with the advent of television and radio. By 1900, so many distance education schools had been established National Home Study Council was established to monitor the quality of these programs.

Distance educational programs in the early 20th century were delivered via radio and television besides usual print mode. Experimentation has been made with the telephone as it allowed teachers to interact in real time with students. But telephone learning never became a big force in the industry either. The success of television programmes in distance education was visible in 1950s. One of the first educational programs delivered via television was Sunrise Semester, broadcast from Chicago starting in 1959. This program featured a single teacher standing in front of a roomful of students, with footage shot over the students' heads from the back of the room.

By the 1960's, distance learning had grown tremendously and distance learning universities achieved size comparable traditional universities. In the United States, the forerunner of distance education was the University of Wisconsin-Madison which funded by the Carnegie

Foundation brought together a variety of communications technologies to help provide learning to students who were off-campus. These ideas were later provided much more rapid and modern way to share information and education with students who could not able to attend traditional courses. In the 1970's, a California task force was formed to develop and define profitable and educational telecourses. Not long after, a new institution, Coastline Community College was formed to handle the filming and development of distance education videos that were broadcast to other colleges, libraries and public television channels throughout the country. These courses had to cover entire curricula and conform to the academic standards applied to traditional schools.

Computers were also used for distance learning. Coursewriter, an online distance learning system, was developed as early as the 60's by IBM. The system could be customized to deliver a variety of different types of classes, and it was used in 17 different courses—including cardiology training—at the University of Alberta from 1968 to 1980.

Online education was being developed as early as the 1970's, using very primitive forms of computer networking. The technology improved throughout the 1980's, and online education began to be popular among companies and government institutions for in-house training of employees. By,1990s online education didn't become so popular .But in 1994, with CAL Campus developed by a small offline distance learning institution based in New Hampshire, which began offering a completely online school delivering instruction, administration and materials entirely via the Internet. The courses were delivered via virtual classroom instruction, where students and teachers interacted in real time. Internet made distance education real success.

The first fully accredited, fully online institution was Jones International University. It was launched in 1996. Today, there are hundreds of online universities throughout the world offering distance

education through a variety of media; viz. radio, television, telecommunications, and especially the internet have come to play an integral role in expanding the minds of students around the world. With the wide distribution and accessibility of computers, distance learning has become faster and more prevalent.

Millions of students achieve certification, personal enrichment, and advanced degrees through education programs delivered entirely online. Today's technology allows for many different methods of delivery, from online chat and advanced email services to video and conferencing media allowing real-time instruction. Distance education has evolved to cover multiple subjects from medicine to engineering and art. Along with the Internet, online education has continued to evolve—and is likely to serve an increasingly important role in education around the world.

IN INDIA

Kulandai Swami (1992) believes that distance education system symbolizes the transition of education from the stage of craft to that of technology. **Garrison (1989)** recognized 3 generations of distance learning namely, correspondence courses, audio teleconferencing and advanced computer based options.

Ever since independence, there has been an increasingly steep demand for higher education in India. Traditional education system was not prepared to intake large number of learners. **Srivastava (2002)** reported that in India DE has passed through three stages. In 1947, India inherited a system with great educational disparities. Education was categorically denied to women and to the lower castes. Social handicaps like sati, child marriage, ban on widow remarriage, and purdah prevented women from being educated. The national government, since the time of independence, has undertaken the development and expansion of education as the key to development and

as a vehicle for the transmission of the new value system: new ways of life, thought and work. Since the formal system was unable to meet the demand for higher education in India, the Planning Commission in its third five year plan (1961-66) recommended the introduction of Correspondence Education at the University level. Hence, distance education was adopted as an alternative mode at the University stage in 1962.

The period 1962 to early 1980s was the correspondence education phase. The 1970s saw a spurt in the growth of correspondence education. However, agriculture and allied subjects were covered under it with the establishment of first Open University in Andhra Pradesh in 1982 and then BRAOU at Hyderabad and with the establishment of Distance Education Council (DEC) under Statute 28, Section 5(2) of IGNOU Act 1985 under the Parliamentary act.

Today in India there are four types of institutions offering programmes through distance mode: National Open University, State Open Universities, Directorates of DE functioning under conventional universities i.e. Dual Mode Universities (DMUs) and private professional institutes.

Table-3 shows increase in enrollments at DE institutions for the period 1975-2001. It is heartening to note that the share of distance mode has increased from 2.6 % in 1975-76 to 20 % in 2001. Thus every fifth student at tertiary level is enrolled with the DE system. The Tenth Plan document envisages 30 % – 40 % annual growth for the DE system against 5 % - 10 % growth of the formal system.

A kind of formal recognition was accorded to this latest nomenclature when the International Council for Correspondence Education changed its name to the International Council for Distance Education, at its world conference in Vancouver in 1982.

Table-3 Growth of Distance Education in India

Year	Universities	Student (millions)	% of Distance education in total HE (Total enrolment in HE) in millions
1975-76	18	0.06	2.3(2.49)
1981-82	22	0.19	5.7(3.34)
1990-91	40	0.56	10.1(5.55)
1999-2000	74	1.58	17.0(9.31)
2000-2001	74	2.00	20.0(10approx)

Source: Kulandai Swamy (2002):18

(HE-Higher Education)

3.3 Trends of Distance Learning in Agriculture

“Vision of India – 2020 is predicted on the belief that human resources are the most important determinant of overall development.” In the light of above vision, it is the right time to revisit the status of Distance Education in general and with respect to agricultural Education in particular. Higher education is beginning to play an increasingly important role in the process of globalization, which promotes information technology development and diffusion of innovation and the ability of economics to benefit from rapid shift in production goods, services and ideas (**Belfield and Levin, 2003**). This is truer for agricultural education which has encouraging internationalization project on the back drop of value addition, export potential and emerging high-tech production systems without losing sight of the local knowledge needs and infrastructure.

In fact, globalization has effected tremendous change to the character and function of education worldwide (**Mone and Tan, 2004**). The complexities of and interactions between local, regional and global forces are dominating education policies. In agriculture education sector these complexities have created unending demand for

agricultural knowledge, skill and attitude in rural youth. Seeking education farmers and farm women adopting new knowledge, extension worker disseminating it and agricultural scientist generating and developing agricultural knowledge and technology.

It is to be understood that presently higher agricultural education faces three challenges. First challenge is its accessibility, second is quality and third is cost of education. Undoubtedly it is agreed that agricultural and allied education should create effective human capital, which is capable of increasing profitability in agriculture enterprise and that it should be able to create social capital, thereby repaying the social costs adequately.

Distance study can thus be described as learning supported by those teaching methods in which, because of the physical separateness of learners and teachers, the interactive, as well as the preactive phase of teaching is conducted through print, mechanical, or electronic devices. The main general characteristics of distance study is that it is based on non-contagious communication, i.e. the learner is at a distance from the teacher for much, most, or even all the time during the teaching-learning process. The distance education mode was started with specific objectives to provide a system of learner centered self-paced learning, to provide a flexible, diversified and open system of education, develop by providing wider access to higher education to persons of all ages and particularly to working persons and economically and otherwise handicapped, and persons residing in remote areas, provide means of upgrading the skills and qualifications, and to develop education as a lifelong activity so that the individual can refresh update his knowledge in an existing discipline or to acquire knowledge in new areas.

Because of unique characteristics of distance learning material like clearly stated objectives, user friendly style writing, plenty of helpful examples, headings to help learners find their way around, links to

other media where appropriate, exercise that get the learners to use the material, space for learners to write down their own ideas and feedback to help learners to check their own progress of it is being used today for running many professional programmes apart from general courses. Especially in courses related to management, computers, training & development and accountancy.

Distance education in agriculture seems a recent phenomenon. Even though there is vast scope for teaching of agriculture through distance mode scattered efforts were made in past to explore this field. In 1960s, "INADES-formation" (Institut Africain pour le développement économique et social) has provided non-formal distance education opportunities to farmers, extension agents and other agents of rural development in Africa. In 1973, G.B.P.U.A.&T. has offered a correspondence course programme to farmers and rural youth in Uttar Pradesh, India. Programme's delivery strategy was print-based. Since 1986, the Allama Iqbal Open University (AIOU) has been providing rural women in Pakistan with courses to meet secondary school equivalency and to increase income generating opportunities. Since 1988, Wye College of the University of London delivered an External Programme that uses distance education to provide learners around the world with opportunities for graduate study.

With increasing technological developments and growth of internet, e-learning is gaining popularity in the early 2000s; the term *e-learning* refers to any electronically assisted instruction, but is most often associated with instruction offered via computer and the Internet. In spite of its growing popularity still some issues are there which creates distrust among online learners like lack of real face to face situation and doubt about quality of learning material. Better connectivity through internet and subjecting online learning materials to quality standards, accreditation and legislation could solve this up to some extent. This deliver channel along with education is very well used

for providing training in corporate sector .But in Government organizations not much have been tried.

Many authors have discussed the way in which online learning can be used for the delivery of training, assessment and support **(Fichter, 2002)**. Online learning offers a variety of possibilities in terms of training, ranging from highly complicated flight simulation to basic drill and practice, from video conferencing to tutor support across an electronic mail (e-mail) link, and learning over the information superhighway using a stand-alone personal computer. Online learning has made considerable progress since the early 1980s **(Lautenbach, 2000)**, attributable in large measure to technological developments. Technological improvements have been fast, and so have the changes in corporate training methods. Online learning as a corporate training method has been enhanced by virtuality, which now manifests itself in aspects such as content provision, electronic access to libraries, e-books, discussion rooms and chat lines **(Abell and Foletta, 2002)**.

Soon these delivery channels will become mainstream delivery modes for corporate training and will become part and parcel of the competitive advantage of a successful company **(Christner, 2003)**.

A significant benefit of online learning is that it allows learners access to learning material at their convenience **(DeLima, 1999)**. The advantage for the corporate world lies in the fact that training can be offered without the necessity for a physical classroom, as learners can learn anywhere where there is access to the Internet. Moreover, the interactivity inherent in Internet-based courses has fuelled the growth of online learning. **Trotter (2002)** notes that learners who use the Internet for learning purposes have reported a greater engagement in the learning experience than in the case of the more static learning associated with the traditional classroom. Online learning enables the instructor to monitor the learners' progress continuously. Learners become involved in the learning process and modules can be designed to suit different learning styles.

Arnone (2002) reports that some learners find that online learning suits their learning styles better than the conventional, face-to-face options - which could be attributed to the fact that some learners are more visual than auditory. Furthermore, some learners prefer working at their own pace and prefer not to restrict their learning to a specific location. **Christner (2003)** remarks that online learning offers learners a range of options for navigating through the lessons, submitting assignments and holding discussions with other learners. In most instances, discussion takes place by means of a threaded discussion feature, in which learners can send messages on a specific topic. Learners may also respond to messages posted by the trainer. Content may include graphics, tables, screen shots, illustrations and multimedia elements.

3.4 Importance of training for trainers

The importance of training of trainers has well been recognized in corporate sector, where professional programmes are available for certification of experts as trainers.

Mishra (1990) remarked that in our eagerness to train the extension personnel, we appear to have forgotten that trainers too require training, irrespective of the fact that they are called trainers of trainers. Trainers require training not only in subject matter areas of their specialization but, equally importantly, in training skill and extension methods. He further elaborated found that sub-areas of training which need immediate attention were: facilitating adult learning, preparation of reports on training need assessment, selection of appropriate training methods, participatory lecture, group discussion, case study as training methods; giving and receiving feedback, methods of follow-up and the use of instructional media.

Kumar (1994) reported that three major areas of training management, top three in order of importance were course design, training implementation and training need assessment.

Kumar (1994) also reported that for training of KVK trainers experts gave highest preference was given to attachment with ideal KVK, followed diploma through distance mode/regular diploma, membership of professional society, subscription to professional journal, audio/video courses and programme book.

Mishra (2008) found that majority of the trainers had 'moderate' level of training need in training management. However, 18.26 per cent of the trainers expressed 'high' level of training need.

Importance of training has been realized by KVK trainers as well, but it is essential that training is provided according to the training need of different extension personnel because trainers in KVK have the major role of providing training to farmers, other in-service candidates and they are mostly SMS (Subject Matter Specialist).SMSs, having specialization in particular subject but not in training methodology.

3.6 Distance learning strategy

Strategy, a word of military origin, refers to a plan of action designed to achieve a particular goal. In military usage strategy is distinct from tactics, which are concerned with the conduct of an engagement, while strategy is concerned with how different engagements are linked. How a battle is fought is a matter of tactics: the terms and conditions that it is fought on and whether it should be fought at all is a matter of strategy, which is part of the four levels of warfare: political goals or grand strategy, strategy, operations, and tactics (Wikipedia).

Senders (1968) commented that to make communication effective or increase the fidelity, training should be based on how people learn through seeing with their eyes, hearing with ears and saying with mouth. From this, it is clear that where and how proper emphasis should be given in training programme for effective learning. He found that maximum change in behavior took place as a result of combination

of demonstration, lecture, news article, radio, group discussion, field trip, role playing, movies, slides and reading.

Dede (1996) suggested the strategies intended to make distance learning more effective Understand the technology's strengths and weaknesses.

- Provide technical training and orientation.
- Plan for technical failures and ensure access to technical support.
- Foster learning-to-learn, self-directed learning, and critical reflection skills.
- Develop information management skills to assist learners in selection and critical assessment.
- Mix modes--e.g., combine e-mail discussion with audio/video methods to enhance the social aspect.
- Structure learner-centered activities for both independent and group work that foster interaction.

Instructional Design is the practice of creating instructional tools and content to help facilitate learning most effectively. The process consists broadly of determining the current state and needs of the learner, defining the end goal of instruction, and creating some "intervention" to assist in the transition. Ideally the process is informed by pedagogically tested theories of learning and may take place in student-only, teacher-led or community-based settings. The outcome of this instruction may be directly observable and scientifically measured or completely hidden and assumed. There are many instructional design models but many are based on the ADDIE model with the phase's analysis, design, development, implementation, and evaluation.

Learning Design: The IMS Learning Design specification supports the use of a wide range of pedagogies in online learning. Rather than attempting to capture the specifics of much pedagogy, it

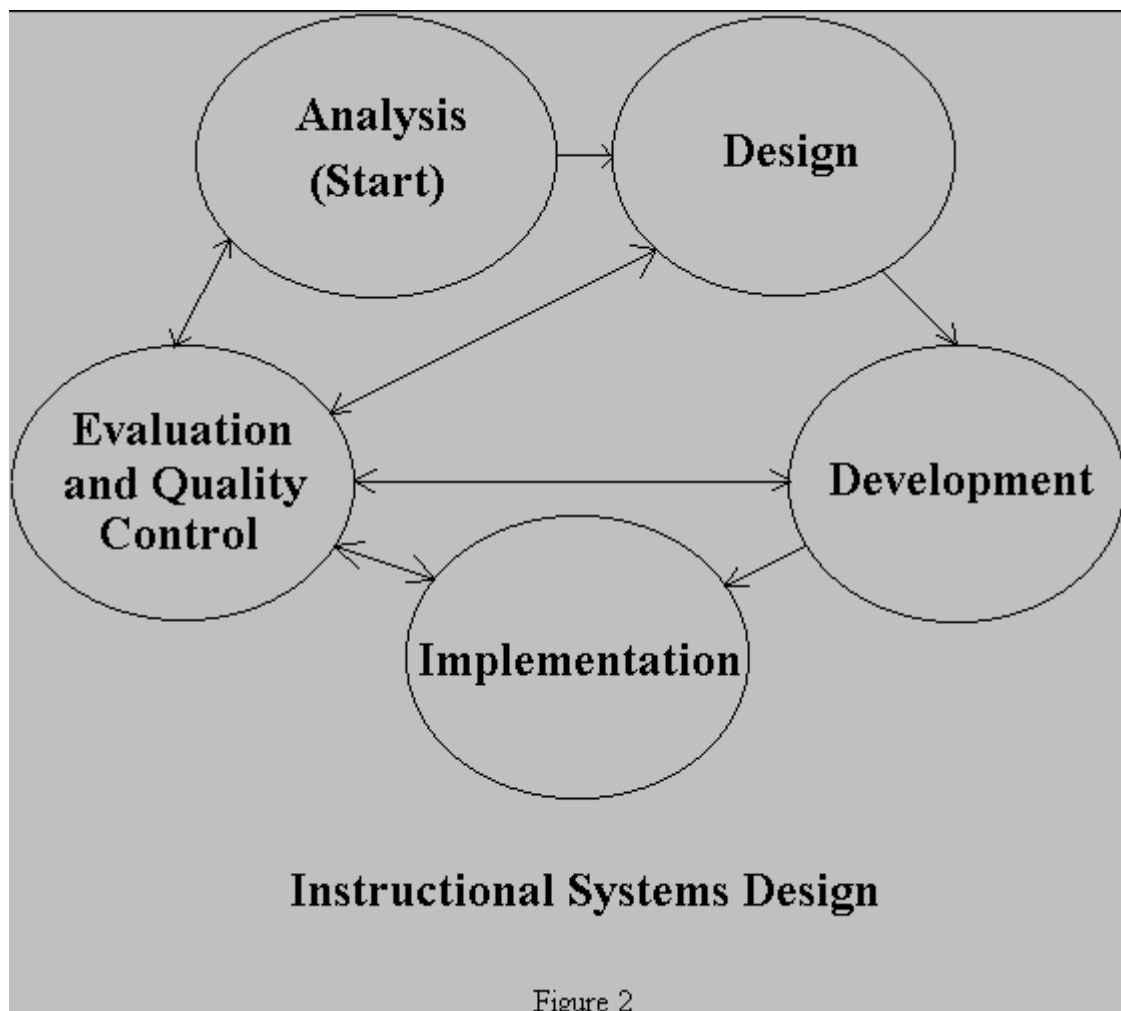
does this by providing a generic and flexible language. This language is designed to enable much different pedagogy to be expressed. The approach has the advantage over alternatives in that only one set of learning design and runtime tools they need to be implemented in order to support the desired wide range of pedagogies. The language was originally developed at the Open University of the Netherlands (OUNL), after extensive examination and comparison of a wide range of pedagogical approaches and their associated learning activities, and several iterations of the developing language to obtain a good balance between generality and pedagogic expressiveness.

In Instructional design models, perhaps the most common model used for creating instructional materials is the ADDIE Model. This acronym stands for the 5 phases contained in the model:

- Analyze - analyze learner characteristics, task to be learned, etc.
- Design - develop learning objectives, choose an instructional approach
- Develop - create instructional or training materials
- Implement - deliver or distribute the instructional materials
- Evaluate - make sure the materials achieved the desired goals

Most of the current instructional design models are variations of the ADDIE model. (Wikipedia)

O'Neal et al. (1988), figure 2 shows a simplified view of the ISD process. It starts with the analysis of the problem, the context, and the intended learner population. The analysis products (such as the job/task analysis, the entry population analysis, the needs/goals/constraints analysis, etc) provide inputs to the design phase of the project. Here the learning objectives are refined, the training media specified, the syllabus is generated, and the individual lesson designs are specified. The design documents form the basis for



the development phase, and the implementation and evaluation phases are carried out based on the evaluation and implementation plans developed in the analysis and design phases. Notice that evaluation in a systematic model of development has a quality control aspect. Since the process proceeds according to well specified and documented procedures, with well defined products at each stage, it is possible to evaluate the emerging training product at each step, detecting problems as they emerge, instead of discovering them much later, in a training product which doesn't work.

Strategies of Teaching-Learning Related to Distance Education are: The Elton Model (Elton, 1977) on ET visualizes 3 strategies for the teaching-learning process. These are mass-communication, individualized learning (which is in the case of distance education can be referred to as independent study) and group learning.

The structured materials that need individual learning needs may be in the form of print materials, audio tapes, video cassettes, film strips and computer programmes. The different pathways of distance education have been grouped by **Miller (1995)** under different models are- The Correspondence Course Model, The Telecourse Model, The Open University Model, and The distributed Classroom Model.

Distance learning strategy for training can be developed on the basis of certain model like Smith and Ragan Model. In their model focus on three main areas:

1. *Analyzing* the learning context, the need of the learners and the learning tasks or goals.
 2. *Formulating* a strategy in which organizing, delivery and management aspects are addressed, which then serves as the basis for writing and producing the instructional materials.
 3. *Evaluating* the materials once they are produced and, if necessary, revising them for future use.
-

For developing strategy we need certain base on which we develop it like some model and as revealed from reviews that for preparing distance learning strategy we need information related to different type of media usage ,preference and availability. Along with it data related to content liking by respondents, time availability as well as experience in distance learning related courses will be required.

As shown in diagrammatical form in Fig.3.1, in this strategy first of all content will be designed on the basis of need assessed in the past researches (**Pandey, 1992; Mishra, 2008; Kumar 2008**) by utilizing resources available inform of IT facilities and human resource available. For delivering content, media combination may be formed on the basis of available infrastructure and preferences of the trainees (respondents). Following steps will be followed for developing distance learning strategy:

STEP-1: Need assessment is done on the basis of the past researches, resources availability and preferences of trainers.

STEP-2: On the basis of trainers preferences needs will be prioritizes for designing content for training.

STEP-3: Content prepared will be delivered through distance by incorporating different media combination which comes under major categories like Print, Student Support, Audio-based technologies, Video-based technologies and (Computer-based technologies. Some of the latest technologies which can be incorporated are video-cassettes, internet, e-mail, telephone, mobile, study centres, counseling, etc.) Bates (1995) has proposed an ACTIONS model for the selection of media and technology for teaching, which is also applicable in the selection of technology for student support.(The acronym ACTIONS stands for access, costs, teaching/learning, interactivity and user-friendliness, organizational issues, novelty and speed). Virtual campuses are useful especially in case of imparting skill in case of training which is mainly skill based. Sub-categories of

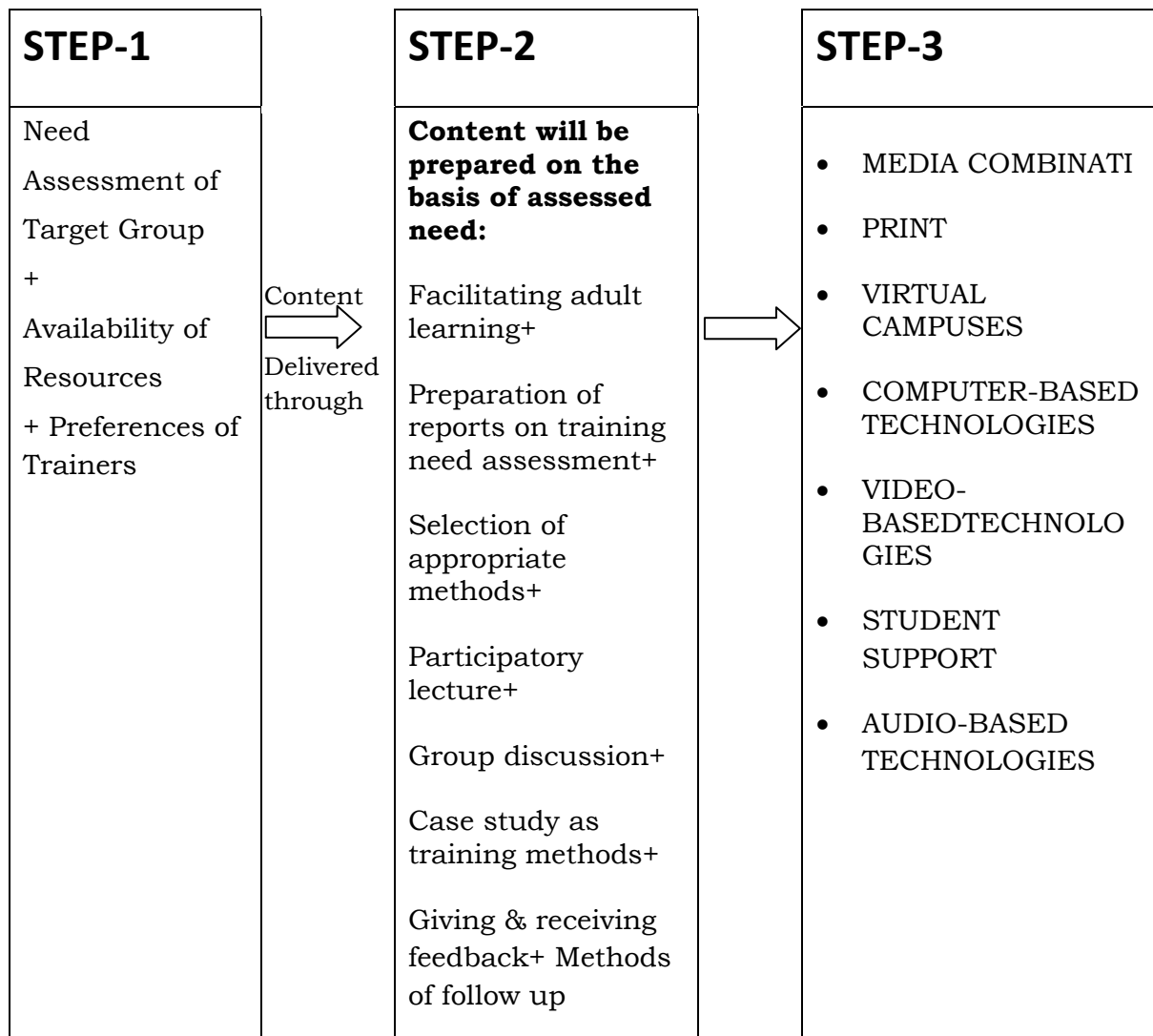


Fig. 3.1 : Steps for Developing Distance Learning Strategy

1. Print includes self-instructional material (SIM)

In distance education system students are away from the teachers. The teachers' role is performed by SIM are basically learner-centered materials. Open, distance and flexible learners usually depend a lot on SIM because they have to learn on their own, at a time, pace and place of their own choice. The various forms of support provided in classroom interaction are built into the SIM themselves. SIM differs from textbooks and journal articles which are organized in terms of the subject matter rather than as aids to learning.

SIM are-

- Self-explanatory: Learner can understand without external support.
- Self-contained: Learner may not need additional materials.
- Self-motivating: Materials arouse curiosity and are related to familiar situations.
- Self-evaluating: Self assessment questions/ exercises, activities, unit-end questions, etc. for providing feedback on performance are provided.
- Self-directed: Learner is given necessary guidance, hints, and suggestions at each stage of learning.

2. Student-support includes study centre and tutoring

A study centre, which provides quality reception and quality tuition to its students, is highly motivating and encourages students to learn. **Mills (2000)** has described the following support facilities available at study centres:

- A place for individual study in appropriate surroundings and at appropriate times
 - Library facilities
-

- Laboratory and hands-on practical work facilities
- An opportunity for students to meet the distance education institution's administrative staff
- A focus for students' association activities
- A source of information and guidance to the general public in a local area
- Access to technology
- Access to local guidance and counseling, individual and group tuition, group viewing and listening
- Facilities for taking test and examinations

In some open university like IGNOU about 630 study centres are funded by the institution itself and managed by its full- and part-time staff. Many of these study centres are however, located in the buildings of other colleges. These study centres provide all the functions described above and have a corporate image with which students can easily identify.

Tutoring is course related support provided by an individual for a particular learner or group of learners who also use prepared materials as a resource. It takes various forms but is mainly facilitating the learning of a known group of learners and is not replacing the materials. It brings ODL closer to face-to face teaching of conventional universities. But skills of tutoring required in distance learning are much more complex and sophisticated than those required in conventional system. Distance learning promotes independent learning and active participation of the learner: the two fundamental pillars of education. According to **Simpson (2000)**, a distance tutor has to perform a combination of the following:

- Defining the scope of the course
 - Explaining the course
-

- Developing the study skills
- Assessing the students
- Monitoring progress
- Organizing and supervising hands-on practical work

3. Audio-based technologies include radio, audio cassettes, telephone, teleconferencing/audio-conferencing, and voice conferencing

Radio has long been one of the most important forms of audio technology by many higher education institutions. The radio programmes either take up crucial concepts from those covered in the print and clarify them, or they provide an alternative perspective in which to view a concept which is already covered in the printed course material. Radio programmes are not interactive, and they cover only the theoretical part of the course. They do not help in developing hands-on practical skills.

Audio-cassettes have been used by almost all institutions providing some form of distance education. Audio cassettes are much more flexible than radio programmes since they can be listened at their convenience. They also have some limitations.

Telephone has been rarely used in distance learning because it is very expansive medium. Used mainly among students .One of the advantage is that it can be used at any time to talk to anyone having that facilities but it lack visual contact therefore skill can't be transfer through it.

Teleconferencing also known as audio-conferencing mostly popular among developed countries having developed technologies and more distance among tutor and students. Due to latest developments it is now becoming popular in India too .In this mode, tutor sets agenda of the conference and at the other end, which is generally a study centre, a number of students sit across a table with a loudspeaker attached to the telephone.

Voice conferencing is the combination of a telephone and computer to provide a complex voice mail service. By making a telephone call to a number set up by the course provider, students can select from a menu of services provided which can be available even on weekends and holidays.

4. Video-based technologies include television and video-cassettes

Television has been widely used by many distance learning institutions particularly in developed countries. It has advantage over radio that along with reaching large number of audience it includes visual part as well therefore skill can be transfer through it.

Video-cassettes are a powerful resource in ODL. Like audio-cassette they can be used by students at their convenience. They can also be used to transfer the skill by demonstrating the whole process.

5. Computer-based technologies include computer conferencing and E-mail communication

Computer conferencing- is generally orchestrated by the tutor and involves posting a directional message, like a message on a notice board, which can be accessed by students at their convenience by logging on to a computer either at home or at a study centre.

E-mail communication- Has also become very common. Students use either their own computers or those at a study centres or an internet café to send e-mail messages to peers or tutors to seek clarifications on any topic of the course.

6. Virtual campuses

A very recent development in distance learning is virtual university or campus, which provides for all transactions in teaching-learning at a distance online. Students may use the internet to download instructional materials and then interact through e-mail. Also, they may meet at a fixed time for interaction through video-

conferencing. Online libraries and telephone counseling are in place for regular interaction, and the local centres provide for skills assessment, besides e-assessment.

The IGNOU has initiated a different version of a virtual campus. It offers a Bachelor of Information Technology with options for a Higher National Diploma in Computing and Multimedia. For student support, tele-learning centres have been established using these teaching and support methodologies:

- Live satellite-based teleconferencing lectures supported through CD-ROM.
- Recorded video lectures
- Practical laboratories
- Computer-based training/tutorials
- Internet learning resource by internet browsing
- Online interactive chat and expert through fax, e-mail and telephone (**Panda and Chaudhary, 2001**).

Thus putting the above facts together it can be said that a time has come for using distance learning mode for training of KVK trainers in trainers' skills. The development in information and communication technology in the country and their application by the ICAR in SAUs and KVK provide appropriate conditions to think of initiating distance learning programmes. However, the models of instructional design require educators to systematically go through a series of steps from analysis, design, development, implementation, to evaluation. The most crucial aspect is selection of content and media according to learners' needs preference and the environment. The present study is based on following model, presented in Fig.3.2.

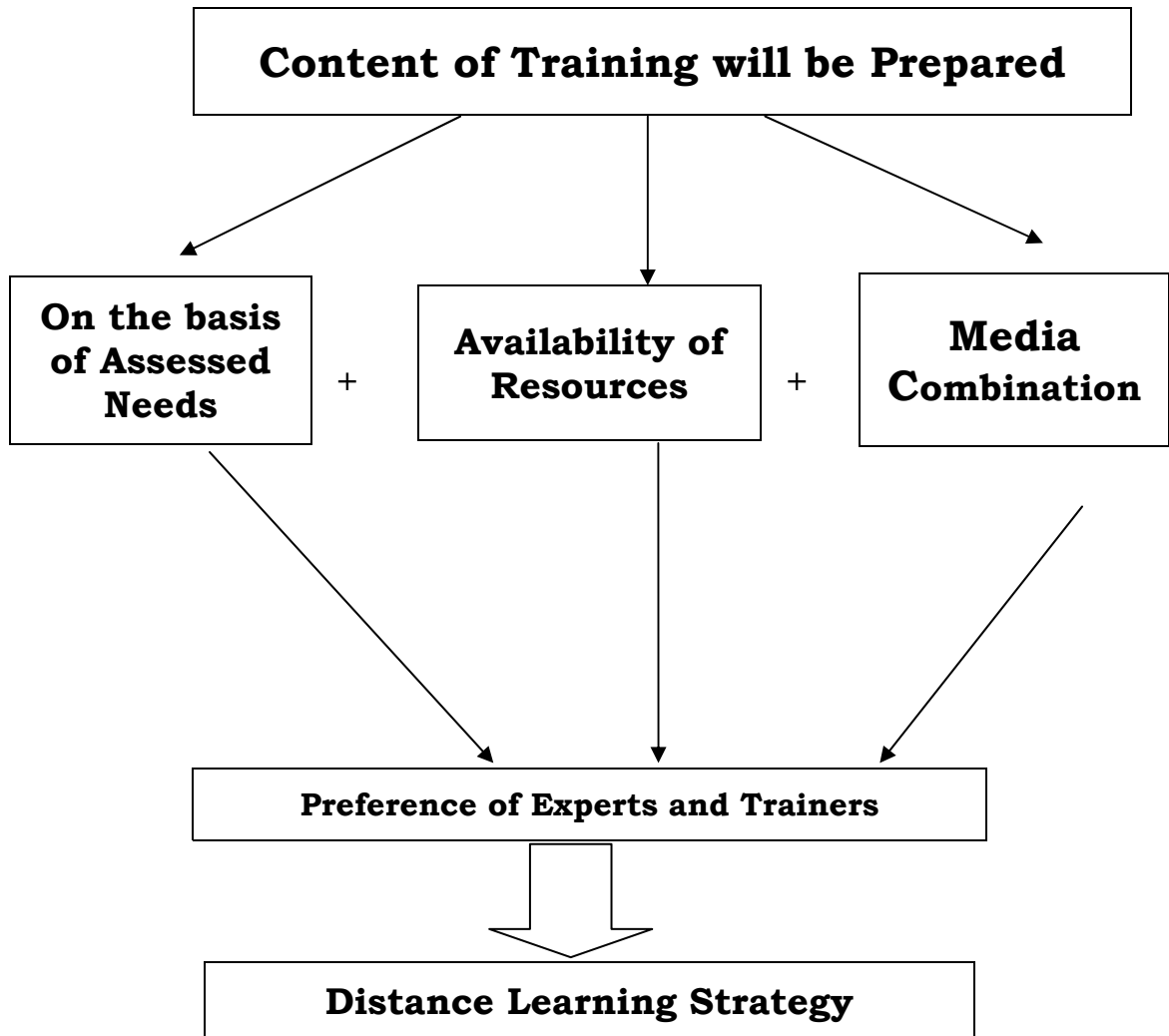


Fig. 3.2: Framework for Developing Distance Learning Strategy

RESEARCH METHODOLOGY

The chapter 'Research methodology' deals with scientific and systematic procedure developed and adopted for conducting the present investigation. The details are presented under the following heads:

- 4.1 Universe and locale of the study
- 4.2 Description of locale
- 4.3 Selection of respondents
- 4.4 Research design
- 4.5 Variables and their measurement
- 4.6 Tool preparation
- 4.7 Data collection
- 4.8 Hypotheses
- 4.9 Statistical analysis
- 4.10 Plan for Distance learning strategy

4.1 Universe and locale of the study

4.1.1 Universe of the Study

All the KVKs of India constitutes the universe for the study. There are about 589 KVKs in the country.

Locale – The study was conducted in the region covering the northern states viz., Punjab, Jammu & Kashmir, Delhi and Uttarakhand these states fall under Zone-I and Zone-IV.

4.1.2 Selection of KVKs

All the KVKs of the Northern state were selected for the present study. There are two zones under northern states such as Zone-I and Zone-IV. There are five states under Zone-I i.e. Punjab, Haryana, Jammu & Kashmir, Delhi and Himachal Pradesh and Zone-IV has two states viz. Uttar Pradesh and Uttarakhand. Fifty percent of States from each zone i.e. three states from Zone-I and one from Zone-IV were selected. These states were selected purposively based on the availability of ICT infrastructure and the responses of Programme coordinator in providing mail id lists of their staff. (Table-4)

4.2 Description of Locale

Details of each KVK is given in APPENDIX-III

4.3 Selection of respondents

4.3.1 Experts

A list of training experts of the country was compile and hundred experts were chosen for the purpose. Questionnaires were sent to 100 experts throughout India in state agricultural universities, central agricultural university and distance education institutions. Out of 100 experts, only 82 sent back properly filled in questionnaire.

4.3.2 KVK Trainers

List of all the trainers was obtained from directorate of extension in Ludhiana for Zone-I KVKs and for Zone-II from directorate of extension Pantnagar. Respondents were selected through census method meaning that all KVK staff from four KVK i.e. J&K, Delhi, Punjab and Uttarakhand were covered. Total 367 respondents were selected. Questionnaire was sent to all the respondents but returned by only 193 respondents could return back the filled in questionnaire. (Table-4)

Table: 4 Distributions of KVK and Staff State-wise

States	Total KVK	Total Staff
Punjab	17	153
Delhi	1	9
J&K	14	129
Uttarakhand	11	76
Total	43	367

There are three levels of trainers KVKs i.e. Programme Co-coordinators, SMS (Subject Matter Specialist) and Programme Assistant. The trainers with these designations were chosen as respondents through census method.

4.4 Research Design

Ray and Mondal (2006) refers that research design is the detailed plan of an investigation. It is the blueprint of the detailed procedure of testing the hypotheses and analyses of the obtained data.

A research design is the arrangement of condition for collection and analysis of data in a manner that aims to combine relevance to research purpose with economy in procedure. To fulfill the planned objectives analytical research design was used for the present study.

4.5 Variables and their Measurement

4.5.1 Concept, Operational Definition and Measurement of Variables

A concept expresses an abstraction formed by generalization from particulars. An operational definition is the standardization of definition for a particular research problem and that can be measured. It may also be conceptualized as the manipulated form of definition that is meant for measuring the things in research. In measurement for further

analysis of variable we assign some numerical value to some variable. It is empirical in nature.

In the present study, various variables were conceptualized, operationally defined and measured as presented under:

4.5.2 Independent Variables

An independent variable is the presumed cause of dependent variable, or in other words, the variable expected to explain change in dependent variable.

4.5.2.1 Age

It is the indicator of experience one has, maturity, role and status in the society. Age is a continuous variable that flows by ever increasing amounts from birth until death (**Bogue, 1969**).

In the present study, it refers to the chronological age, that is, number of years completed by the respondents at the time of the study. The respondents were categorized in three categories as:

Sl. No.	Category	Scores
1.	(<30 years)	1
2.	(Between 30 to 35 years)	2
3.	(Between35-40)	3
4.	(40 and >40years)	4

4.5.2.2 Gender

It refers to difference in man and woman in terms of role and status in society, values, attitudes and their socio-psychological variables. Respondents were categorized as male and female. It was categorized in two categories and scores of 2, 1 was given accordingly as under:

Sl. No.	Category	Scores
1.	Male	2
2.	Female	1

4.5.2.3 Medium of Schooling

In the present study it is defined as the medium in which respondent had his /her schooling such as English or Hindi. It was categorized in two categories and scores of 2, 1 was given accordingly as under:

Sl. No.	Category	Scores
1.	English	2
2.	Hindi	1

4.5.2.4 Educational Level

It refers to the level of formal education, which the respondent had received. Following educational groups were formed for the present study.

It was categorized in four categories and scores of 4, 3, 2, and 1 were given accordingly as under:

Sl. No.	Category	Scores
1.	Graduation	1
2.	Masters	2
3.	Ph.D.	3
4.	Any other	4

4.5.2.5 Working Experience

Work experience is important in social sense because it enables us to understand more fully the meaning of work as a significant social institution in our society and the role and functions it plays in affecting people and their characteristics, and important administratively because an examination of different types of work experience, and their effect may provide explicit guidelines for management of organization **(Korman, 1977)**.

In the present study it is defined as length of total service rendered by the respondent. Respondents were asked to mention the experience they had in complete number of years against each. The sum total thus obtained was categorized as High, Middle and Low.

4.5.2.6 Specialization

KVK trainers involve subject matter specialist from different field of agriculture and allied sciences. For the present study it is operationalise as the field of specialization of KVK trainers means whether they belong to extension or some other department/field. Schedule will be developed. It was categorized in two categories and scores of 2, 1 was given accordingly as under:

Sl. No.	Category	Scores
1.	Extension	2
2.	Other	1

4.5.2.7 Rank

In KVKs trainer works under different designations like programme co-coordinator, subject matter specialist, programme assistant. For present study it refers to the hierarchal organization position an individual is holding in KVK. It was categorized in four categories and scores of 4, 3, 2, and 1 were given accordingly as under:

Sl. No.	Category	Scores
1.	Programme coordinator	4
2.	Subject Matter Specialist	3
3.	Programme Assistant	2
4.	Other	1

4.5.2.8 Experience with Distance Learning

In the present study it is define as individual past experience with distance learning, means whether studied any course through distance learning. It was categorized in two categories and scores of 2 and 1 were given accordingly as under:

SI. No.	Category	Scores
1.	Yes	2
2.	No	1

5.2.9 Level of Distance learning institution for training

In the present study it is defined as type of institution attended by trainers for getting trained through distance learning.

It was categorized in three as follows:

Sl. No.	Category	Scores
1.	INTERNATIONAL	3
2.	NATIONAL	2
3.	LOCAL	1

5.2.10 Duration of Distance Learning Course

For the present study it is defined as the duration of distance learning course offered by KVK trainers. It was categorized in four categories and scores of 4, 3, 2, and 1 were given accordingly as under:

Sl. No.	Category	Scores
1.	1year or More	4
2.	6month-1 year	3
3.	3-6 month	2
4.	3 month	1

4.5.2.11 Training Experience

In this study it is defines as the training received by KVK trainer in acquiring trainers skills. It was categorized in two categories and scores of 2 was given yes response, 1 was given for no accordingly as under:

Sl. No.	Category	Scores
1.	Yes	2
2.	No	1

4.5.2.12 Levels of Institutions for trainers skills

In the present study it is defined as type of institution attended by trainers for getting trained in trainers skills.

Respondents were also asked about

(a) Institution who provided training

(b) Duration of training

For type of institution, score of 4 was given for International institution, 3 for national, 2 for regional & 1 for local respectively.

S. No.	Category	Score
1.	International	4
2.	National	3
3.	Regional	2
4.	Local	1

4.5.13 Duration of training in distance learning

For the present study it is defined as the duration of training offered by KVK trainers in trainers' skills. It was categorized in four categories and scores of 4, 3, 2, and 1 were given accordingly as under

S. No.	Category	Score
1.	Four week	4
2.	Three week	3
3.	Two week	2
4.	One week	1

4.5.2.14 Computer Proficiency

It is defined as the degree to which learner is proficient enough in using computer and its different software independently. It is categorized into four categories for every software as Excellent, Good, Average, Poor and score of 4, 3, 2, 1 was given accordingly.

Computer Software	Level of Proficiency			
	Excellent	Good	Average	Poor
1.MS Word				
2.MS PowerPoint				
3.MS Excel				
4.Scanning of Photo /Image				
5.Internet				
6.E-mail				
7.Searching on Worldwide Web				
8.Handling LCD projector				
9. Data Transferring with Mobile				
10. Photoshop				
11.Pagemaker				
12.Movie maker				

4.5.2.15 Job-Preference

It refers to the nature of job/profession the KVK Personnel would prefer to be engaged if they get opportunity. The comparative degree of liking of a particular job. In the present study, it refers to the liking of ‘training job’ as against other job options such as, extension, teaching, administration and research. The data regarding trainers’ preference was collected by asking them to indicate their preference for particular job by putting tick mark against it. It was categorized in five categories and scores of 5, 4, 3, 2, and 1 were given accordingly as under:

S. No.	Category	Score
1.	Training	5
2.	Extension	4
3.	Teaching	3
4.	Administration	2
5.	Research	1

4.5.2.16 Motivational Profile

It refers to the extent of importance attached to various factors of motivation or need satisfiers at job by the trainers. The scale developed by **Kumar (1994)** was used in the present study. The scale consist of 12 items was administrated to respondent and was asked to rate between 1 to 5, to indicate extent of importance of each factors (where, 1= least important, 2 = less important, 3 = important, 4 = very much important and 5 = most important). Thus, after analyzing the data, respondents were categorized as follows:

S. No.	Category	Range
1.	High	Above 50
2.	Medium	37-50
3.	Low	Below 37

4.5.2.17 Job Satisfaction

Job satisfaction has been defined as a pleasurable emotional state resulting from the appraisal of one's job; an affective reaction to one's job; and an attitude towards one's job. **Weiss (2002)** has argued that job satisfaction is an attitude but points out that researcher should clearly distinguish the objects of cognitive evaluation which are affect (emotion), beliefs and behaviors. This definition suggests that we form attitudes towards our jobs by taking into account our feelings, our beliefs, and our behaviors.

Porter and Steers (1973) conceptualized job satisfaction as the sum total of an individual's met expectations on the job. The more an individual's expectations are met on the job, the greater is his satisfaction. Job satisfaction in broad terms covers the satisfaction not specifically in relation to the job only, but also satisfaction in regard to the basic/ general requirement of life.

Job satisfaction in broad term covers the satisfaction not specifically in relation to the job only, but also satisfaction in regard to the basic general requirement of life. Job satisfaction, in the present investigation has been operationalise as the degree of satisfaction or dissatisfaction with various factors of their job which they perform in training institution. Job satisfaction was measured with the scale developed by **Brayfield and Rothe (1951)**. The scale consists of 9 positive and 9 negative statements was administered to the respondents in a five point continuum ranging from 'strongly agree, to 'strongly disagree' through 'agree', 'undecided' and 'disagree'. The scores assigned to each categories were 5, 4, 3, 2 and 1 for positive; 1, 2, 3, 4 and 5 for negative statements, respectively. Thus, respondents were categorized as given below:

S. No.	Category	Range
1.	Highly satisfied	Above 75
2.	Moderately satisfied	59-75
3.	Less satisfied	Below 59

4.5.2.18 Level of Difficulty in Training

It is define as the ranking of different training tasks like need assessment, objective formulation, selection of content & methodology, designing training programme, use of training methods & A.V. aids, arrangement of physical training environment, implementation of a short training course, evaluation of training programme, practice facilitation skills by learners according to the nature of complexity felt by them in performing a particular task. It was categorized in four categories and scores of 4, 3, 2, and 1 were given accordingly as under:

S. No.	Category	Score
1.	Most difficult	4
2.	Difficult	3
3.	Less difficult	2
4.	Least difficult task	1

4.5.2.19 Perception toward different media

In the present study it is defined as the learner's perception towards the seven media like print, radio, T.V., computer, internet, telephone & video on the basis of eight criteria ("Level of interactivity", "Level of accessibility", "Level of convenience", "Level of individualized learning", "Level of understanding", "Level of flexibility & user friendliness", "Level of difficulty in use" and "Level of cost-effectiveness")

. Respondents were asked to rate seven media from 1 to 7 where 1 was given for least preferred media, 2 for little better, 3 for more better, 4 for even more better, 5 for little more, 6 for little more preferred and 7 for most preferred media.

4.5.2.20 Opinion about Method of Distance Learning

It is defined as the learner's preference for use of particular method for distance learning process. List of methods of distance learning include radio lesson, television lesson, teleconferencing, radio conferencing, internet, e-mail and print was presented before trainers and asked to rate methods on three point continuum. It was categorized in three categories and scores of 3, 2, and 1 were given for most preferred, preferred and least preferred respectively.

S. No.	Category	Score
1.	Most Preferred	3
2.	Preferred	2
3.	Least Preferred	1

4.5.2.21 Media Availability

In this study it is defined as the availability of different media like television, newspaper, radio, computer/laptop, internet with learner either owned, provided by KVK or both means owned as well as provided by KVK. It was classified in three categories and scores of 3, 2, and 1 were given accordingly as under:

S. No.	Category	Score
1.	Owned	1
2.	Provided by KVK	2
3.	Both	3

4.5.2.22 Media Usage

For the present study it is defined as the degree to which respondent uses different media regularly, occasionally, sometimes, never. For frequency of use divided into 4 categories:

S. No.	Category	Score
1.	Regularly	4
2.	Occasionally	3
3.	Sometimes	2
4.	Never	1

Purpose of media use was divided into two categories i.e. purposes like knowledge or for some other purpose. Score of 2 and 1 was given respectively.

S. No.	Category	Score
1.	Knowledge	2
2.	Others	1

4.5.2.23 Constraints in learning through Distance Learning

In present study it was operationalise as the problems usually faced by learner while registering in distance learning course. Eight constraints were busy time schedule, inefficiency to work on computer, learning without support of teache, time Consuming, low Interaction with Instructors, unavailability of technology to learners, personal problems of Learners, unavailability of proper infrastructure. These constraints were administered to the respondents in a five point continuum ranging from 'strongly agree, to 'strongly disagree' through 'agree', 'undecided' and 'disagree'. The scores assigned to each category were 5, 4, 3, 2 and 1 respectively.

4.5.3 Dependent variable

Dependent variable is one which a researcher wishes to explain. The independent variable is the antecedent and dependent variable is the consequent.

4.5.3.1 Opinion about Training Areas-

In the present study it is defined as the learner's opinion about different areas and sub-areas of training content for getting training through distance learning.

Importance of these areas for KVK trainers divided into category from 5 to 1, where 5 indicates most important, 4 indicates important, 3 indicates undecided, 2 indicates less important and 1 indicates least important.

In the same way trainer opinion about sub-areas of main training areas Basics of adult learning, Training needs assessment, Designing training programme, Use of training methods, Training implementation, Preparation of training literature, Monitoring and Evaluation techniques were also taken and divided into category from 5 to 1, where 5 indicates most important, 4 indicates important, 3 indicates undecided, 2 indicates less important and 1 indicates least important.

4.6 Tool preparation

Tool is the device used to collect the data. There are two sources of data collection-primary and secondary sources. Primary sources provide first hand information while secondary data are those already recorded for some other purpose but used in research.

Based on the understanding of facts and related reviews, a structured questionnaire was prepared to collect data. Data collection tool was prepared by giving due consideration to various variables, objectives and respondents. Pre-testing was done on similar group of trainers and teachers of G.B. Pant University who were not included in sample of selected respondents. Based on pre-testing, the necessary

modifications and changes were made in the questionnaire. Standard, valid and reliable scales were used in the questionnaire.

Collection of items:

The tool in the present investigation consisted of different areas related to training and distance learning. Each major area further divided in to sub-areas, under it. The major areas as well as their sub-areas were selected after thorough consultation with experts. Moreover various literature, books and journals were also referred to select the different areas.

Analysis of items:

After preliminary selection and editing of items, seven major areas and different sub areas delineated initially were subjected to item analysis in order to select only relevant and valid items. The items were subjected to judgment by a panel of 40 judges. Out of 40 judges 20 responded. Judges were requested to go through the items and indicate their relevancy on a three point continuum as 'Most relevant', 'Some what relevant' and 'Not relevant' with corresponding scores of 3, 2, and 1 respectively. The relevance percentage of more than 75 was used as cutting point while screening and consideration for selection of major areas and their sub areas.

Reliability of the index:

Reliability is the accuracy or precision of a measuring instrument (**Kerlinger, 2004**). The split-half approach can be viewed as variation on the alternate-forms estimate of reliability. The items that comprise a given measure are split in half, and each half is treated as if it were an alternate form for the other, thereby obviating the need to construct two forms of the same measure. As with alternate-forms reliability estimates, scores on the two halves of the measures are correlated. This correlation however is based on measures that are half as long as the original one.

In order to estimate the reliability of a measure twice as long as each (i.e., the length of the original measure), split half correlations are traditionally stepped by the Spearman-Brown formula:

$$r_{xx} = \frac{2r_{\frac{1}{2} \frac{1}{2}}}{1 + r_{\frac{1}{2} \frac{1}{2}}}$$

Where,

r_{xx} = the reliability of a measure

$r_{\frac{1}{2} \frac{1}{2}}$ = the correlation between its two halves

In the present study, the correlation between two halves of distance learning contents and perception was found to be 0.67. Thus, the estimate of the reliability was 0.74.

Validity of the index:

In the present investigation, validity of the index was examined for its content validity. Content validity is the representativeness or sampling adequacy of the content, the substance, the matter, and the topics of a measuring instrument (American Psychological Association, 1966). In developing questionnaire related to distance learning, the experts as judges were identified as those who had long experience of extension, conducting training and distance learning. They were asked to judge and comment on various parts of questionnaire. Thus, the judgments of the judges were taken into account before finalizing the questionnaire for respondents.

4.7 Data collection

Data collection was carried out in two stage : In first stage questionnaire was sent to experts involving professors in different agricultural universities in different parts of country and in second stage questionnaire was sent to KVK trainers of northern zone involving states of Delhi, Jammu & Kashmir, Punjab, and Uttarakhand.

4.8 Hypotheses

The aim of the study was to test the following hypotheses:

- H₀ 1 : Gender of the trainers does not have any relationship with their opinion about training areas.
- H₀ 2 : There is no significant relationship between age and opinion about training areas.
- H₀ 3 : Education of the trainers does not have any significant relationship with opinion about training areas.
- H₀ 4 : Work experience and opinion about training areas do not have any relationship.
- H₀ 5 : There is no relationship between area of specialization and opinion about training areas.
- H₀ 6 : The rank of trainers and opinion about training areas do not have any relationship.
- H₀ 7 : There is no relationship between training received by the trainers in distance learning with opinion about training areas.
- H₀ 8 : There would not be any relationship between job preference by trainers with opinion about training areas.
- H₀ 9 : Motivational profile of trainers does not have any relationship with opinion about training areas.
- H₀10 : Job satisfaction of trainers does not yield any relationship with opinion about training areas.
- H₀ 11 : There is no relationship between training received in trainers skill by trainers with opinion about training areas.

The above hypotheses were tested and discussed in the chapter fifth (Results and Discussion).

4.9 Statistical analysis

Statistical analysis of quantitative data is an important aspect of research work, as it facilitates the condensation and interpretation of collected data, interpretation of complicated data in simple form, helps in predicting future trends, helps in establishing relationship between different variables and provides sound base of policy formulation. Collected information was tabulated and classified according to the objectives set for the study. For this study the following statistical methods were used.

4.9.1 Frequency

It was calculated to find out the number of respondents in a particular cell.

4.9.2 Percentage

The percentage values were calculated to make simple comparisons. These were calculated by dividing the frequency of a particular cell by total number of respondents and multiplying by 100.

$$P = (n/N) \times 100$$

Where,

n = Frequency of a particular cell

N = Total number of respondents in that particular cell

P = Percentage

4.9.3 Arithmetic mean

It is the average value of a series of observation. Mean score for each category was worked out separately by the formula.

$$\bar{X} = \frac{\sum x_i}{n} \quad (i = 1, 2, 3, \dots, n)$$

Where,

\bar{X} = Arithmetic mean

Σ = Sum

X_i = Value of i^{th} score

n = Total number of respondents

4.9.4 Standard Deviation

It is a measure of variability in a set of scores, found by summing up the squared differences from the mean, dividing by the number of cases and extracting the square root.

Standard deviation was computed for the purpose of analysis and further categorization. The formula used for calculating standard deviation was as follows:

$$\sigma = \sqrt{\frac{\sum (X - \bar{X})^2}{n - 1}}$$

Where,

σ = Standard deviation

X = Value of individual variable

\bar{X} = Assumed mean

n = Total number of respondents

4.9.5 Standard error of the mean

The standard error is the standard deviation of the sampling distribution of any given estimator i.e. the mean or the correlation coefficient. Just as the standard deviation is a measure of the dispersion of the original scores, the standard error of the mean is a measure of the dispersion of the distribution of sample means. The formula used for calculating the estimate of standard error of the mean:

$$SEm = \frac{s}{\sqrt{n}}$$

Where,

s = Sample standard deviation

n = Sample size

4.9.6 Weighted Mean Score (WMS)

It is the sum total of score derived by multiplying the frequency with the assigned scores to that category and divided by total number of respondents. It has been used to convert the frequency of each preference to compared level. The Weighted Mean Score (WMS) was calculated by using following formula :

$$WMS = \frac{P_1 X_3 + P_2 X_2 + P_3 X_1}{N}$$

where,

P₁ = frequency of respondents of 1st preference

P₂ = frequency of respondents 2nd preference

P₃ = frequency of respondents of 3rd preference

N = number of respondents

4.9.7 Co-efficient of variation (CV)

The CV indicates the relative variation. The formula used for calculating CV is given below:

$$CV = \frac{\sigma}{\bar{x}} \times 100$$

where,

σ is the SD and

\bar{X} is the arithmetic mean

4.9.8 Pearson's product moment correlation coefficient (r)

The correlation coefficient (r) is a measure of degree of closeness of the linear relationship between two variables. To calculate 'r' following formula was used.

$$r = \frac{\sum xy - \frac{\sum x \sum y}{n}}{\sqrt{\left[\sum x^2 - \frac{(\sum x)^2}{n} \right] \left[\sum y^2 - \frac{(\sum y)^2}{n} \right]}}$$

Where,

r = Correlation coefficient

$\sum xy$ = Sum of product of scores of two variables

$\sum x$ = Sum of the x scores

$\sum y$ = Sum of the y scores

$\sum x^2$ = Sum of squares of x scores

$\sum y^2$ = Sum of squares of y scores

n = Number of respondents

The significance of correlation coefficient has been tested by the calculated 't' value using following formula:

$$t_{n-2} = \frac{r\sqrt{n-2}}{\sqrt{1-r^2}}$$

4.10 Distance learning strategy for training

4.10.1 Distance Learning Strategy

In present study it is operationalise as the strategy for providing training to KVK trainer which will be formed by taking their suggestions about different media like print media, virtual campuses, video-based technologies, student support, web-based learning, counseling, study centre. Trainers preferences were also taken for training need to form

strategy. Strategy will be formed after taking preference of trainers on different aspects like:

First: 1. Level of Course

Respondents were asked to give their preference for level of course they would like to go through if training will be planned through distance learning. It was categorized in four categories and scores of 4, 3, 2, and 1 were given accordingly as under:

S. No.	Category	Score
1.	Degree	4
2.	Diploma	3
3.	Certificate Course	2
4.	Other	1

2. Expectation from Course

Respondents were asked about their expectation from distance learning course. It was categorized in to four categories and scores of 4, 3, 2, and 1 were given accordingly as under:

S. No.	Category	Score
1.	Knowledge enhancement	4
2.	Skill enhancement	3
3.	Increase qualification	2
4.	Any other	1

3. Organization for Study Centre

Respondents were asked for their preference for study centre in distance learning. It was categorized into four categories and scores of 4, 3, 2, and 1 were given accordingly as under:

S. No.	Category	Score
1.	KVK	4
2.	SAUs	3
3.	Government institutions/training centres	2
4.	Any other	1

4. Instructors Suitable for Distance Learning Courses

Respondent were asked for their choice of instructors in distance learning course. It was categorized in four categories and scores of 4, 3, 2, and 1 were given accordingly as under:

S. No.	Category	Score
1.	University Professors	4
2.	Scientist	3
3.	Subject Matter Specialist	2
4.	Any other	1

5. Preference for Contact with Instructor

Respondents were asked for convenient medium for contacting the instructor. It was categorized in six categories and scores of 6,5, 4, 3, 2, and 1 were given accordingly as under:

S. No.	Category	Score
1.	Visit to Study centre	6
2.	Individual/ Group Counseling	5
3.	Online Counseling	4
4.	Video-conferencing	3
5.	Audio-conferencing	2
6.	Any other	1

6. Right Duration for Evaluating Students in Distance Learning Courses

Respondents were asked for their choice in duration for evaluation of students in distance learning courses. It was categorized in four categories and scores of 4, 3, 2, and 1 were given accordingly as under:

S. No.	Category	Score
1.	Annually	4
2.	Biannually	3
3.	Every three month	2
4.	Monthly	1

7. Medium of Learning for Distance Learning

Respondents were asked about their preference for medium of learning in distance learning courses. It was categorized in four categories and scores of 4, 3, 2, and 1 were given accordingly as under:

S. No.	Category	Score
1.	Online	4
2.	Computer	3
3.	Print	2
4.	Radio	1

8. Suitable Approach to Receive Performance Skills through Distance Learning

It was categorized in five categories and scores of 5, 4, 3, 2, and 1 were given accordingly as under:

S. No.	Category	Score
1.	Practical exercises in the form of assignments	5
2.	Actual organization of training by participants under supervision	4
3.	Organization of training by participants at work place	3
4.	A combination of above	2
5.	Any other	1

9. Duration for Providing Practical Exposure in Distance Learning Courses

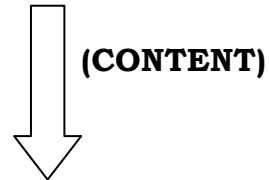
Respondents were asked for their preference in getting practical exposure in distance learning courses. It was categorized in four categories and scores of 4, 3, 2, and 1 were given accordingly as under:

S. No.	Category	Score
1.	1 month	4
2.	3 week	3
3.	2week	2
4.	1 week	1

4.10.2 Steps followed during Designing of Distance Learning Training Strategy for KVK Trainers (Fig. 4)

In the present investigation, ‘Designing distance learning training strategy for KVK trainers has been conceived as designing a framework for providing training to KVK trainers through distance learning set up which involve combination of different media after taking preferences of learner for media, learning place and type of instructors. To visualize scene of providing training to trainers at their work place. Final shape to strategy was given only after considering the available infrastructure in KVKs and preference of respondents for different medium. The

Need Assessment of Target Group + Availability of Resources + Preferences of Trainers



Content to prepared on the basis of assessed need (Facilitating adult learning+ Preparation of reports on training need assessment+ Selection of appropriate methods+ Participatory lecture+ Group discussion+ Case study as training methods+ Giving & receiving feedback+ Methods of follow up)

Content prepared will be delivered through different technologies/media combination

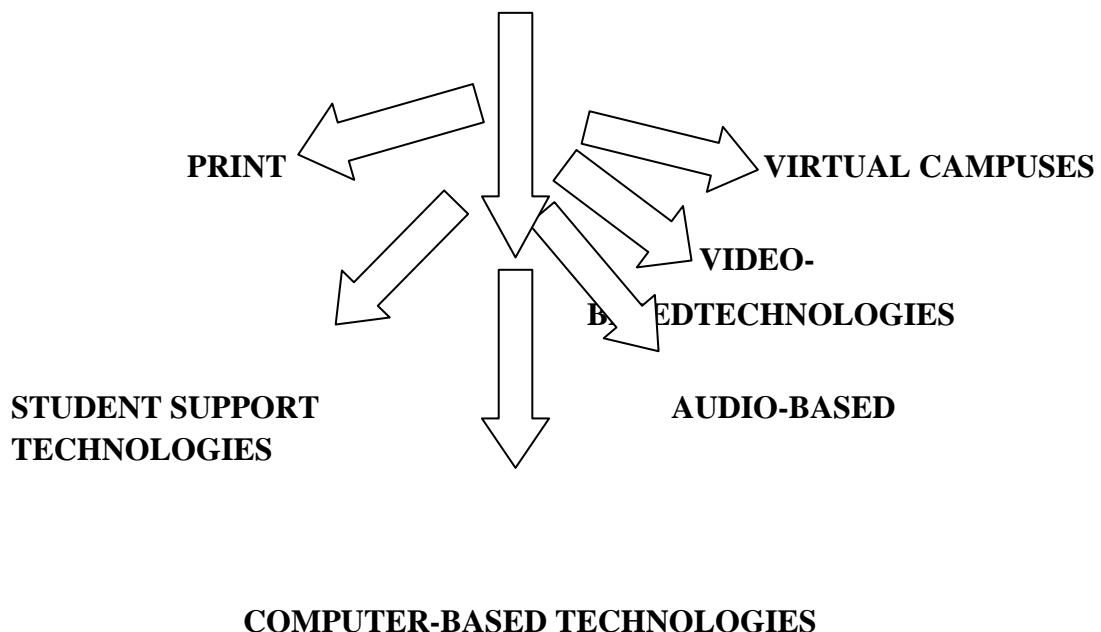


Fig. 4 : Steps for designing of distance learning strategy

following steps of Smith and Ragan Model were followed while designing strategy.

In their model focus was on three main areas:

1. *Analyzing* the learning context, the need of the learners and the learning tasks or goals. In this step training need of trainers were assessed. Training need were taken from the past researches **(Mishra, 1992 and Pandey, 2008)**. Respondents were asked to prioritize listed training need assessed on the basis of their preferences.
2. *Formulating* a strategy in which organizing, delivery and management aspects are addressed, which then serves as the basis for writing and producing the instructional materials.
3. *Evaluating* the materials once they are produced and, if necessary, revising them for future use.

RESULTS AND DISCUSSION

The chapter deals with reporting of findings and discussions of the present investigation. The materials presented under the chapter have been organized in five parts in line with the objectives as mentioned below:

- 5.1 Socio-personal, professional, psychological & situational characteristics of KVK trainers.
- 5.2 Opinion of KVK trainers and training experts about training areas and methods of distance learning.
- 5.3 Relationship between selected socio-personal, professional, psychological & situational characteristics of trainers and their opinion about training areas.
- 5.4 Testing of hypothesis
- 5.5 Opinion of KVK trainers about constraints in acquiring skill through distance learning.
- 5.6 Designing strategy for KVK trainers training in trainer's skills through distance learning.

5.1 Socio-personal, Professional, Psychological and Situational Characteristics of KVK Trainers

Profile of trainers was studied in terms of selected socio-personal, professional and psychological characteristics viz. age, gender, medium of schooling, educational level, work experience, specialization, rank, experience with distance learning, training experience, computer proficiency, job preference, motivational profile, job satisfaction, difficulty in training tasks, perception towards media, media availability, media usage, frequency and purpose of media use. The distribution of a total of 193 trainers on the above characteristics have been presented and discussed below.

5.1.1 Socio-personal and Professional Characteristics of Trainers

Socio-personal and professional characteristics of trainers like age, gender, medium of schooling, educational level, work experience, specialization and rank have been presented in Table 5.1.

Age

Maximum of trainers (47.3%) were “Old” (above 40 years) while 24.4 per cent belonged to “Lower middle category” (30-35), 23.4 per cent belonged to “Upper middle” (36-40) and only 4.6 per cent of the respondents were “young” (less than 30 years).

The findings of the study are in line with those of **Singh (1992)**, **Bisht (2004)** and **Kranti *et al.* (2006)**.

Gender

Majority of the trainers (85.49%) were “Male” while 14.5 percent were “Female”.

Medium of Schooling

Majority of trainers (59.58%) had studied in “Hindi medium” followed by “English” medium (40.41%). Similar findings were also reported by **Mishra (2008)**.

Educational Level

Majority of trainers (75.12%) had earned “Ph.D.” as their highest qualification while 22.79 per cent of the respondents had “Masters degree” .1.55 per cent trainers had “graduation” as their highest qualification and only 0.51 percent had undergone education up to “diploma level”. Similar findings had been reported by **Bisht (2004)**, **Barman (2008)** and **Matsepe (2006)**.

Table 5.1: Socio-personal, professional characteristics of trainers

Sl. No.	Response category	Frequency (N=193)	Percentage
Age			
1.	Young (<30 years)	10	4.6
2.	Lower Middle (30 to 35 years)	47	24.4
3.	Upper middle(36-40)	53	23.4
4.	Old(above 40)	49	47.3
Gender			
1.	Male	165	85.49
2.	Female	28	14.5
Medium of Schooling			
1.	English	78	40.41
2.	Hindi	115	59.58
Educational Level			
1.	Graduation	3	1.55
2.	Masters	44	22.79
3.	Ph.D.	145	75.12
4.	Any other	1	0.51
Work Experience			
1.	High (> 24)	39	20.21
2.	Medium (between 5-24)	127	65.81
3.	Low (< 5)	27	13.9
	\bar{X} =14.23	SD =9.39	SE = 0.676
Specialization			
1.	Agriculture Extension	39	20.20
2.	Any other	154	79.79
Rank			
1.	Programme Coordinator	27	13.98
2.	Subject Matter Specialist	97	50.25
3.	Programme Assistant	31	16.06
4.	Any other	38	19.6

Work Experience

Majority of trainers (65.81%) had middle level work experience, followed by high (20.21%) and low (13.9%). Similar findings had been reported by **Agarwal (1992) and Barman (2008)**.

Specialization

Majority of trainers (79.79%) had specialization in field(s) “Other than agriculture extension”. Only 20.20 per cent trainers had specialization in “Agriculture extension”.

Rank

Majority of trainers (50.25%) were “Subject matter specialist”, while 16.06 per cent were “Programme assistants”. Only 13.98 per cent were in “Programme coordinator” category. 19.6 per cent were in any other category which involves assistant professors and S.R.O.s

Thus it can be concluded that maximum number of trainers (47.3%) were above 40 years, male (85.49%), had studied in Hindi (59.58%) and had earned Ph.D. (75.12%) degree. It was also found that majority (65.81%) of trainers had middle level work experience, had specialization (79.79%) in field other than agriculture extension, and were Subject Matter Specialist (50.25%).

Thus the profile of the KVK trainers indicated they were highly qualified and specialist. Majority were from fields other than agricultural extension but few from agricultural extension this shows that every KVK had on an average one staff member from agricultural extension background. If certain distance learning course will be planned in future then emphasis should be given on SMS as their response showed that they were most interested in getting trained through distance learning and they had good experience of extension activities.

Experience with Distance Learning

Table-5.2 showed that majority of the trainers (96.34%) did not have any exposure of distance learning and only 3.62 per cent had such experience.

Table 5.2: Experience of trainers' with Distance learning

Sl. No.	Response Category	Frequency (N=193)	Percentage
1.	Yes	7	3.62
2.	No	186	96.34

Note: Explanation mostly connect with Table 5.3

As shown in Table-5.3 the details of institutions attended by seven trainers who had gone through distance learning courses, 42.86 per cent had training in “International institution” and majority (57.14%) in “Local institution”. None of the trainers attended “National” and “Regional institutions” for training.

Table 5.3: Levels of training received in distance learning

Sl. No.	Response category	Frequency (N=7)	Percentage
1.	International	3	42.86
2.	National	0	0
3.	Regional	0	0
4.	Local	4	57.14

Duration of distance learning course was presented in Table-5.4. Equal percentage of trainers (42.86%) attended course of “Four weeks” and “Two weeks”. Only 14.3 per cent had attended “One week course”. None of the trainers attended “More than four weeks” of training course in distance learning.

Table 5.4: Duration of Training received in distance learning

Sl. No.	Response category	Frequency (N=7)	Percentage
1.	More than four weeks	0	0
2.	Four weeks	3	42.86
3.	Two weeks	3	42.86
4.	One weeks	1	14.3

So it was revealed from training experience of trainers that majority (96.34%) of trainers did not attend training in distance learning. Out of those who attended, majority (57.14%) were trained in “local” institution 42.86 per cent trainer attended course of “four weeks” and “two weeks”. This is strange that a very small percentage of trainers had distance learning exposure now that so many institutions are providing online distance learning, so if some course or training planned for them through distance learning then it will be totally new thing for them

Training in Trainer’s Skills

As revealed in Table 5.5 majority of trainers (64.76%) received training in trainer’s skill and only 35.23 per cent of trainers did not receive such type of training. Similar findings have been reported by **Singh (1992)**.

Table 5.5: Training in trainer’s skills

S. No.	Response category	Frequency (N=193)	Percentage
1.	Training not received	68	35.23
2.	Training received	125	64.76

As shown in Table 5.6 of the total trainers who received training in trainers' skill, maximum trainers (49%) got trained at "National level", followed by "Local" institution (31.9), "Regional institutions" (16.66%), and "International institutions" (19.04%).

Table 5.6: Levels of training received by trainers in trainer's skills

Sl. No.	Response category	Frequency	Percentage
1.	International	5	19.04
2.	National	103	49.0
3.	Regional	35	16.66
4.	Local	67	31.9

Note: Frequency and percentage was calculated from total 210 instead of 125 because some of the respondents get trained in more than one type of institution.

Table 5.7 clearly indicated that out of those trainers who received training, 34.28 per cent received "One week" training, followed by "Two weeks" (26.2%) , "Four week" (13.8%) and 25.7 per cent had attended "More than four weeks" of training.

Table 5.7 : Duration of training received by trainers

Sl. No.	Response category	Frequency	Percentage
1.	More than four weeks	54	25.7
2.	Four weeks	29	13.8
3.	Two weeks	55	26.2
4.	One weeks	72	34.28

Note: Frequency and percentage was calculated from total 210 instead of 125 because some of the respondents get trained in more than one type of institution.

Computer Proficiency

Table-5.8 revealed proficiency of trainers in using computer software based on weighted mean score (WMS). As shown in table, trainers were most proficient in “E-mail” (3.49) followed by “Internet” (3.34) with high level of proficiency. “MS word” and searching on “World Wide Web” both got equal scores (3.2) with moderate level of proficiency. The trainers had moderate proficiency in “Scanning of photos/image” and “Handling LCD projector” (2.77) followed by “PageMaker” (1.51) and “Moviemaker” (1.49) with low level of proficiency. Value of SD (0.66) and CV (24.7) further suggested that trainers were heterogeneous regarding their responses about their level of proficiency in computer software.

Table 5.8 : Proficiency of trainers in using Computer software

S. No.	Computer Software	WMS	Rank	Level of Proficiency
1.	E-mail	3.49	I	High
2.	Internet	3.34	II	High
3.	Searching on worldwide web	3.2	III	Moderate
4.	MS word	3.2	III	Moderate
4.	MS power point	3.11	IV	Moderate
5.	Scanning of photo /image	2.77	V	Moderate
6.	Handling LCD projector	2.77	V	Moderate
7.	MS excel	2.72	VI	Moderate
8.	Data transferring with mobile	2.53	VII	Moderate
9.	Photoshop	1.91	VIII	Moderate
10.	Pagemaker	1.51	IX	Low
11.	Movie maker	1.49	X	Low
$\bar{X} = 2.67$		SD = 0.66	CV = 24.7	

Trainers had reported that they were most proficient in “E-mail” followed by “Internet”, “searching on World Wide Web”, “MS word” and “MS power point”. This is very happy situation that trainers are ready in most of the computer software. It can be interpreted from these results that trainers are ready for learning any course through distance learning. So, online learning courses for providing training can be very well planned for them.

5.1.2 Psychological Characteristics of Trainers’

Psychological characteristics of trainers were studied in terms of job preference, motivational profile, job satisfaction, difficulty in training task, perception about media.

Job Preference

Table 5.9 revealed that maximum trainers (35.23%) selected “Teaching” as their first choice for job, followed by “Extension” (26.94%), “Training” (23.83%), “Administration” (8.08%) and “Research” (5.18%). Teaching as first choice for job shows that KVK trainers were involved in training and extension activities but they preferred to go for teaching more.

Table 5.9 : Job preferences by trainers

Rank	Category	Frequency N=193	Percentage
I.	Teaching	68	35.23
II.	Extension	52	26.94
III.	Training	46	23.83
IV.	Administration	17	8.08
V.	Research	10	5.18

Motivational Profile

Table-5.10 showed that majority (75.12%) of trainers possessed “medium level” of motivation followed by “high” motivation (18.65%). Only 6.21 per cent had “low level” of motivational profile. Findings were similar to **Bisht (2008)**.

Job Satisfaction

Table-5.10 indicated that majority of the trainers (84.45%) possessed “low level” of job satisfaction followed “medium level” (15.54%). None of the trainers had “high” job satisfaction.

Table 5.10 : Motivational profile & Job satisfaction of trainers’

S.No.	Response category	Frequency	Percentage
(N=193)			
Motivational Profile			
1.	High (> 53)	36	18.65
2.	Medium (between 39 to 53)	145	75.12
3.	Low (< 39)	12	6.21
Job Satisfaction			
1.	Highly satisfied (> 80)	0	0
2.	Moderately satisfied (between 62 to 80)	30	15.54
3.	Less satisfied (< 62)	163	84.45

Thus it can be concluded that trainers were mostly male, at the level of SMS, above forty years of age, studied through Hindi medium, with Ph. D degree, with middle level of experience and almost no exposure of distance learning. Similar findings have been reported by **Bisht (2004) and Barman (2008)**. More than fifty per cent trainers had attended some training on trainers’ skills. These were moderately proficient in most computer skills.

This implies that training has to be organized for SMS who are in majority and have major responsibility of conducting training. Their proficiency in computers skills is quite encouraging for designing training through distance mode. Since very few had only occasional exposure to trainers' skills, this is a grey area.

Further, trainers had high preference for teaching job, middle level of motivation and low Job satisfaction. The psychological characteristics indicate that trainers regard teaching in high esteem as work in KVK involved field work and not academic. Similar findings had been reported by **Pandey and Kumar (1994)**. In fact, KVK trainers have often to work in difficult areas, beyond office hours and under several constraints.

Difficulty in Training Tasks:

Table-5.11 showed that trainers had ranked "Use of training methods" (2.1) as most difficult followed by "Formulation of need assessment tests" (1.94), "Arrangement of physical training environment" (1.76) and "Formulation of training objective" (1.69), "Evaluation of training programme" (1.64) and "Implementation of training course" (1.61). "Designing complete training programme" (1.2) was ranked seventh and at low level of difficulty. Thus it can be said that trainers perceived "Use of training method" as most difficult to perform and rest of the task were perceived to be of moderate difficulty. Only "Designing complete training programme" was regarded of low difficulty. The SD (0.262) and CV (15.32) further suggested that trainers were homogeneous with regard to their opinion about level of difficulty in performing training tasks. Trainers' ranked "Use of training methods" at the top as they regarded this task as most difficult to perform. In fact most trainers do not have adequate exposure to training methodology in pre-service training in specialized areas. Thus, they normally do not use anything more than lecture or practical.

Table 5.11: Trainers' opinion about level of difficulty in training tasks

S.No.	Training Tasks	WMS	Rank	Level of Difficulty
1.	Use of training methods	2.1	I	High
2.	Formulation need assessment tests	1.94	II	Moderate
3.	Arrangement of physical training environment	1.76	III	Moderate
4.	Formulation of training objective	1.69	IV	Moderate
5.	Evaluation of training programme	1.64	V	Moderate
6.	Implementation of training course	1.61	VI	Moderate
7.	I designing complete training programme	1.2	VII	Low
$\bar{X} = 1.71$		SD = 0.262	CV = 15.32	

Perception towards Media:

Perception of trainers toward media was found out with weighted mean score. Trainers' perception towards various media likes print, radio, T.V., computer, internet, telephone & video. Perception was measured on the basis of eight parameters i.e. "Level of interactivity", "Level of accessibility", "Level of convenience", "Level of individualized learning", "Level of understanding", "Level of flexibility & user friendliness", "Level of difficulty in use" and "Level of cost-effectiveness.

Level of Interactivity (LOI)

Level of Interactivity means how interactive the particular media is, trainers were asked to rate all media on the basis this criterion. As shown in Table 5.12 that "Internet" (5.72) was rated at the top with high level of interactivity. "Telephone" (4.73) was ranked second followed by "Video" (4.37), "T.V."(4.2), "Computer"(3.95) and "Print" (2.96) with moderate level of interactivity. Trainers didn't find "Radio" (2.06) interactive and placed it on the seventh position with low level of

interactivity. The SD (1.11) and CV (27.88) further suggested that trainers' responses were highly heterogeneous with regard to their perception about media level of interactivity.

Table 5.12: Trainers' perception regarding level of interactivity of media

Rank	Media	WMS	LOI
I	Internet	5.72	High
II	Telephone	4.73	Moderate
III	Video	4.37	Moderate
IV	T.V.	4.2	Moderate
V	Computer	3.95	Moderate
VI	Print	2.96	Moderate
VII	Radio	2.06	Low
\bar{X} = 3.99		S.D. = 1.11	C.V. = 27.8

Level of Accessibility (LOA)

Level of accessibility refers to the extent of reach of media. Trainers were asked to rate all media on the basis this criteria. As showed in Table 5.13 that revealed that trainers' rated "Print" (5.29) at the top with high level of accessibility. "Telephone" (4.86) was ranked at second position followed by "computer" (4.56), "T.V." (4.01) and "Internet" (3.81) with moderate level of accessibility. "Video" (2.95) and "Radio" (2.53) used ranked at the lowest at sixth and seventh position with low level of accessibility. SD (1) and CV (24.39) further suggested that trainers' responses were highly heterogeneous with regard to their perception about media level of accessibility. Similar findings have been reported by **Sreekumar (1998)**.

Table 5.13: Trainers' perception regarding level of accessibility of media

Rank	Media	WMS	LOA
I	Print	5.29	High
II	Telephone	4.86	Moderate
III	Computer	4.56	Moderate
IV	T.V.	4.01	Moderate
V	Internet	3.81	Moderate
VI	Video	2.95	Low
VII	Radio	2.53	Low
$\bar{X}=4.1$		S.D. =1	C.V. = 24.39

Level of Convenience (LOC)

Level of Convenience means easiness in learning through particular media. Trainers' were asked to rate all media on the basis this criteria. As showed in Table 5.14 that on the basis of score of responses given by trainers', "Telephone" (5.22) was rated at top as high level convenience. This showed that trainer found telephone most convenient because it is available in most homes. "Print" (4.70) was ranked second followed by "Internet" (4.54), "Computer" (3.84), "Video" (3.47) and "T.V." (3.14) with moderate level of convenience. "Radio" (3.09) again was ranked at seventh position with low level of convenience. Data further suggest that trainers' responses were heterogeneous with regard to their perception about media level of convenience as value of SD is 0.8 and CV 19.51.

Table 5.14: Trainers' perception regarding level of convenience of media

Rank	Media	WMS	LOC
I	Telephone	5.22	High
II	Print	4.70	Moderate
III	Internet	4.54	Moderate
IV	Computer	3.87	Moderate
V	Video	3.47	Moderate
VI	T.V	3.14	Moderate
VII	Radio	3.09	Low
\bar{X} =4.1		S.D. =0.8	C.V. = 19.51

Level of Individualized Learning (LOIL)

Level of individualized learning means how far the media is helpful in promoting personal learning of trainers. Trainers were asked to rate all media on the basis this criterion. As shown in Table 5.15 “Print” (5.27) was rated at the top position followed by “internet” (5.25) on second with high level of individualized learning. “Computer” (5.17) was ranked at the third place followed by “Video” (4.09) and “Radio” (2.94) with moderate level of individualized learning. “T.V.” (2.61) was ranked at sixth position and “Telephone” (2.59) with low level of individualized learning. It is further added that trainer’s responses were highly heterogeneous with regard to their perception about media level of individualized learning as value of SD is 1.2 and CV is 30.07. Similar findings have been reported by **Sreekumar (1998)** .However, results are not in line with the findings of **Neuhauser (2002)**.

Table 5.15: Trainers' perception on level of individualized learning of media

Rank	Media	WMS	LOIL
I	Print	5.27	High
II	Internet	5.25	High
III	Computer	5.17	Moderate
IV	Video	4.09	Moderate
V	Radio	2.94	Moderate
VI	T.V.	2.61	Low
VII	Telephone	2.59	Low
\bar{X} =3.99		S.D. =1.2	C.V. = 30.07

Level of Understanding (LOU)

Level of understanding means extent to which media prove to be helpful in acquiring understanding through distance learning, trainers' were asked to rate all media on the basis this criterion. As showed in Table 5.16 that on the basis of responses given by trainers' "Internet" (5.28) was ranked at the top with high level of understanding. Both telephone (4.75) and video (4.75) placed at second followed by "Print" (4.15), "Computer" (3.82) and "T.V." (3.13) with moderate level of understanding. Most trainers reported that they were proficient in internet they acquired better understanding through it. "Radio" (2.14) was placed at the sixth position with low level of understanding. The SD (1.1) and CV (26.82) suggested that trainers were highly heterogeneous with regard to their perception about media ranking based on level of understanding.

Table 5.16: Trainers' perceptions on level of understanding through media

Rank	Media	WMS	LOU
I	Internet	5.28	High
II	Telephone	4.75	Moderate
II	Video	4.75	Moderate
III	Print	4.15	Moderate
IV	Computer	3.82	Moderate
V	T.V.	3.13	Moderate
VI	Radio	2.14	Low
<hr/>			
\bar{X} =4.1	S.D. =1.1	C.V. = 26.82	

Level of Flexibility and User Friendliness (LOF&UF)

Level of flexibility & user friendliness means how far trainers were comfortable in using particular media. As shown in Table 5.17 that “Internet” (5.69) was ranked at the top followed by “Computer” (5.53) with high level of flexibility and user friendliness. “Print” (4.63) was ranked third followed by “Telephone” (4.46), “Video” (3.34) and “T.V.” (2.56) with moderate level of flexibility and user friendliness. “Radio” was ranked seventh that too with low level of flexibility and user friendliness. The SD (1.4) and CV (35) suggest that trainers were highly heterogeneous with regard to their perception about media level of flexibility & user friendliness.

Table 5.17: Trainers' perception on level of flexibility & user friendliness of media

Rank	Media	WMS	LOF&UF
I	Internet	5.69	High
II	Computer	5.53	High
III	Print	4.63	Moderate
IV	Telephone	4.46	Moderate
V	Video	3.34	Moderate
VI	T.V.	2.56	Moderate
VII	Radio	1.79	Low
$\bar{X} = 4$		S.D. = 1.4	C.V. = 35

Level of Difficulty in Use (LODU)

Level of difficulty in use means the extent to which particular medium is complicated in use by trainers. Trainers' were asked to rate all the media on the basis this criterion. As shown in Table 5.18 that "Internet" (5.08) was placed on top position followed by "Computer" (4.91) on second position with high level of difficulty in use. T.V. (4.45) was ranked third followed by "Radio" (4.04) and "Print" (3.40) with moderate level of difficulty in use. "Telephone" (3.12) and "Video" (2.95) were ranked at low level of difficulty in use means trainers did not find these difficult in use. The SD (0.79) and CV (19.79) suggested that trainers were heterogeneous with regard to their perception about media level of difficulty in use. Results are supported by the findings of **Perris *et al.* (2004).**

Table 5.18: Trainers' perception on level of level of difficulty in use of media

Rank	Media	WMS	LODU
I	Internet	5.08	High
II	Computer	4.91	High
III	T.V.	4.45	Moderate
IV	Radio	4.04	Moderate
V	Print	3.40	Moderate
VI	Telephone	3.12	Low
VII	Video	2.95	Low
\bar{X} =3.99		S.D. =0.79	C.V. = 19.79

Level of Cost Effectiveness (LOCE)

Level of cost effectiveness means how far the media was found appropriate in terms of cost. Trainers' were asked to rate all media on the basis this criterion. Table 5.19 revealed that "Internet" (3.96) ranked on top position followed by "T.V." (3.82), "Radio" (3.82), "Computer" (3.73), "Telephone" (3.59) and "Video" (3.32) with moderate level of cost effectiveness. "Print" (0.58) was ranked at the lowest with low level of cost effectiveness. This showed that trainers found print costly in comparison to internet. The SD (1.11) and CV (34.04) suggested that trainers were heterogeneous with regard to their perception about media on the basis of level of cost effectiveness.

Table 5.19: Trainers' perception about level of cost effectiveness of media

Rank	Media	WMS	LOCE
I	Internet	3.96	Moderate
II	T.V.	3.82	Moderate
II	Radio	3.82	Moderate
III	Computer	3.73	Moderate
IV	Telephone	3.59	Moderate
V	Video	3.32	Moderate
VI	Print	0.58	Low
$\bar{X} = 3.26$		S.D. = 1.11	C.V. = 34.04

Trainers' perception regarding various media on the basis of various criteria used as guide for media selection in distance learning, revealed that on the basis of level of understanding received through media, flexibility & user friendliness, interactivity, cost effectiveness as well as individualized learning, "Internet" was placed at the top indicating high level of preference. However, on the basis of accessibility and individualized learning "Print" was rated at the top. "Telephone" was seen as most convenient to use. Thus, there is a fit case to use on-line learning and printed material to provide training at distance. Regarding trainers' perception towards media based on eight criteria "Internet" (5.72) was ranked on top in level of interactivity, "Print" (5.29) in level of accessibility, "Telephone" (5.22) in level of convenience, "Print" (5.27) in level of individualized learning, "Internet" (5.28) in level of understanding, "Internet" (5.69) in level of flexibility and user friendliness, "Internet" (5.08) in level of difficulty in use, and "Internet" (3.96) in level of cost effectiveness. The study further revealed that trainer showed their positive perception towards internet as it was ranked on top position in five out of eight criteria's. Reason might be that trainers were proficient in using internet therefore showed highest response for it.

5.1.3 Situational Characteristics

Media Availability and Media Usage

In Table-5.20 revealed media available and being used by trainers such as, radio, computer/laptop, internet and mobile. Most of the listed media were owned by trainers and surprisingly “Radio” was owned by most (94.30%) followed by T.V. which was also possessed by most (92.22%). Only 31.08 percent of trainers reported that “Internet” is provided by KVK. “Mobile” was possessed by majority (88.08%). “Computer/laptop” got maximum (37.82) percentage in “both” category.

Table 5.20: Availability of media resources with trainers (N=193)

Media	Owned	Provided by KVK	Both
Television	178(92.22)	4(2.07)	11(5.69)
Newspaper	108(55.95)	28(14.50)	57(29.53)
Radio	182(94.30)	2(1.03)	9(4.66)
Computer/Laptop	74(38.34)	46(23.83)	73(37.82)
Internet	79(40.93)	60(31.08)	54(27.97)
Mobile	170(88.08)	3(1.55)	20(10.36)

Note: Figure in parenthesis indicates percentage in their respective category

As shown in Table-5.21 below, majority (67.87%) of the trainers regularly watched “Television”. “Newspaper” was also regularly read by majority (72.02%) of KVK trainers. None of the trainers used radio regularly and majority used it sometimes (56.47%). “Computer/laptop” was used by majority (62.79%) regularly as it was either available in KVK or possessed by most due its application in most works. “Internet” was also used by majority (51.81%) regularly due to its benefits in fast moving world. If some of the trainer didn’t use it was only due to lack of

this facility. “Mobile” was also regularly used by majority (78.75%) as a part of day to day routine whereas “Radio” was used by none of the trainer regularly. Only 4.15 per cent trainer in never used television. This meant that everybody viewed T.V. Findings were similar to **Becker (1999)**.

Table 5.21: Frequency of media use by trainers’ (N=193)

MEDIA	FREQUENCY OF USE			
	Regularly(R)/Occasionally(O)/Sometimes(S)/Never(N)			
	R	O	S	N
Television	131(67.87)	26(13.47)	28(14.5)	8(4.15)
Newspaper	139(72.02)	25(12.95)	15(7.77)	14(7.25)
Radio	0(0)	52(26.94)	109(56.47)	32(16.58)
Computer/Laptop	121(62.79)	42(21.76)	17(8.80)	13(6.735)
Internet	100(51.81)	58(30.05)	20(10.36)	15(7.77)
Mobile	152(78.75)	22(11.39)	8(4.1)	11(5.69)

Note: Figure in parenthesis indicates percentage in their respective category

Media used by trainers was further analyzed in terms of weighted mean score and reported in Table-5.22. “Mobile” (3.63) was used most by trainers followed by “Newspaper” (3.49). “Television” (3.45), “Computer/laptop” (3.40) and “Internet” (3.26) with moderate level of frequency of use. “Radio” (2.1) was ranked at sixth with low level of frequency of use. Mobile was ranked at top position and radio at lowest position by majority indicating the emerging communication trend followed by most people. The SD (0.5) and CV (15.52) further suggested that trainers were homogeneous with regard to their level of frequency of media use.

Table 5.22: Frequency of use of media by trainers

Media	WMS	Rank	Level of frequency of use
Mobile	3.63	I	Moderate
Newspaper	3.49	II	Moderate
Television	3.45	III	Moderate
Computer/Laptop	3.40	IV	Moderate
Internet	3.26	V	Moderate
Radio	2.1	VI	Low
<hr/>			
$\bar{X} = 3.22$	SD =0.5	CV = 15.52	

Table 5.23 has shown purpose of media use by trainers. Majority of the trainers (77.20%) read “Newspaper” mainly for knowledge purpose. “Television” and “Internet” both were used by majority of trainers (74.61%) for gaining knowledge. Only 33.67 per cent of trainers used “Mobile” for gaining knowledge. Majority (66.32%) use “Mobile” for any other purpose followed by “Radio” which was used by 65.28 per cent of trainers for any other purpose. Thus, mobile and radio were being used by trainers mostly for purposes other than knowledge. Any other purpose involves use of media for purposes other than knowledge like for entertainment, exchange of views etc. Findings were similar to **Becker (1999)**.

Table 5.23 : Purpose of Media use by trainers N=193

Media	Purpose of Media Use	
	Knowledge	Any Other
Television	144(74.61)	49(25.38)
Newspaper	149(77.20)	44(22.79)
Radio	67(34.71)	126(65.28)
Computer/Laptop	133(68.91)	60(31.08)
Internet	144(74.61)	49(25.38)
Mobile	65(33.67)	128(66.32)

Note: Figure in parenthesis indicates percentage in their respective category

Thus, situational characteristics with respect to media revealed that most of the listed media were owned by trainers and surprisingly “Radio” was owned by most (94.30%). It may be due to availability of radio in most of the multifunctional mobiles or due to its unique characteristics .T.V. was also possessed by most (92.22%). Only 31.08 percent of trainers reported that “Internet” was provided by KVK. This may be the case as facilities are not available in all KVKs may be due to far of location like one KVK in Uttarakhand (Rudraprayag) and few in Jammu & Kashmir. “Mobile” was possessed by majority (88.08%) as it becomes major part of communication in Indian life. “Computer/laptop” got maximum (37.82) percentage in “both” category (means possessed as well as provided by KVK). It was further reported that majority (67.87%) of the trainers regularly watched “Television”. “Newspaper” was also regularly read by majority (72.02%) of KVK trainers. None of the trainers used radio regularly and majority used it sometimes (56.47%). “Computer/laptop” was used by majority (62.79%) regularly as it was either available in KVK or possessed by most due its application in most works. “Internet” was also used by majority (51.81%) regularly due to its benefits in fast moving world. If some of the trainers did not use it was only due to lack of this facility. “Mobile” was also regularly used by majority (78.75%) as a part of day to day routine whereas “radio” was not used by trainers regularly.

“Mobile” was ranked at top position and “Radio” at lowest position by majority this represents a true picture of communication trend followed by everyone in today’s world. The SD (0.5) and CV (15.52) further suggested that trainers were homogeneous with regard to their level of frequency of media use. Thus looking to the finding regarding perception about media and availability as well as use of media by trainers, it is now clear that not only trainers perceive internet and print to be of immense use in learning, they have exposure, availability and requisite skills to use them. It is good news for designer of distance

learners programmes to use internet, mobile, T.V. and print for training at a distance. The facts are very revealing and in tune with the recent trends when several organization are providing on-line courses and lecture support through television. The facts should guide in selection of media for effective learning.

5.2 Opinion of KVK Trainers' and Training Experts about Training areas and Methods of Distance Learning

5.2.1 Trainers' Opinion about Main and Sub-Areas of training

Trainers' Opinion about Main areas of Training:

Table-5.24 showed that out of seven areas of training “Use of training methods” was perceived as most important (4.46) followed by “Monitoring and evaluation” (4.43), “Training need assessment techniques” (4.40), “Designing Training Programme” (4.38), “Training implementation” (4.24) and “Preparation of training literature” (4.23). “Basics of adult learning” (4.07) got lowest seventh rank at low level in terms of importance. Trainers regarded “Basics of adult learning” of least importance. The SD (0.14) and CV (3.24) further suggested that trainers were highly homogeneous with regard to their opinion about main areas of training for course content.

Table 5.24 : Trainers' opinion about main areas of training

Areas of Training	WMS	Rank	Level
Use of training methods	4.46	I	High
Monitoring and evaluation	4.43	II	Moderate
Training need assessment techniques	4.40	III	Moderate
Designing training Programme	4.38	IV	Moderate
Training implementation	4.24	V	Moderate
Preparation of training literature	4.23	VI	Moderate
Basics of adult learning	4.07	VII	Low
$\bar{X} = 4.31$ SD = 0.14 CV = 3.24			

Trainers' Opinion about Sub areas of Training:

I. Adult Learning

In Table-5.25 out of the five sub-areas of adult learning “Creation of learning environment” (4.70) emerged at the top with high level of importance. “Use of motivation technique” (4.57) was placed at the second, place followed by “Facilitating adult learning” (4.18), “Learner centre approach” (4.06 with moderate level importance. “Recognition of individual differences” (3.93) was ranked at fifth position and with low level importance. “Creation of learning environment” was regarded as most important by trainers. The SD (0.3) and CV (6.99) further suggested that trainers were homogeneous with regard to their opinion about sub-areas of adult learning.

Table 5.25: Trainers' opinion about sub-areas of 'Adult learning'

Sub-areas of Adult learning	WMS	Rank	Level
Creation of learning environment	4.70	I	High
Use of motivation techniques	4.57	II	Moderate
Facilitating adult learning	4.18	III	Moderate
Learner-centered approach	4.06	IV	Moderate
Recognition of individual differences	3.93	V	Low
<hr/>			
$\bar{X} = 4.29$	SD =0.3	CV = 6.99	

II. Training Need Assessment

Table-5.26 clearly showed that out of two sub-areas of training need assessment, viz. “Methods of training need assessment” (4.55) was ranked first with high level of importance followed by “Preparation of reports on training need assessment”(4.23) which got second rank with low level of importance. The SD (0.2) and CV (4.5) further suggested that trainers were homogeneous with regard to their opinion about sub-areas of training need assessment.

Table 5.26: Trainers’ opinions about sub-areas of ‘Training need assessment’

Sub-areas of Training need assessment	WMS	Rank	Level
Methods of ‘training need assessment’	4.55	I	High
Preparation of reports on ‘training need assessment’	4.23	II	Low
$\bar{X} = 4.39$ $SD = 0.2$ $CV = 4.5$			

III. Designing Training Programme

Table-5.27 showed that out of the three sub-areas of designing training programme, “Planning a training programme” (4.42) was ranked first followed by “Designing training sessions”(4.38) at the second place and “Selection of appropriate training methods”(4.37) was ranked at the third place with moderate level of importance. The SD (0.02) and CV (0.45) further suggested that trainers were highly homogeneous with regard to their opinion about sub-areas of designing training programme.

Table 5.27: Trainers’ opinion about sub-areas of ‘Designing training programme’

Sub-areas of Designing training programme	WMS	Rank	Level
‘Planning’ a training programme	4.42	I	Moderate
Designing training sessions	4.38	II	Moderate
Selection of appropriate training methods	4.37	III	Moderate
$\bar{X} = 4.39$ $SD = 0.02$ $CV = 0.45$			

IV. Use of Training methods

Table-5.28 showed that out of sub-areas of use of training methods, “Demonstration” (4.69) was ranked first at high level of

importance. “Group discussion” (4.39) was ranked second and “study and field visits”(4.36) were ranked third followed by “Participatory lecture” (4.33), “Brain storming” (4.10) , “Case study” (3.97), “Role play” (3.91) and “Buzz session” (3.69) with moderate level of importance. “Games” (3.45) were placed at tenth position with low level importance. “Demonstration” and “Group discussion” were preferred by most trainers as they provided exposure and increased interactivity. The SD (0.38) and CV (9.35) further suggested that trainers were homogeneous with regard to their opinion about sub-areas of use of training methods.

Table 5.28: Trainers’ opinion about sub-areas of ‘Use of training methods’

Training methods	WMS	Rank	Level
Demonstration	4.69	I	High
Group discussion	4.39	II	Moderate
Study and field visits	4.36	III	Moderate
Participatory lecture	4.33	IV	Moderate
Brain storming	4.10	V	Moderate
Case study	3.97	VI	Moderate
Role play	3.91	VII	Moderate
Workshop	3.73	VIII	Moderate
Buzz session	3.69	IX	Moderate
Games	3.45	X	Low
<hr/>			
\bar{X} = 4.06	SD =0.38	CV = 9.35	

V. Training implementation

Table-5.29 showed that ‘Giving and receiving feedback’ (4.60) was ranked first in order of importance and at high level of importance. “Use of media” was ranked (4.45) second followed by “Handling problem situations” (4.31), “Use of experiential learning cycle” (4.12) and “Use of

team training” (4.07) on fifth rank and at moderate level of importance. “Use of micro-lab” (3.84) was placed on the sixth place and at low level of importance. Out of six sub-areas, “Giving and receiving feedback” and “Use of media” was considered most important by trainer for getting training. The SD (0.28) and CV (6.61) further suggested that trainers were homogeneous with regard to their opinion about sub-areas of training implementation.

Table 5.29: Trainers’ opinion about sub-areas of ‘Training implementation’

Sub-areas of Training implementation	WMS	Rank	Level
Giving and receiving feedback	4.60	I	High
Use of media	4.45	II	Moderate
Handling problem situations	4.31	III	Moderate
Use of experiential learning cycle	4.12	IV	Moderate
Use of team training	4.07	V	Moderate
Use of micro-lab	3.84	VI	Low
$\bar{X} = 4.23$ SD =0.28 CV = 6.61			

VI. Preparation of Training Literature

The data in Table-5.30 showed that ‘Preparation of training manual’ (4.36) appeared at the top position in order of importance followed by “Preparation of reading materials” (4.34), “Preparation of training brochure” (4.25) appeared at the third place and at low level of importance respectively. It can be interpreted from the responses that sub-area “Preparation of training manual” was regarded as most important by trainers because it helps in future consultation. The SD (0.05) and CV (1.38) further suggest that trainers were highly homogeneous with regard to their opinion about sub-areas of training literature.

Table 5.30: Trainers’ opinion about sub-areas of ‘Training literature’

Sub-areas of Preparation of training literature	WMS	Rank	Level
Preparation of training manual	4.36	I	Moderate
Preparation of reading materials	4.34	II	Moderate
Preparation of training brochure	4.25	III	Low
$\bar{X} = 4.32$ $SD = 0.05$ $CV = 1.38$			

VII. Sub-areas of Monitoring and Evaluation

Opinion of trainers about sub-areas of ‘Monitoring and evaluation’ has been presented in Table 5.31. “Use of Evaluation techniques” (4.43) was ranked at the top position with high level of importance. “Developing a monitoring system” (4.35) and “Preparation of evaluation report” (4.30) were ranked at the second and third places respectively with moderate and low level of importance. The SD (0.05) and CV (1.14) further suggested that trainers were highly homogeneous with regard to their opinion about sub-areas of training literature.

Table 5.31: Trainers’ opinion about sub-areas of ‘Monitoring and evaluation’

Sub-areas of monitoring and evaluation	WMS	Rank	Level
Use of evaluation techniques	4.43	I	High
Developing a monitoring system	4.35	II	Moderate
Preparation of evaluation report	4.30	III	Low
$\bar{X} = 4.36$ $SD = 0.05$ $CV = 1.14$			

It can be concluded from the responses of trainers opinion about main and sub-areas of training that following areas at on top three places viz. “Use of training methods” (4.46), “Monitoring and evaluation” (4.43) and “Training need assessment techniques” (4.40). “Use of training

methods” was ranked at the top as it is one of the most important area in which trainers wish to get trained. It was further revealed that sub-areas ranked at the top was “Creation of learning environment” (4.70), “Methods of training need assessment” (4.55), “Planning a training programme” (4.42), “Demonstration” (4.69), “Giving and receiving feedback” (4.60), “Preparation of training manual(4.36) and “Use of evaluation techniques (4.43). Trainers’ opinion regarding main and sub-areas of training revealed that trainees need training in training methods most. This may be due to the reason that usually trainers do not have prior exposure to training method in pre-service training and usually take recourse to lecture as practice. In fact this is also the task in which trainers had reported utmost difficulty as given in Table-5.11. The other two areas preferred in sequence were “Monitoring & Evaluation” and “Training need assessment technique”. All these areas are least practiced by KVK trainers because of the technical skills required. Similar findings have been reported by **Mishra (2008)**.

Thus, there is need to emphasize these areas while designing training programmes for KVK trainers in trainers’ skills.

5.2.2 Experts’ Opinion about Main and Sub-Areas of Training

Experts’ Opinion about Main areas of Training:

Table-5.32 clearly revealed that out of seven areas of training, experts ranked “Monitoring and evaluation” (4.78) at top with high level of importance. “Training need assessment techniques” (4.76) and “Use of training methods” (4.76) both were at the second position with moderate level of importance. “Basics of adult learning” (4.70) and “Training implementation” (4.61) were ranked at the third and fourth positions respectively with moderate level of importance. “Designing training programme” (4.59) and “Preparation of training literature” (4.59) were both ranked at the fifth position with low level of importance. The SD (0.08) and CV (1.70) further suggested that trainers were highly homogeneous with regard to their opinion about main areas of training.

Table 5.32 : Experts’ opinion about main areas of training

Areas of Training	WMS	Rank	Level
Monitoring and evaluation	4.78	I	High
Training need assessment techniques	4.76	II	Moderate
Use of training methods	4.76	II	Moderate
Basics of adult learning	4.70	III	Moderate
Training implementation	4.61	IV	Moderate
Designing training programme	4.59	V	Low
Preparation of training literature	4.59	V	Low
$\bar{X} = 4.68$ SD =0.08 CV = 1.70			

Experts’ opinion about sub-areas of Training:**I. Adult learning**

Table 5.33 clearly showed that in main area “Adult learning; “creation of learning environment” (4.77) was ranked first followed by “Learner-centered approach” (4.76) with high level of importance. “Use of motivation techniques” (4.62) and “Facilitating adult learning” (4.41) were placed at the third and fourth position with moderate level of importance. “Recognition of individual differences” (4.37) was ranked at the bottom with low level of importance.

Table 5.33 : Experts’ opinion about sub-areas of ‘Adult learning’

Sub-areas of Adult learning	WMS	Rank	Level
Creation of learning environment	4.77	I	High
Learner-centered approach	4.76	II	High
Use of motivation techniques	4.62	III	Moderate
Facilitating adult learning	4.41	IV	Moderate
Recognition of individual differences	4.37	V	Low
$\bar{X} = 4.58$ SD =0.17 CV = 3.71			

The SD (0.17) and CV (3.71) further suggested that trainers were highly homogenous with respect to their opinion about sub-areas of adult learning.

II. Training Need Assessment

Table-5.34 indicated that out of two sub-areas of Training need assessment; “Methods of ‘training need assessment’ ” (4.48) was ranked at the first position with moderate level followed by “Preparation of reports on ‘Training need assessment’ ” (4.20) with moderate level of importance. Like trainers, experts also gave more importance to “Methods of ‘training need assessment’ ” in comparison to “Preparation of reports on ‘training need assessment’ ”. The SD (0.14) and CV (3.22) suggested that trainers were highly homogenous with regard to their opinion about sub-areas of training need assessment.

Table 5.34: Experts’ opinion about sub-areas of ‘Training need assessment’

Sub-areas of training need assessment	WMS	Rank	Level
Methods of ‘training need assessment’	4.48	I	Moderate
Preparation of reports on ‘training need assessment’	4.20	II	Moderate
$\bar{X} = 4.34$ SD =0.14 CV = 3.22			

III. Designing Training Programme

Table 5.35: Experts’ opinion about sub-areas of ‘Designing training programme’

Sub-areas of designing training programme	WMS	Rank	Level
Selection of appropriate training methods	4.71	I	High
Designing training sessions	4.63	II	Moderate
‘Planning’ a training programme	4.54	III	Low
$\bar{X} = 4.62$ SD =0.07 CV = 1.51			

Table-5.35 revealed that under the main area “Designing training programme”, “Selection of appropriate training methods” (4.71) figured at the top position with high level of importance. “Designing training sessions” (4.63) ranked at the second position with moderate level of importance, whereas “Planning a training programme” (4.51) was placed at the third position with low level of importance. Experts found selection of proper training methods as most important in designing training programme. The SD (0.07) and CV (1.51) suggest that trainers were highly homogenous with regard to their opinion about sub-areas of designing training programme.

IV. Training Methods

Table 5.36: Experts’ opinion about sub-areas ‘Use of training methods’

Training methods	WMS	Rank	Level
Participatory lecture	4.71	I	High
Group discussion	4.68	II	High
Demonstration	4.66	III	High
Study and field visits	4.51	IV	Moderate
Role play	4.44	V	Moderate
Case study	4.39	VI	Moderate
Games	4.27	VII	Moderate
Brain storming	4.26	VIII	Moderate
Buzz session	4.00	IX	Low
Workshop	3.93	X	Low
<hr/> $\bar{X} = 4.39$ SD =0.26 CV = 5.92			

Table-5.36 showed that out of seven sub-areas of “Training methods”, “Participatory lecture” (4.71) was ranked at the first place followed by “Group discussion” (4.68), “Demonstration” (4.66) with high level importance. “Study and field visits” (4.51), “Role play” (4.44), “Case study” (4.39), “Games” (4.27), “Brain storming” (4.26) were ranked at the fourth, fifth, sixth, seventh and eighth position respectively with moderate level of importance, “Buzz session” and “Workshop” were ranked at the bottom ninth and tenth position with low level of importance. Participatory lecture was most preferred by experts as it leads to increase in participation and decrease in monotony. The SD (0.26) and CV (5.92) suggested that trainers were homogenous with regard to their opinion about sub-areas of use of training methods.

V. Training Implementation

Table 5.37: Experts’ opinion about sub-areas of training implementation

Sub-areas of Training implementation	WMS	Rank	Level
Giving and receiving feedback	4.66	I	High
Use of experiential learning cycle	4.54	II	Moderate
Handling problem situations	4.46	III	Moderate
Use of media	4.46	III	Moderate
Use of team training	4.32	IV	Moderate
Use of micro-lab	4.27	V	Low

\bar{X} = 4.45

SD =0.13

CV= 2.92

Table-5.37 revealed that out of six sub-areas of “Training implementation”, “Giving and receiving feedback” (4.66) was ranked at the first place with high level of importance. Sub-area “Use of experiential learning cycle” (4.54) was ranked second followed by “Handling problem situations” (4.46) and “Use of media” (4.46) were

placed at the third position, “Use of team training” (4.32) in fourth position at moderate level of importance. “Use of micro-lab” (4.27) was placed at the fifth position with low level of importance. Experts most preferred sub-area “Giving and receiving feedback” as it is important for further improvement of training programmes most. The SD (0.13) and CV (2.92) suggested that trainers were highly homogenous with regard to their opinion about sub-areas of training implementation.

VI. Preparation of Training Literature

Table-5.38 it is clearly showed that “Preparation of training brochure” (4.98) was ranked at the first place with high level of importance whereas “Preparation of reading materials” (4.46) and “Preparation of training manual” (4.46) were both ranked at the second place with moderate level of importance. The SD (0.25) and CV (5.39) suggested that trainers were homogenous with regard to their opinion about sub-areas of designing training programme.

Table 5.38: Experts’ opinion about sub-areas of ‘Preparation of training literature’

Sub-areas of Preparation of training literature	WMS	Rank	Level
Preparation of training brochure	4.98	I	High
Preparation of reading materials	4.46	II	Moderate
Preparation of training manual	4.46	II	Moderate
$\bar{X} = 4.63$		SD = 0.25	
		CV = 5.39	

VII. Monitoring and evaluation

Table-5.39 revealed that “Preparation of evaluation report” (4.68) was ranked at the first place with high level of importance. Sub-areas “Use of evaluation techniques” (4.54) and “Developing a monitoring system” (4.51) were ranked at the second and third positions

respectively with moderate level of importance. SD (0.07) and CV (1.52) suggested that trainers were homogenous with regard to their opinion about sub-areas of designing training programme.

Table 5.39: Experts opinion about sub-areas of ‘Monitoring and evaluation literature’

Sub-areas of Monitoring and evaluation	WMS	Rank	Level
Preparation of evaluation report	4.68	I	High
Use of evaluation techniques	4.54	II	Moderate
Developing a monitoring system	4.51	III	Moderate
$\bar{X} = 4.58$ SD =0.07 CV = 1.52			

It can be concluded from the responses that experts also ranked these in top three positions as indicated by trainers. Top three areas were “Monitoring and evaluation” (4.78) at top, followed by “Training need assessment techniques” (4.76) and “Use of training methods” (4.76). “Monitoring and evaluation” was ranked at the first place by experts because of the urgent need to conduct evaluations in training programme of KVK. It was further revealed that sub-areas of main training areas ranked on top were “Creation of learning environment” (4.77). “Methods of training need assessment” (4.48), “Selection of appropriate training methods” (4.71), “Participatory lecture (4.69), “Giving and receiving feedback” (4.66), “Preparation of training brochure (4.98) and “Preparation of evaluation report” (4.43). Preference for “Creation of learning environment” showed that experts have highlighted the need for understanding adult learning principles and suitable environment first. Similarly, **Kumar and Singh (1996)** found that ‘evaluation of training’, ‘concept of training’ and ‘training need assessment’ occupied top three position on the basis of pooled weighted mean score of training need of trainers. However , on the basis of

importance on job, they found three area of training at the top in order of training need of trainers were 'concept of training', training need assessment' and 'basic knowledge and skills'. The areas figuring at the bottom positions were 'follow-up of training', 'organisational linkage' and 'arrangement for training'.

5.2.3 Comparison of Trainers' and Experts' Opinion about main and sub-areas of training

Ranking done by calculating WMS separately for trainers and experts in earlier table was used to compare their responses.

Table-5.40 revealed data comparing opinion of trainers and experts about main areas of training. It is clearly revealed that trainers rank "Use of training methods" at top whereas experts ranked it at the second. In case of "Monitoring and evaluation" trainer ranked it at the second whole experts ranked it at the first position. Trainers ranked "Training need assessment techniques" at the third place whereas experts ranked it at the second. "Designing Training Programme" was ranked fourth by trainer whereas experts ranked it the fifth. "Training implementation" was ranked fifth by trainers and fourth by experts. "Preparation of training literature" was ranked at the sixth place by trainers and fifth by experts. "Basics of adult learning" was ranked at the seventh position by trainers but at the third place by the expert's. Thus it can be concluded that opinion of trainers and experts are quite close in most of areas except "Basics of adult learning" where expert give more importance. This seems natural because trainers from various agricultural fields might have perceived "Adult learning principles" as theoretical and so give less importance to this area.

Table-5.41 indicated that both trainers and experts ranked "Creation of learning environment" at the top position and "Recognition of individual differences" at fifth position. Trainers ranked "Facilitating adult learning" was place at the third position but expert ranked it at the fourth. "Use of motivation techniques" was ranked at the second

place by trainers and at the third by experts. Thus, opinion of the two type of respondents seem quite close.

Table 5.40: Trainers’ and Experts’ opinion about main areas of training

Areas of Training	Rank	
	Trainers	Experts
Use of training methods	I	II
Monitoring and evaluation	II	I
Training need assessment techniques	III	II
Designing training programme	IV	V
Training implementation	V	IV
Preparation of training literature	VI	V
Basics of adult learning	VII	III

Table 5.41: Trainers’ and Experts’ opinion about sub-areas of adult learning

Sub-areas of Adult learning	Rank	
	Trainer	Expert
Creation of learning environment	I	I
Use of motivation techniques	II	III
Facilitating adult learning	III	IV
Learner-centered approach	IV	II
Recognition of individual differences	V	V

Table-5.42 revealed similarity in response of trainers and experts about sub-areas of training need assessment as both ranked “Methods of ‘training need assessment’ and “Preparation of reports on ‘training need assessment’” at first and second position respectively.

Table 5.42: Trainers’ and Experts’ opinion about sub-areas of training need assessment

Sub-areas of Training need assessment	Rank	
	Trainers	Experts
Methods of ‘training need assessment’	I	I
Preparation of reports on ‘training need assessment’	II	II

Table-5.43 showed opinion of trainers’ and experts’ about training programme “Designing training sessions” was ranked at the second position. However, trainers placed “Planning a training programme” at the first position by trainers but at the third place by experts. Conversely “Selection of appropriate training methods” was placed at the third place by the trainers and at the first by the experts.

Table 5.43: Trainers’ and Experts’ opinion about sub-areas of designing training programme

Sub-areas of Designing training programme	Rank	
	Trainers	Experts
‘Planning’ a training programme	I	III
Designing training sessions	II	II
Selection of appropriate training methods	III	I

Table 5.44 clearly revealed opinion of trainers and experts opinion about use of various training methods. In general, trainers perceived “Demonstration”, “Group discussion”, “Study and field visits” and “Participatory” method as top sub-areas whereas experts viewed

“Participatory lecture”, “Group discussion”, “Demonstration” and “Study and field visits” at the first four place. “Group discussion” and “Case study” both were rated at second and sixth place respectively by trainers and experts.

Table 5.44: Trainers and Experts opinion about sub-areas of use of training methods

Training methods	Rank	
	Trainers	Experts
Demonstration	I	III
Group discussion	II	II
Study and field visits	III	IV
Participatory lecture	IV	I
Brain storming	V	VIII
Case study	VI	VI
Workshop	VI	X
Role play	VII	V
Buzz session	VIII	IX
Games	IX	VII

Table 5.45: Trainers’ and Experts’ opinion about sub-areas of ‘Training implementation’

Sub-areas of Training implementation	Rank	
	Trainers	Experts
Giving and receiving feedback	I	I
Use of media	II	III
Handling problem situations	III	III
Use of experiential learning cycle	IV	II
Use of team training	V	IV
Use of micro-lab	VI	V

Table-5.45 clearly showed that trainers and experts both ranked “Giving and receiving feedback” at the first place and “Handling problem situations” at the third position. “Use of media” was ranked at the second place by trainers but at the third place by experts, “Use of experiential learning cycle” was placed at fourth place by trainers and second by experts, “Use of team training” was placed at the fifth place by trainers and fourth by experts. “Use of micro-lab” was placed at the last place by both trainers and experts.

Table-5.46 revealed that trainers’ and experts’ opinion were quite similar about sub-areas of training literature as both ranked “Preparation of reading materials” at the second position. Trainers’ ranked “Preparation of training manual” at the first position and experts ranked it at the second. Trainers ranked “preparation of training brochure” at the third position but experts ranked it at the first position.

Table 5.46: Trainers’ and Experts’ opinion about sub-areas of training literature

Sub-areas of Preparation of Training Literature	Rank	
	Trainers	Experts
Preparation of training manual	I	II
Preparation of reading materials	II	II
Preparation of training brochure	III	I

Table 5.47: Trainers’ and Experts’ opinion about sub-areas of monitoring and evaluation

Sub-areas of Monitoring and evaluation	Rank	
	Trainers	Experts
Use of evaluation techniques	I	II
Developing a monitoring system	II	III
Preparation of evaluation report	III	I

Table-5.47 showed that opinion of trainers and experts were little dissimilar in sub-areas of monitoring and evaluation as trainers ranked “Use of evaluation techniques” at the first position but experts ranked it at the second position. “Preparation of evaluation report” was ranked at the third position by trainers and first by experts. “Developing a monitoring system” was ranked second by trainer and third by experts.

5.2.4 Opinion of Trainers’ about Methods of Distance Learning

It is clearly revealed from Table-5.48 that “Internet” (2.59) was ranked first with high level of importance. “Print” (2.56) was ranked at the second position followed by “E-mail” (2.47) at the third; “Television lesson” (2.27) was ranked at the fourth, “Teleconferencing” (1.99), and “Radio conferencing” (1.53) with moderate level of importance. “Radio lesson” (1.03) was ranked at the seventh place with low level of importance. “Internet”, “E-mail” and “Print” were the three methods preferred by the trainers, so these methods can be used for providing training through distance learning. The SD (0.54) and CV (29.52) suggest that trainers were highly heterogeneous with regard to their opinion about method of distance learning.

Table 5.48: Trainers’ preference for Methods of distance learning

Method	Rank	WMS	Level
Internet	I	2.59	High
Print	II	2.56	Moderate
E-mail	III	2.47	Moderate
Television lesson	IV	2.27	Moderate
Teleconferencing	V	1.99	Moderate
Radio conferencing	VI	1.53	Moderate
Radio lesson	VII	1.03	Low
<hr/>			
$\bar{X} = 2.06$	S.D. =0.54	C.V. = 29.12	

5.2.5 Opinion of Experts about Methods of distance learning

It is clearly revealed from Table-5.49 that “Television lesson” (2.59) was ranked at the top position with high level of preference. “Teleconferencing” (2.51) was ranked at the second place followed by “Radio lesson” (2.37), “Print” (2.37), “Internet” (2.34) and “E-mail” (2.22) with moderate level of preference. “Radio conferencing” (2) was placed in sixth position with low level of preference. The SD (0.18) and CV (7.69) suggest that experts were homogenous with regard to their opinion about sub-areas of designing training programme.

Table 5.49 : Experts’ preference for Method of distance learning

Method	Rank	WMS	Level of Preference
Television lesson	I	2.59	High
Teleconferencing	II	2.51	Moderate
Radio lesson	III	2.37	Moderate
Print	III	2.37	Moderate
Internet	IV	2.34	Moderate
E-mail	V	2.22	Moderate
Radio conferencing	VI	2.00	Low
$\bar{X} = 2.34$		S.D. = 0.18	C.V. = 7.69

5.2.6 Comparison of Trainers’ and Experts’ preferences for method of distance learning

Table 5.50 showed comparison between trainers’ and experts’ opinion about method of distance learning. The first four important areas according to trainers were “Internet”, “Print”, “E-mail” and “Teleconferencing” whereas “Teleconferencing” and “Radio conferencing” figured at last two positions. According to experts “television lesson”,

“teleconferencing”, “Print” and “Internet” figured at the first two places. “E-mail” and “Radio conferencing” at the last two places.

Table 5.50: Trainers’ and experts’ preferences for methods of distance learning

Method	Rank	
	Trainers	Experts
Internet	I	IV
Print	II	III
E-mail	III	V
Television lesson	IV	I
Teleconferencing	V	II
Radio conferencing	VI	VI
Radio lesson	VII	III

5.3 Relationship between selected socio-personal, professional, psychological and situational characteristics of respondents and opinion about training areas for distance learning

Correlation of the socio-personal, professional, psychological and situational characteristics of trainers with their training needs were found out.

The selected variables with their codes are presented in Table5.51 and these codes were subsequently used in the relationship of the variables.

Socio-personal and Professional factors that affecting Trainers’ Opinion about Training areas

Relationship between socio-personal, professional and psychological characteristics and opinion about training areas were studied by working out the correlation analysis.

Table 5.51: Selected variables with their codes**For correlation analysis**

Variables code	Variable
X1	Gender
X2	Age
X3	Educational Level
X4	Work Experience
X5	Specialization
X6	Rank
X7	Experience with Distance learning
X8	Job Preference
X9	Motivational Profile
X10	Job Satisfaction
X11	Training Received in Trainers' Skill
X12	Basics of Adult learning
X13	Training Need Assessment Techniques
X14	Designing Training Programme
X15	Use of Training Methods
X16	Training Implementation
X17	Preparation of Training Literature
X18	Monitoring and Evaluation
X19	Mean of Main Training areas

The correlation between socio-personal, professional and psychological characteristics (independent variables) and opinion about training areas (dependent variable) were calculated. Table-5.52 reveals non-significant and negative correlation between gender, age, work experience, specialization, rank, job satisfaction and opinion about training areas. The non-significant and negative relationship suggests that null hypothesis related with these variables will be accepted. Table-5.52 shows educational level, experience with distance learning and motivational profile has non-significant but positive relationship with opinion about training areas.

Table 5.52: Relationship of Opinion of trainers' about training areas with selected independent variables using correlation analysis

S.No.	Variables	Correlation coefficient ('r')
1	Gender	-0.92ns
2	Age	-0.63ns
3	Educational level	0.90ns
4	Work experience	-0.093ns
5	Specialization	-0.088ns
6	Rank	-0.009ns
7	Experience with distance learning	0.012ns
8	Job preference	0.162*
9	Motivational Profile	0.066ns
10	Job Satisfaction	-0.134ns
11	Training received in trainers' skills	0.319**

* Significant at 5 per cent level of significance

** Significant at 1 per cent level of significance

Job preference had positive and significant relationship with opinion about training areas at five percent level and training received in trainers' skill had positive relationship with opinion about training areas at one per cent level. Job preference and training received in trainers' skill had positive relationship, thus these hypothesis were rejected.

Positive and significant correlation was recorded between age and work experience whereas job preference and job satisfaction were positively co-related, Table 5.52.

Thus, on the basis of data obtained from Table 5.52 the null hypotheses were accepted as non-significant and negative correlation between gender, age, work experience, specialization, rank, job satisfaction, experience with distance learning, motivational profile and opinion about training areas were found. The data signifies that the given factors had no effect on opinion about training areas.

5.4 Testing of hypothesis

The hypotheses formulated in the study were tested by employing suitable statistical technique. Details of testing have been given below:

As per the results depicted in table 5.52.

- The null hypothesis (H_0 1) stated that gender of the trainers does not have any relationship with their opinion about training areas was proved to be true. Thus, the corresponding alternative hypothesis may be rejected.
 - The null hypothesis (H_0 2) stated that there is no significant relationship between age and opinion about training areas was proved to be true. Thus, the corresponding alternative hypothesis may be rejected.
 - The null hypotheses (H_0 3) stated that education of the trainers does not have any significant relationship with opinion about training
-

areas was proved to be true. Thus, the corresponding alternative hypothesis may be rejected.

- The null hypotheses (H_0 4) stated that work experience and opinion about training areas do not have any relationship was proved to be true. Thus, the corresponding alternative hypothesis may be rejected.
 - The null hypotheses (H_0 5) stated that there is no relationship between area of specialization and opinion about training areas was proved to be true. Thus, the corresponding alternative hypothesis may be rejected.
 - The null hypotheses (H_0 6) stated that the rank of trainers and opinion about training areas do not have any relationship was proved to be true. Thus, the corresponding alternative hypothesis may be rejected.
 - The null hypotheses (H_0 7) stated that there is no relationship between training received by the trainers in distance learning with opinion about training areas was proved true. Thus, the corresponding alternative hypothesis may be rejected.
 - The null hypotheses (H_0 8) stated that there would not be any relationship between job preference by trainers with opinion about training areas was proved false. Thus, the corresponding alternative hypothesis may be accepted.
 - The null hypotheses (H_0 9) stated motivational profile of trainers does not have any relationship with opinion about training areas was proved true. Thus, the corresponding alternative hypothesis may be rejected.
 - The null hypotheses (H_0 10) stated job satisfaction of trainers does not yield any relationship with opinion about training areas was proved true. Thus, the corresponding alternative hypothesis may be rejected.
-

- The null hypotheses (H_0 11) stated that there is no relationship between training received in trainers skill by trainers with opinion about training areas was proved false. Thus the corresponding alternative hypothesis may be accepted.

5.5 Constraints in learning through Distance Learning

Respondents were asked to rate eight given constraints, usually faced by distance learners on five point continuum i.e. ‘strongly agree, to ‘strongly disagree’. After calculating frequency and percentage scoring was done on the basis of weighted mean score (WMS).

Table 5.53: Constraints in learning through distance learning

Constraints	WMS	Rank	Level of constraints
Unavailability of proper infrastructure	3.69	I	High
Low interaction with instructors	3.67	II	High
Busy time schedule	3.65	III	Moderate
Unavailability of technology to learners	3.04	IV	Moderate
Time consuming	3.02	V	Moderate
Inefficiency to work on computer	1.63	VI	Low
Personal problems of learners	1.55	VII	Low
Learning without support of teacher	1.52	VIII	Low
$\bar{X} = 2.72$			S.D. = 0.93
			C.V. = 34.19

Data in Table 5.53 show that “Unavailability of proper infrastructure” (3.69) was perceived by trainers at the first place followed by “Low interaction with instructors” (3.67) indicating high level constraints as per trainers response. “Busy time schedule” (3.65) was ranked at third place, followed by “Unavailability of technology to learners” (3.04) “Time consuming” (3.02). “Inefficiency to work on

computer” (1.63), “Personal problems of learners” (1.55) and “Learning without support of teacher” (1.52) were placed at the bottom. This seems quite realistic as infrastructure for distance learning is scarce in most institution. Trainers also feared that there would be low interaction with trainers. Thus, there is need to break these myths. Results are supported by the findings of **Rowntree (1991)**, **Betts (1998)** and **Yadav and Verma (1998)**.

5.6 Designing Strategy for Distance Learning

Trainers’ opinion about different aspects of designing strategy

A. Level of course

Table 5.54 showed that out of four given levels (degree, diploma, certificate course and any other) for distance learning course, maximum trainers (47.15%) selected “Certificate course” followed by “Diploma” which was selected by (24.87%), “Degree level” was selected by 21.24 per cent and “Any other” (6.73). This showed that trainers want certification after distance learning training.

Table 5.54: Trainers’ Opinion about Level of course

Level of Course	Response (N=193)
Certificate Course	91(47.15)
Diploma	48(24.87)
Degree	41(21.24)
Any other	13(6.73)

Note: Figure in parenthesis indicates percentage in their respective category

B. Expectations from the distance learning course

Table 5.55 revealed trainers’ expectations from distance learning course if one is planned in future. Majority (50.77%) of trainers expected that training should lead to “Skill enhancement” followed by

“Knowledge enhancement” (32.12%), “Increase qualification” (15.5%) and “Any other” (1.55%). Thus skill enhancement needs to be given more importance as per trainers’ preference. Findings were in line with **Dede(1996)**.

Table 5.55: Trainers’ Opinion about expectations from distance learning course

Expectations from Course	Response(N=193)
Skill enhancement	98(50.77)
Knowledge enhancement	62(32.12)
Increase qualification	30(15.5)
Any other	3(1.55)

Note: Figure in parenthesis indicates percentage in their respective category

C. Preferences of organization as study centre for distance learning course

Table 5.56: Trainers’ Opinion about preferences for type of organization for study centre

Organization	Response(N=193)
SAUs	92(47.66)
Government institutions/Training centres	50(25.90)
KVK	48(24.87)
Any other	3(1.55)

Note: Figure in parenthesis indicates percentage in their respective category

Table 5.56 clearly showed trainers’ preference when they were asked regarding type of organization suitable for serving as study centre, Maximum trainers (47.66%) showed their preference for “SAUs” followed by “Government institutions /Training centres” (25.90%), “KVK” (24.87) . Only 1.55 per cent of the trainer preferred “Any other” option. Trainers preferred SAUs as they were well acquainted with the

environment in SAUs and location is also near to KVK. Results are supported by the findings of **Kumar and Singh (1998)** and **Kranti et al. (2006)**

D. Instructors for distance learning courses on trainers' skill

Table 5.57 Maximum (38.34%) trainers suggested "SMS" as instructors as they were knowledgeable in their own subjects. "Scientist" were suggested by (27.97%), "University professors" by (27.97%) and "Any other" by (5.69%).

Table 5.57: Trainers' preference for Instructors of distance learning courses

Instructors	Response(N=193)
SMS	74(38.34)
Scientist	54(27.97)
University Professors	54(27.97)
Any other	11(5.69)

Note: Figure in parenthesis indicates percentage in their respective category

E. Preference for contact with instructor

Table 5.58: Trainers' Opinion about preferences for contact with instructor

Preferences for contact with Instructors	Response(N=193)
Visit to study centre	83(43)
Online counseling	43(22.27)
Video-conferencing	33(17.09)
Individual/ Group Counseling	29(15.02)
Any other	5(2.59)
Audio-conferencing	0(0)

Note: Figure in parenthesis indicates percentage in their respective category

It is clearly revealed from Table 5.58 that when trainers were asked preference for place where they want to meet instructor for discussing problem, majority of trainers (43%) preferred “Visit to study centre” followed by “Online counseling” (22.27%), “Video-conferencing” (17.09%) and “Individual or group counseling” (15.02%). “Visit to study centre” is preferred as locale of contact because trainers are comfortable in visiting SAUs for any type of counseling.

F. Preference regarding right duration for evaluating students

Table 5.59 showed that majority (50.25%) of trainers indicated their preference for evaluation at the interval of “Every three month” for evaluating students in distance learning courses followed by “Monthly” (22.79%), “Biannually” (18.69%) and “Annually” (8.29%).

Table 5.59: Trainers’ Preference regarding right duration for evaluating students

Durations	Response (N=193)
Every three month	97(50.25)
Monthly	44(22.79)
Biannually	36(18.65)
Annually	16(8.29)

Note: Figure in parenthesis indicates percentage in their respective category

G. Preferences for the medium of learning through distance learning

Table 5.60 clearly indicated that for the medium of learning through distance learning maximum (43.01%) trainers preferred “Online” followed by “Print” (33.67%), “Computer” (15.02%) and “Radio” (8.29%). Findings have been supported by **Jung (2001)**. However, results are not in line with the findings of **McCann (2007)**.

Table 5.60: Trainers' Preference for the medium of distance learning

Medium	Response(N=193)
Online	83(43.01)
Print	65(33.67)
Computer	29(15.02)
Radio	16(8.29)

Note: Figure in parenthesis indicates percentage in their respective category

H. Preference for most suitable approach to receive performance skill through distance learning

Table 5.61: Trainers' preference for most suitable approach to receive performance skill

Options for Approach	Response(N=193)
Practical exercises in the form of assignments	35(18.13)
Organization of training by participants at work place	35(18.13)
Actual organization of training by participants under supervision	48(24.87)
A combination of above	68(35.23)
Any other	7(3.6)

Note: Figure in parenthesis indicates percentage in their respective category

Table 5.61 showed that majority of trainers (35.23%) reported that a combination of three activities i.e. "Practical exercises in the form of assignments", "Actual organization of training by participants under supervision" and "Organization of training by participants at work place" as suitable approach to get performance skills.

I. Right duration for providing practical exposure in distance learning courses

Table 5.62 clearly revealed that majority of trainers (40.93%) preferred “One month” practical exposure in distance learning courses followed by “Two weeks” (27.46%), “One week”(6.02%) and “Three weeks” (15.5%).

Table 5.62: Trainers’ Preference regarding right duration for practical exposure

Duration for practical exposure	Response (N=193)
1 month	79(40.93)
2 weeks	53(27.46)
1 week	31(16.02)
3 weeks	30(15.5)

Designing Strategy for Training of KVK Trainers in Trainers Skills through Distance Learning

Introduction

Strategy, a word of military origin, refers to a plan of action designed to achieve a particular goal. In military usage strategy is distinct from tactics, which are concerned with the conduct of an engagement, while strategy is concerned with how different engagements are linked. How a battle is fought is a matter of tactics: the terms and conditions that it is fought on and whether it should be fought at all is a matter of strategy, which is part of the four levels of warfare: political goals or grand strategy, strategy, operations, and tactics. Training strategy is a blueprint that needs to support the optimization of the human resource capital in the organization. It is essential that the training strategy is aligned to the organization's strategy and enables its vision to be realized. The facts gathered on these important dimensions leading to formulation of distance learning strategy have been detailed here:

The Context and Rationale

To keep pace with the competitive environment, every organization needs to have employees with high performance and high potentials. Employees need regular training to keep them updated with latest developments in their field. Trainers in KVK (Krishi Vigyan Kendra) have the major role of providing training to farmers and grassroots extension functionaries. Training of KVK trainers is important because unless trainer is well acquainted with training methodologies he cannot use them. **Mishra (1990)** remarked that in our eagerness to train the extension personnel, we appear to have forgotten that trainers too require training not only in subject matter areas of their specialization but equally important, training in trainers' skills and extension methods. The efforts made in past to train the trainers of KVK have been commendable but increasing number of KVK have provided challenge to train large number. This could be through distance learning or on-line learning. Training through distance mode call for thorough planning from preparing content to final implementation.

Trainers in KVKs need training in management of training programme. Agricultural trainers, usually post-graduates, do not have pre-service training in training methodology. They operate out of commonsense rather than science and scholarship. In spite of the efforts made by the ICAR and SAUs to organize training of trainers on trainers' skills, it is not possible or economic to train the entire trainers on long-term courses by allowing them to move out to distant locations. Thus, distance learning seems a feasible and effective medium to provide these valuable skills to one and all. An attempt was made to understand the background characteristics, preferences of trainers on different aspects regarding methods, media used in distance learning as well as opinion about designing distance learning programme.

Target Beneficiaries (WHO should be trained?)

To design effective distance learning training strategy for KVK trainers it is necessary to have understanding about the target group. The characteristics of target group would help us in designing best form of training programme most suited to their background characteristics and preference regarding training areas and methods of distance learning. The data on Socio-personal and professional characteristics of trainers like age, gender, medium of schooling, educational level, work experience, specialization and rank (Table-5.1). It was revealed that majority of trainers were above 40 years, male, had Ph.D. degree as highest qualification, specialization in the field other than agricultural extension, were SMSs, had no experience in distance learning and some training in trainer's skills. Trainers preferred for teaching activities. Most of them Subject Matter Specialist (SMS) were expert in their own field of specializations but do not have much knowledge about agricultural extension and training except what they learned in their undergraduate courses of extension. They did not have much experience in distance learning.

Thus, trainers' training programme should be focused on Subject Matter Specialist. Each one of them should be given exposure to trainers' skill through Distance mode. In fact, this has been a practice now a day's in corporate sector that each fresh employee is given certain target for learning in new areas important for work. They are supposed to learn through modules available online. Similar practice can be adopted in KVK and every new SMS should ask to complete Trainers' skills module within a year of their joining.

Training Areas (WHAT should be the content?)

Training is highly skilled job and every trainer must undergo training to learn trainer's skills. A trainer is not merely a teacher in the classroom. She/he is manager, who arranges resources, selects

trainers, monitors training process, builds team, evaluates progress and gathers feedback. A survey of different national and international trainers' training courses indicated five training areas essential to prepare trainers such as concept of Training & human development, Training implementation, Evaluation & follow up (**Kumar, 1994**). American Society of Training and Development also emphasized on these themes for preparation of budding trainers. The challenge is one of making it skill oriented on the principles of learning by doing. The data obtained from trainers and experts revealed the need for training in Use of training methods, Training need assessment techniques and Monitoring and evaluation.

Use of Technologies

Use of media technologies is a prime requirement to make distance learning effective. The viability of the available or future technologies will be judged against the cost of technology, accessibility, flexibility of usage, suitability to the situation and to the intended purpose, sustainability and finally the adoptability by the learners and also by the distance education practitioners.

Criteria for Use of Technology:

Bates (1996) gave list of criteria on which we need to assess technology before using it:

1. **Access:** how accessible is a particular technology for learners? How flexible is it for a particular target group?
 2. **Costs:** what is the cost structure of each technology? What is the unit cost per learner?
 3. **Teaching and Learning:** what kinds of learning are needed? What instructional approaches will best meet these needs? What are the best technologies for supporting this teaching and learning?
 4. **Interactivity and User-friendliness:** What kind of interaction does this technology enable? How easy is it to use?
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5. **Organizational Issues:** What are the organizational requirements, and the barriers to be removed, before this technology can be use successfully? What changes in organization need to be made?
6. **Novelty:** How new is this technology?
7. **Speed:** How quickly can courses be mounted with this technology? How quickly can materials be changed?

The distance learning is usually supported by the following modes of instruction/technologies that are available in the most SAUs and KVKs like ‘radio’, “television”, “teleconferencing”, “internet”, “E-mail” , “print” and “computer”.

Radio: The potential advantages of radio for use in learning at a distance program included “time, cost-effectiveness and localness”. Useful in complementing printed information. Radio lesson encourages learners to keep in touch with their development. Its inherent strength to outreach to masses is a medium for the both the distance education institutions and learners.

Television: Television has been widely used by many distance learning institutions particularly in developed countries. It has advantage over radio that along with reaching large number of audience it includes visual part as well therefore skill can be transfer through it. Major advantage of education through television is the convenience of study at home in free time, the attribute which the distance learning institutions rely.

Teleconferencing: Teleconferencing is also known as audio-conferencing. It is mostly popular among developed countries having developed technologies and more distance among tutor and students. Due to latest developments it is now becoming popular in India too .In this mode, tutor sets agenda of the conference and at the other end, which is generally a study centre, a number of students sit across a table with a loudspeaker attached to the telephone.

Internet: Internet is global network connecting millions of computers. More than 100 countries are linked into exchanges of data, news and opinions. Unlike online services, which are centrally controlled, the Internet is decentralized by design. Each Internet computer, called a *host*, is independent. Its operators can choose which Internet services to use and which local services to make available to the global Internet community. There are a variety of ways to access the Internet.

E-mail: E-mail communication has become very common. Students use either their own computers or those at a study centres or an internet café to send e-mails to their peers or tutors to for any type of clarifications on any topic of the course. E-mail is certainly the service that is the most used in Web pages. In the context of distance learning, it allows the students to ask questions, demand help, and receive feedback, in addition to breaking their isolation for some of them. As such, it plays a crucial role in supporting the interaction between the professor and the student

Print: Print media is the foundation of distance education and the base from which all other delivery system have evolved. Several studies have supported the pedagogical strength of using print as the core medium for most distance education programmes (**Yusuf, 1999**). The print medium has life-long value and is more durable than such technologies like audio-cassettes, videotapes, diskettes etc. Learners' access to print medium is guaranteed at anytime. Unlike electronic media, print medium cannot be affected by power failure and technical problems. It is the most preferred and most extensively used medium in ODL all over the world. It can as well be used to provide information to supplement argument or complement other media like audio, video, computer etc.

Computer: Now-a-days computers are very common in learning process. Computer technology is gaining ground very fast. This medium

is used for transmission of knowledge and information. Information technology, management courses and science courses use a variety of teaching-learning strategies that are participatory and interactive.

“Internet”, “Print”, “E-mail” and “Television lesson” was ranked at top four positions. As majority used internet in KVK or in their home for one or the other purpose therefore it can be use as very efficient medium for transferring material through distance learning. Same is the case with print, e-mail, television that frequency of usage might vary little but these were used by majority of trainers. It was also found in the study that trainers were proficient in working on “E-mail”, “Internet”, “Searching on World Wide Web”, “MS word” and “MS power point”. “Computer/laptop”, “Internet”, “Television” and “Newspaper” were either possessed by trainers or provided by KVK. Thus training of KVK trainers through distance learning can be very well planned by incorporating these media. In methods of distance learning trainers showed their preference more for “internet”, “E-mail” and “print”.

Organisation of Course

The course should be of certificate or diploma level so that the learners have sense of achievement. This has been expressed by the trainers as well. In fact, to create seriousness it should be made mandatory to complete the certificate course on trainers’ skills within one year of joining the job as Subject Matter Specialist (SMS).

The course has to be made skill oriented so that trainers have opportunity to practice the skills. This can be possible if the arrangements are created in a way that trainers are able to do practice skills in their respective KVKs under the supervision of their guide. This guide may be the Programme Coordinator or Professor from the nearby SAU or an identified training expert in the area. There should be

mandatory visit to study centre twice a semester to expose learners to training professionals, clarify about doubts and provide counseling. Assignment are skill based and to final apprenticeship the learner is attached with training organization for designing, implementing & evaluating a training as well as preparing training report under the supervision of a guide. The apprenticeship may be done with the learners' own organization as well. This is quite good model to emulate.

SAUs have departments of Extension Education and Directorate of Extension Education where training experts are available. Scientists with Doctoral/Master's degree in Extension Education with experience in training can be identified to serve as guide.

Mode of Delivery

Involves selection of valid media mix depend upon two kinds of contexts, i.e. environmental and learning. As environmental context is concerned, media must be chosen in the light of four criteria such as availability, accessibility, acceptability and economics. As learning context is concerned, media must be appropriate to four criteria such as course objectives, assessment demands, subject matters and instructional strategies.

In the present study it would be based on media preferences showed by trainers and situational characteristics of KVK. Like computer/laptop, internet, newspaper, mobile, television were either possessed by trainers or provided by KVK. Thus they can easily be used for providing training through distance learning.

As further revealed from study that majority of trainers showed their preferences for study centre in case of contact with instructors and preferred location for study centre was SAUs. Study centre is known by different names such as resource centres, access centres, outreach centres and learning centres are some of the terms by which study centres are known in different places. The most popular name is

study centre. The general characteristics of a study centre are as given below:

- Shared space or reserved space in a local educational institution or non- educational organization.
- Minimum equipment requirement and facilities.
- Local part-time staff.
- Limited opening hours.

Thus study centres need to be established in institutions in close proximity of the KVKs where facilities of experts counseling and media are available. This may be at the headquarters of SAU or regional research centre or a constituent college in the vicinity. Experts in the field of training have to be identified as counselors.

Evaluation

It would be done at the end of the training programme regularly, to make possible changes for further improvement in future. For assessing the student we need to done some evaluation at the end in any type of exam or course in traditional methods of face to face training as well same is the case with distance learning training. Evaluation involves different type of practical exercise which trainer needs to perform after every three month as the time duration preferred by trainers. For evaluation study centre can be very well used as they don't demand much movement.

Finally, this study suggests additional issues that need to be considered in designing and developing distance learning training.

- Timely evaluation. Course content must be subjected to periodic evaluation for effective learning. The best evaluators for instructional materials are its learners. In this type of evaluation, instructional designers and course coordinators need to work in collaboration.
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- In summing up training at a distance may pose new challenges for trainers in terms of skill learning, time management and autonomy. Skills such as communication, time-management and searching information are needed more in distance. Moreover, trainers may resist new technology because they are comfortable with traditional media. They should be made comfortable with the latest technologies, because skill impartation in training process is not possible through traditional medium like print.
- Sufficient infrastructure facilities. Make sure that there are sufficient facilities, e.g. internet access and computer that can be used to support distance learning.

SUMMARY AND CONCLUSION

Training of personnel calls for necessary facilities and opportunities to acquire knowledge, developing skills, cultivate attitude and behavior essential for the efficient and effective discharge of duties and responsibilities. Training not only enables people to perform their present duties effectively but at the same time prepares them to shoulder greater responsibilities in the future. The ultimate objective of training is improvement in performance thereby facilitating achievement of organizational goals. Importance of training has been amply realized agriculture and allied sectors to increase efficiency of staff and finally increase in agriculture production.

Krishi Vigyan Kendra (KVK) is grass root training institution imparting need based skill oriented training. Today when almost every district has one KVK and number of KVKs crossed 589, training of trainers in training skills is a huge challenge and expansive affair. It is in this context that distance mode seems a profitable solution. Research comparing distance education to traditional face-to-face one indicates that teaching and studying at a distance can be as effective as traditional instruction, when the method and technologies used are appropriate to the instructional tasks, if there is proper interaction between students, and when there is timely feedback from teachers. Distance learning is very important development for our century if utilized in suggested manner. To get desired outcome from distance learning there is need to make right combination of modern and traditional media , giving due importance to learners requirement. In the present study training through distance learning approach is planned only after consulting KVK trainers about their need and preferences regarding different aspects of training areas and media usage.

In view of the significance of KVK trainers' training, the investigation was undertaken with following objectives:

- 1) To study socio-personal, professional, psychological & situational characteristics of KVK trainers.
- 2) To seek opinion of KVK trainers and training experts about training areas and methods of distance learning.
- 3) To find out relationship between selected socio-personal, professional, psychological& situational characteristics of trainers and their opinion about training areas.
- 4) To seek opinion of KVK trainers about constraints in acquiring skill through distance learning.
- 5) To design a distance learning strategy for training of KVK trainers in trainer's skills.

A pre-tested structured questionnaire was developed to collect the required data. The study was conducted in the KVKs of northern states. Four states viz. J&K, Punjab, Delhi and Uttarakhand were selected purposively. The mailed questionnaire was sent to 397 trainers but only 193 of them from 43 KVKs responded back

Data were also collected from 82 training experts on various aspects of training areas and methods of distance learning. Collected data was analyzed with the help of appropriate procedures and statistical techniques. The salient findings of the investigation have been summarized as follows:

1. Major findings of the study

1.1 Socio-personal professional characteristics

- Maximum number of respondents were in old category above 40 years.
 - Majority of the trainers were male.
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- Majority of trainers had studied in Hindi medium.
- Majority of the trainers had earned Ph.D. as their highest qualification.
- Majority of trainers had middle level work experience means 5-24 years.
- Majority of trainers had specialization in field other than agriculture extension.
- Majority of trainers were Subject Matter Specialist (SMS).
- Majority of the trainers did not have any exposure of distance learning.
- Majority of trainers had received training in trainer's skill.
- Majority of trainers ranked themselves as most proficient in using e-mail followed by internet, searching on World Wide Web, MS word, MS power point, Scanning of photos/image, handling LCD projector, MS excel, data transferring with mobile, Photoshop, PageMaker and moviemaker .

1.2 Psychological characteristics

- Maximum trainers selected teaching as their first choice for job, followed by extension, training, administration and research.
 - Majority of trainers possessed medium level of motivation profile.
 - Majority of the trainers possessed low level of job satisfaction
 - Majority of trainers ranked 'Use of training methods' as most difficult task, followed by 'Formulation of need assessment tests', 'Arrangement of physical training', 'Environment and Formulation training objective', 'Evaluation of training programme and implementation of training course and Designing complete training programme .
 - Majority of trainers ranked "Internet" at the top position in terms of level of interactivity, level of accessibility, level of convenience, level
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of individualized learning, level of understanding, level of flexibility & user friendliness, level of difficulty in use and level of cost-effectiveness.

1.3 Situational Characteristics

- Most of the media were either owned by trainers or provided by KVK and even radio was owned by majority, followed by T.V and internet.
- Majority of the trainers regularly watched television. Newspaper was also regularly read by majority of KVK trainers. None of the trainers used radio regularly and majority used it sometimes. Computer/laptop was used by majority regularly as it was either available in KVK or possessed by most due its application in most works. Internet was also used by majority of trainers regularly.
- Mobile was used by most of the trainers followed by newspaper, television, computer/laptop and internet. Majority trainers read newspaper mainly for knowledge purpose. Television and internet both were used by majority of trainers for gaining knowledge. Very few trainers used mobile for knowledge purpose. Majority use mobile for other purpose then knowledge followed by “radio” which was used by of trainers for entertainment.
- Majority of trainers preferred “Internet”, “Print”, “E-mail” and “Television lesson” as method for distance learning.
- Majority of experts preferred “Television lesson”, “Teleconferencing” and “Radio lesson” more in comparison to other methods for distance learning.

1.4 Opinion about main and sub-areas of training need

- Out of seven main areas of training “Use of training methods” was perceived as most important by trainers, followed by “Monitoring and evaluation”, “Training need assessment technique”, “Designing Training Programme”, “Training implementation” and “Preparation of training literature” and “Basics of adult learning”.
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- Sub-areas of training preferred by trainers most were “Creation of learning environment, “Methods of training need assessment, “Planning a training programme”, “Demonstration” as training method, “Giving and receiving feedback”, “Preparation of training manual” and “Use of evaluation technique”.
- Out of seven main areas of training “Monitoring and evaluation” was perceived as most important by experts, followed by, “Use of training methods”, “Training need assessment technique”, “Basics of adult learning”, “Training implementation” , “Preparation of training literature” and “Designing training programme”.
- Sub-areas of training preferred by experts most were “Creation of learning environment”, “Methods of training need assessment”, “Selection of appropriate training methods”, “Participatory lecture” as training method, “Giving and receiving feedback”, “Preparation of training brochure” and “preparation of evaluation report”.

1.5 Relationships between selected socio-personal, professional, psychological and situational characteristics of trainers and their opinion about training areas

- The correlation analysis revealed non-significant and negative correlation between gender, age, work experience, specialization, rank, job satisfaction and opinion about training areas, meaning thereby that trainers’ opinion about training areas importance was not affected by their gender, age, work experience, specialization, rank and job satisfaction.
 - Educational level, experience with distance learning and motivational profile had non-significant but positive relationship with opinion about training areas.
 - Job preference had positive and significant relationship with opinion about training areas. It indicated that as preference for job moves from research to training, opinion about training areas become more and more positive.
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- Training received in trainers' skill had positive relationship with opinion about training areas. This means trainers who had received training in trainers' skills had more positive opinion about importance of training areas.
- Positive and significant relationship was recorded between age and work experience indicating that experience of the trainers increased with age.
- Job preference and job satisfaction were positively co-related. It indicated that as preference for job increases from research to training job satisfaction increased.

1.6 Distance Learning Strategy

- Majority of trainers selected certificate course followed by diploma and degree level.
 - Majority of trainers expected that distance learning course will be useful for them if it lead to skill enhancement followed by knowledge enhancement and increase qualification.
 - Study centre, majority trainers preferred their preference for SAUs.
 - Maximum trainers suggested SMS as instructors.
 - Trainers preferred to meet instructor for discussing problem, at study centre.
 - Majority of the trainers showed their preference for evaluation at the interval of three month.
 - Majority trainers prefer online learning as mode.
 - Maximum trainers preferred combination of these three i.e. practical exercises in the form of assignments, actual organization of training by participants under supervision and organization of training by participants at work place as suitable approach to receive skill through distance learning.
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- One month was selected by maximum of the trainers followed by two week as the right duration for providing practical exposure.

1.7 Constraints in Distance learning

- Trainers ranked “Unavailability of proper infrastructure” at the first place followed by “Low interaction with instructors”, “Busy time schedule”, “Unavailability of technology to learners”, “Time consuming”, “Inefficiency to work on computer”, “Personal problems of learners”, and “Learning without support of teacher as the constraint in learning through distance mode”.

1.8 Testing of hypotheses

- As per results obtained through correlation stated that gender, age , education, work experience, area of specialization, rank of trainers, training received by the trainers in distance learning , motivational profile and job satisfaction of trainers does not yield any relationship with opinion about training areas. Thus, the corresponding alternative hypothesis may be rejected.
- As per results obtained through correlation stated that job preference and training received in trainers’ skill by trainers with opinion about training areas does yield positive and significant relationship with opinion about training areas. Thus the corresponding alternative hypothesis may be accepted.

CONCLUSION

The present study was undertaken in the KVKs situated in the northern states of the country in Zone-I and Zone-II. The profile of the trainers indicate that most of the trainers were above old, male ,had studied at an Hindi medium school, Ph.D., middle level of work experience ,specialized in field other then agricultural extension, SMSs, had no exposure of distance learning, had received training in trainers’ skill , were proficient in using e-mail and internet applications.

Results further indicated that none of the trainer were highly satisfied with job. Most of the trainers prefer teaching as job and came in middle level of motivation.

The study further showed that most of the trainers possessed “Radio” but they rarely listened to it and none of them listened radio regularly. It can be concluded that majority of the respondents were positive about “Internet” and “Print” media usage. Results showed that internet and computer facilities were accessible to almost all the trainers means either provided by KVK or possessed by trainers.

Findings also showed that most of the trainer showed their preference for “Internet”, “Print”, “E-mail” and “Television lesson” as best method for distance learning whereas most of experts preferred “Television lesson”, “Teleconferencing” and “Radio lesson” more in comparison to other methods for distance learning.

It was concluded from the findings that training areas preferred by trainers and experts were “Use of training methods”, “Monitoring and evaluation” and “Training need assessment technique”.

It was also concluded from the findings that sub-areas of training preferred by trainers most were “Creation of learning environment”, “Methods of training need assessment”, “Planning a training programme, “Demonstration as training method”, “Giving and receiving feedback”, “Preparation of training manual” and “Use of evaluation technique” whereas experts preferred “Creation of learning environment”, “Methods of training need assessment”, “Selection of appropriate training methods”, “Participatory lecture” as training method, “Giving and receiving feedback”, “Preparation of training brochure” and “Preparation of evaluation report”.

Study further revealed that most trainers selected certificate course as level of course and expected that distance learning should lead to skill enhancement. For study centre, majority preferred SAUs. In

addition to this maximum trainers suggested SMS for instructors and preferred to meet instructor for discussing problem, at study centre.

It was further concluded that majority of the trainers showed their preference for evaluation at the interval of three month and preference for online learning as mode. In case of approach to receive skill majority preferred combination of exercises and One month was selected by maximum of the trainers providing practical exposure.

Implications of the study:

This investigation was an attempt to know the trainers opinion about training areas, their preferences for the method of distance learning. The research study also intended to find out the difference in opinion of trainers and experts towards training need areas and methods of distance learning.

1. The findings of the study showed that majority of the trainers had medium level of motivational profile and low level of job satisfaction. These are the commonly used indicators of quality of work life of any organization. These might affect their work. Therefore sincere and planned effort should be made to improve the organizational climate and culture of the organization. Under favorable working conditions peoples will be more motivated to work efficiently. For improving the working conditions adult learning principles need to be given more emphasis.
 2. As regards to training received in distance learning it was found that majority of trainers had not received any training or offered any course through distance learning. Being extension personnel it is a serious draw back. This is definitely not a good situation. Therefore steps should be taken to provide in-service training through distance learning mode.
 3. The findings showed that 'training received by trainers in trainers' skills had a positive and significant relationship with opinion about
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training areas. Therefore trainers must undergo training programme regularly. It was also revealed that job satisfaction had positive and significant correlation.

4. It was found that majority of trainers preferred print media along with internet. Therefore any training programme through distance learning need to incorporate both modern as well as traditional media.
5. Trainers did not have computer and internet in few KVK. Therefore before starting any online learning programme computer and internet facility need to be ensured.
6. Majority of trainers had positive perceptions towards internet usage meaning there by that internet it can very well be used in distance learning courses.
7. There was no major difference in opinion of experts and trainers about training need areas and methods of distance learning.

Suggestions for Future Research:

1. The investigation was limited to KVKs at northern states. Future investigations may be taken up in different parts of country. This will help in drawing generalizations about the trainers' preference for training need areas and methods of distance learning.
 2. Comparative studies can be taken up in different parts of country with different media availability and usage, to explore preference of trainers for training areas and methods of distance learning.
 3. Design and Development of learning modules to be used can be tested on trainers.
 4. A study may be taken up on functioning and effectiveness of study centres running under IGNOU to formulate a model of study centre for Trainers' Training.
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LITERATURE CITED

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- Abell, M.& Foletta, G. 2002.** Kentucky educators first to web with middle school and High school online learning. *Mathematics Teacher*, 95 (5): 396-397.
- Aenone, M. 2002.** Mixing and matching distance-education software. *Chronicle of Higher Education*, 48(37):33-34.
- Agarwal, M.K. 1992.** Media support on T&V system: A study in Ajmer district of Rajasthan. Unpublished M.Sc. (Agri) thesis. Department of Agricultural Communication. G.B.Pant University of Agriculture and Technology, Pantnagar.
- Agochiya, D.2002.**Every Trainer's Handbook. Sage Publications India Pvt. Ltd., New Delhi.
- Alsagoff, Sharifah A. 1990.** "Training Needs in the Use of Media for Distance Education in Malaysia", in Training Needs in Use of Media for Distance Education, (Ed. by Shannon Timmers), Published by Asian Mass Communication Research and Information Centre -AMIC-, Singapore.
- Anupriya. 1987.** Communication dimensions and effectiveness of selected training programmes. Thesis, M.Sc. (Unpublished). G.B.P.U.A.&T., Pantnagar.
- Asia-Pacific Development Administration Centre's Seminar on Training Strategies for IRD.1977.**October 11-17, South Korea.
- Atan, H., Rahman, A. Z., Azli, A.Z., Idrus, MR., Ismail, G., and Saleh, M. N. 2002.** Teaching of Science Courses in Distance Education.
- Athreya.1984.**Trainer Development for Changing Technology. *Indian Journal of Training & Development*. 14(1):11-15.
- Barman, U. 2008.** Attitude and Knowledge of Extension Personnel and Trainers Regarding Facilitation- A Study Under Agricultural Technology Management Agencies in Uttarakhand. Unpublished Ph.D., Thesis, Department of Agriculture Communication, G.B. Pant University of Agriculture and Technology, Pantnagar.
-

Bates, A. W.1995. *Technology, Open Learning and Distance Education.*
London: Rout ledge.

Becker, H.J. 1999. Internet use by teachers: Conditions of professional use and teacher directed student use. Irvine: CRITO. University of California.

Becker, H.J. and Riel, M.M. 2000. Teacher professional engagement and constructivist-compatible computer use. Irvine: University of California.

Betts, Kristen S.1998. Factors Influencing faculty participation in distance education in postsecondary education in the United States: An institutional study. (Doctoral dissertation, The George Washington University, 1998). Dissertation Abstracts International: UMI.

Bhattacharya, A.K. and Talukdar, R.K. 1999.Trainers' performance: Academic qualification and Training Experiences are Determinants. *Indian Journal Extension Education.* 35 (1&2): 70-73.

Bisht, K. 2008. Assessing Information and Communication Technology Competence of Teachers of State Agricultural Universities. Unpublished Ph.D., Thesis, Department of Agriculture Communication, G.B. Pant University of Agriculture and Technology, Pantnagar.

Bisht, S. 2004. Information and communication technology utilization among scientists: A study at Govind Ballabh Pant University of Agricultural & Technology. Thesis, M. Sc. Deptt. of Agril. Comm., College of Agriculture. G.B.P.U.A. & T., Pantnagar.

Biswas, P.K. 2001. Learning Strategies and Academic Performance: A Study of the Successful Distance Learners of the PGDDE programme of IGNOU. *Indian Journal of Open Learning.* 2001, 10(2), 211-220.

Bogue, D.J. 1969. Principles of Demography. John Willey and Sons Inc. New York.

Braimoh, D. 1998. Distance education and manpower development. *Indian Journal of Open Learning.*7 (2): 155-169.

- Brayfield, A. and Rothe, H. 1951.** An index of job satisfaction. *J. Appl. Psychol.* 35: 307-311.
- Chowdhary, D.P.1986.** Training Methodology and Management, Sterling Publishers Private Ltd.
- Christner, T. 2003.** A classroom of one (book). *Library Journal*, 128(1): 130.
- Daniel, S. John. 1988.** "The World of Open Learning", Open Learning in Transition An Agenda for Action, (Edited by Nigel Paine) National Extension College, 1988, Cambridge, United Kingdom.
- Das, Kandarpa and Debi, Uttara .2004.**The Acculturation of 'Open' Materials and the Enhancement of Learning. Post Graduate Correspondence School, Gauhati University, Assam, India.
- Dede, C.1996.** "Emerging Technologies in Distance Education for Business." *JOURNAL OF EDUCATION FOR BUSINESS* 71, no. 4 (March-April 1996): 197-204.
- Delima, F. 1999.** Web-based learning more cost effective. *Computing Canada*, 25(27):29.
- Derouza, E., & Fleming, M. 2003.** A comparison of in-class quizzes vs. online quizzes on student exam performance. *Journal of Computing in Higher Education*, 14, 121-134.
- Dikshit, J., Gaba, A., Bhushan S., Garg, S. and Panda S.2003.** Learning Attitude, Motivation and Preferences of Online Learners. *Indian Journal of Open Learning*.2003, 12 (3), 149-167.
- Distance Learning Handbook. 2005.** Complementary Education – Distance Learning Handbook. The Distance Learning Team is part of the Complementary Education Service from Sefton Council. www.seftonweb.org or www.hometuition.org
- Eastmond, D. V. 1995.** Alone But Together: Adult Distance Study Through Computer Conferencing. Cresskill, NJ: Hampton, Press, 1995.
-

Feasibility Analysis of Nation-Wide Distance Education Alternatives Final Report. 1997. December, Tübitak, 1997, (unpublished report), Ankara, Turkey, p. 2-3.

Fichter, D. 2002. Intranets and e-learning: a perfect partnership. *Online*, 26(1):68-71.

Filipczak, B. 1995. "Putting the Learning into Distance Learning." *TRAINING* 32, no. 10 (October 1995): 111-118. (EJ 511 253).

Garrisson and Shale. 1987a. Visited on 06-06-2009. <http://home.anadolu.edu.tr/~udemiray%20&defin.htm>

Ghosh, C.K. 1998. Promotional Strategies for Distance Teaching Institutions Experience at the Calcutta Regional Centre of IGNOU. *UNIVERSITY NEWS*, 36 (4), January 26, 1998. 11-13.

Guha. 2000. Student Centered Open Learning –The Professional and Vocational Approach. *University News*, 38(48): 8-10.

Gujral, R. and Kumar, R. 2006. Democratizing Higher Education through Open and Distance Learning in India: Potential and Limitations of Self-Learning Packages. *Indian Journal of Open Learning*. 2006, 15(1), 21-36.

Hakkarainen, K.; Muukkonen, H.; Lipponen, L.; Ilomaki, L.; Rahikainen, M. and Lehtinen, E. 2001. Teachers' information and communication Technology (ICT) skills and practices of using ICT. *Journal of Technology and Teacher Education*. 9(2): 181-197.

Hansara, B.S. and Kumar, B. 1997. Training Methodology for Human Resource Development, New Delhi, Classical Publishing.

Hellman J.A. 2003. The Riddle of Distance Education: Promise, Problems and Applications for Development. UN Research Institute for Social Development. www.unrisd.org/unrisd/website/document.nsf/0/.../hellman2.pdf

Hodgson, V.E. 1985. The Relevance and Effectiveness of Distance Teaching for Management Education. Report for the Foundation of Management Education.

- Jegade, P.O.; Ojerinde, O.O.D. and Ilori, M.O. 2007.** Relationship between ICT competence and attitude among some Nigerian tertiary institution lectures. Retrieved 28th September 2007 from <http://www.academicjournals.org/ERR>.
- Jung, I. 2001.** Issues and Challenges of Providing Online In service Teacher Training: Korea's Experience. *International Review of Research in Open and Distance Learning* c ISSN: 1492-3831.Vol. 2, No. 1 (July, 2001).
- Kachroo, K. B. 1999.** Distance Education Programme at College and University Levels in Jammu Region: An Evaluative Study. *Indian Journal of Open Learning*, 8(3): 293-305.
- Kaye, Anthony. 1990.** "Computer Mediated Communication and Distance Education", in Mindweave: Communication, Computers and Distance Education, (Ed. by Robin Mason and Anthoy Kaye), Pergamon Press, Exeter, United Kingdom.
- Kelly, M. 1990.** Course creation issues in distance education. In D. R. Garrison & D. Shale (Eds.), Education at distance: From issues to practice. Malabar, FL: Roberts E. Krieger Publishing Company. pp. 77-99.
- Kelsey, T. W. and Mincemoyer, C. C., 2001.** Exploring the potential of inservice training through distance education. *Journal of Extension* [on-line]. 39(2). Available:<http://www.joe.org/joe/2001april/rb7.html>
- Khan, A. A. 1982.** Material Production for out of School Population Education. *Indian Journal of Open Learning*. 43(7): 3-8.
- Korman, A. 1977.** Organizational behaviour. Prentice Hall Inc: Ingle Wood Cliffs. New Jersey.
- Kranti, R.K. Jha; Kumar. And Ahire, M.C.2006.** Organization of Communication training for extension personnel. *Journal of Communication Studies*.24:11-15.
- Krishnan, R. 1965.** Agricultural Demonstration and Extension Communication, Asia Publishing House, Bombay.
- Kulandai, V.C., Swamy.2002.** Garg S.C. and Panda, Santosh (Eds) Education for Knowledge Era Open and Flexible learning, New Delhi, Kogan Page.
-

- Kumar and Kashyap. 2004.** Management of Training: A Guide for Trainers; NATP (TOE) in Agricultural Information and Communication; G.B. Pant University of Agriculture and Technology, Pantnagar, Uttarakhand.
- Kumar and Hansra. 1999.** Extension Education for Human Resource Development. Concept Publishing Company, New Delhi-110059.
- Kumar, B. and Singh, D.P. 1998.** Strategy for training of KVK trainers. *Ag. Ext. Rev.* pp.25-27.
- Kumar, B. and Singh, D.P.1994.** Profile of KVK trainers. *Indian Journal of Extension Education.* 30(1-2):42-49
- Kumar, B. and Singh, D.P. 1996.** Training needs of rural trainers for professional development. *Indian J. of Training & Development.* 26(3): 35-44.
- Kumar, B. 1994.** Designing Curriculum For Training Of Trainers Of Krishi Vigyan Kendra In 'Training Management'- An Exploratory Study. Unpublished Ph.D. (Ag. Extension), Thesis, Department of Agricultural Extension, R.B.S. College, Bichpuri Agra University, Agra, India.
- Laird, D. 1978.** Approaches to Training and Development, Addison Wesley Inc., Readings, Massachusetts, U.S.A.
- Lautenbach, G.V. 2000.** *Learner experiences of web-based learning: A university case study.* MEd dissertation, Rand Afrikaans University, Johannesburg. *Journal of Advanced Nursing*, 35 (3): 468-469.
- Levy, Y. 2008.** An empirical development of critical value factors (CVF) of online learning activities: An application of activity theory and cognitive value theory. *Computers & Education*, 51(4), 1664-1675. doi:10.1016/j.compedu.2008.04.003.
- Lindner, J. R., Murphy, T.H., and Dooley K.E. 2001.** Factors affecting faculty adoption of distance education: competency, value, and educational technology support. *Proceedings of the 20th Annual Western Region Agricultural Education Research Meeting, Carmel, California.*
-

- Lipitt Gordon L. Leslie E. This and Robert G. Bidwell, Jr. (ed.). 1971.** Optimizing Human Resources; Readings in Individual and Organisation Development. Addison-Wesley Publishing Company, Readings, Massachusetts.
- Mahadeo, J. D., Munhurrun P.R., and Bhiwajee, S.D. L. 2007.** An Evaluation of Learners' Perceptions of E-Courses. Proceedings of the 2007 Computer Science and IT Education Conference. University of Technology, Mauritius Pointe Aux Sables, Mauritius. jdmahadeo@utm.intnet.mu, pmunhurrun@utm.intnet.mu, s.bhiwajee@utm.intnet.mu.
- Mahajan, S.L. 2002.** Information Communication Technology in Distance Education in India: A Challenge. *University News*, 40(19): 1-9.
- Mahajan, S.L. and Sonone, A. 2002.** Interactive Multimedia Technology in Distance Education. *Indian Journal of Open Learning*, 2002, 11(3), 347- 355.
- Malik, C.P. and Patel, H.L. 1990.** Factors related with job satisfaction in university teacher, Maharashtra J. Extension Education. Vol. 7: 42-45 pp.
- Maru, A. 2003.** Information and Communication Technology use in Agriculture Extension in India, 'ICTs-transforming agricultural extension?', CTA's observation on ICTs 6th Consultant Expert meeting, September.
- Mathur, H.M. 1980.** Training for Senior Administrator of Agricultural Development. *Indian J. Training & Development*. 10(3):105-114.
- Matsepe, M. Y. 2006.** A study of information and communication Technology intervention in integrated functioning of Govind Ballabh Pant University of Agriculture and Technology, Pantnagar. Thesis, M.Sc. Deptt. of Agril. Comm. College of Agriculture. G.B.P.U.A & T., Pantnagar.
- McCann, B. M. 2007.** The Effectiveness of Extension In-Service Training by Distance: Perception Versus Reality. www.joe.org. February 2007. Volume 45, Number 1.
-

McGehee, W. and Thayer, P.W.1961.Training in Business and Industry.John Wiley and Sons, Inc., New York.pp.243-255.

Meena, B.S. 1999. Training Programme of KVK in Rajasthan. An Analytical Study. An unpublished, PhD. thesis, Division of Agricultural Extension, IARI, New Delhi.

Miller, G. E.1995. Distance Education and the Undergraduate Curriculum. The Pennsylvania State University. <http://www.umuc.edu/ide/seminar/miller2.html>

Mills, R. 2000. The Role of Study Centres in Open and Distance Education: Glimpse of the Future.”In Supporting Students in Open and Distance Learning. London:Kogan Page.

Mishra, D.C. 1990. New Directions in Extension Training; Directorate of Extension, Department of Agriculture and Co-operation; Ministry of Agriculture, New Delhi.

Mishra, P. 2008. Designing A Training Module for Extension Trainers: A Study In Uttarakhand. Unpublished Ph.D., Thesis, Department of Agriculture Communication, G.B. Pant University of Agriculture and Technology, Pantnagar.

Mishra, Sanjaya and Panda, Santosh. 2007. Development and Factor Analysis of an Instrument to measure Faculty Attitude towards e-Learning Indira Gandhi National Open University, India. Asian Journal of Distance Education .<http://www.AsianJDE.org> © 2007 The Asian Society of Open and Distance Education ISSN 1347-9008 Asian J D E 2007 vol. 5, no 1, pp 27 -33. s-mishra@ignou.ac.in.

Mohanty, B. B. 1999. Role of Distance education in promoting Literacy, Adult Education and Non-Formal Basic Education for Rural and Social Development. *Indian Journal of Adult Education*, 60(4): 9-21.

Moore and Thompson, 1990.Verduin & Clark, 1991 Moore, M.G. & Thompson, M.M., with Quigley, A.B., Clark, G.C., and Goff, G.G. 1990. The effects of distance learning: A summary of the literature. Research Monograph No. 2. University Park, PA: The Pennsylvania State University, American Center for the Study of Distance Education. (ED 330 321).

Moore, M.1996. Distance education: A system view California: Wadsworth Publishing Company, 1996.www.uwex.Edu/distd.

More, Nicole A. Buzzetto .2008. Student Perceptions of Various E-Learning Components. *Interdisciplinary Journal of E-Learning and Learning Objects Volume 4, 2008.*Formerly the *Interdisciplinary Journal of Knowledge and Learning Objects*. University of Maryland Eastern Shore, Princess Anne, MD, USA.NaBuzzetto-More@umes.edu

Murphy, Tim H. 1996."Agricultural Education and Distance Education." *AGRICULTURAL EDUCATION MAGAZINE* 68, no. 11 (May 1996): 3-18, 21-23.

Nagaraju, C.S. 1982. Evaluation of Radio Correspondences cum Contact In-service Teacher Training Programme in kerala. Bangalore: Institute for Social and Economic Change.

Nalley, R. 1995. Designing Computer-mediated conferencing into instruction. In M. Collins and Z. Berge (Ed.s) *Computer-mediated Communication and the online classroom: Higher Education* (pp:11-23) Cresskill New Jersey: Hampton press Inc.

National Institute of Agricultural Extension Management (An Organization of the Ministry of Agriculture, Govt. of India) .2010.Rajendranagar, Hyderabad – 500 030, Andhra Pradesh, India. www.manage.gov.in.

Nayondo, A.C. 2001. Quality Assurance in Open Distance Education Institutions: Identification of Parameters for Programme Assessment. *Indian Journal of Open Learning*. Vol.11.No.1.147-157.

Neuhauser, C. 2002. Learning style and effectiveness of online and face-to-face Instruction. *The American Journal of Distance Education*, 16, 99-113.

Ojo, D.O. and Olakulehin, Felix K.2006.Attitudes and Perceptions of Students to Open and Distance Learning in Nigeria. *International Review of Research in Open and Distance Learning*, v-7 n1 p.1-10 Jun 2006.

O'Neal,A.F. Fairweather, P.G., and Huh Y.H. 1988. An Introduction to Instructional Systems Design. ILO Asian and Pacific Skills Development Program United Nations, Goa, India, 1988.

- Padhan and Choudhary.2004.**Addressing Training needs in Universalisation of Elementary Education: A Distance Education Perspective. *Indian Journal of Open Learning*, 2004, 13(2), 151-165.
- Pal, S.S. 1991.** A Study of monthly workshop cum training process under T& V system in Western U.P. Unpublished. M.Sc. (Ag.), Thesis, Department of Agriculture Communication, GBPUA&T, Pantnagar.
- Panda, S. and S. Chaudhary, 2001.**"Telelearning and Telelearning Centres in India." In *Telecentres: Case Studies and Key Issues*. Vancouver: The Commonwealth of Learning.
- Pandey, R.K. 1992.**Need assessment of KVK trainers in UP in training management. Unpublished M.Sc.(Ag.), Thesis, Department of Agriculture Communication, G.B. Pant University of Agriculture and Technology, Pantnagar.
- Pandey, R.K. and Kumar, B 1994.** Trainers' need for training. *Agricultural Extension Review*. 6(6):30-31.
- Patel, N.L. and Kher, A.O. 1978.** An evaluation of training programme for extension personnel. *Indian J. Ext. Edn.* 39(4).
- Perris et.al. 2004.** An investigation of Distance learners'. Preferences for barriers to Online Learning in Hong Kong. *Indian Journal of Open Learning*, 2004, 13(2), 139-149.
- Pew/Internet .2005.** Internet: women and men online. Pew Internet & American Life Project Reports. *Demographics*. pp 1-2.
- Porter, L.W. and Steers, R.M. 1973.** Organizational work and personal factors in employees turnover and assentension. *Psychological Bulletin*. 80 (2).
- Rajadekar, U. M. 2000.** Distance Education for Rural Development. *University News*, 38 (41): 11-13.
- Ramakrishnaiah, D. and Kumaraswamy, T.1994.** Distance education and student support services. *University News*. Aug.1994:9-10.
- Ramchandra, K.T. 1990.** Determining factors governing the use of aids by the teachers of higher education . *Mysore J. Agric. Sci.* 24.
-

- Rao, D. P. and Reddy, B. S. 2002.** Self-Learning through Programmed learning in Distance Mode. *Indian Journal of Open Learning*, 11(2): 247-254.
- Rao, S.J.2008.** Access, Awareness and Use of Media Support Services: Strategies to Make them Popular with the learners. *Indian Journal of Open Learning*, 17(2), 163-173.
- Ray, G.L. and Mondal, S.2006.** Research Methods in Social Sciences and Extension Education. Kalyani Publishers.
- Reddy, A.V.S. and Sastry, K.R.2001.**Capacitating the key personnel for rural development: Some Issues. *Indian Journal of Training & Development*.31 (3):2001.
- Rohfeld, R. W., and Hiemstra, R.1995.** "Moderating Discussions in the Electronic Classroom." In *COMPUTER MEDIATED COMMUNICATION AND THE ONLINE CLASSROOM*. vol. 3, edited by Z. L. Berge and M. P. Collins, pp. 91-104. Cresskill, NJ: Hampton Press, 1995.
- Ross, A. Sieper, G. and Corner, S.O. 2003.** Making Distance Learning EROTIC: Applying interpretation principles to the distance learning. *Environment Education Research*. 9(4): 479-495.
- Rowntree, D. 1991.** Teach Yourself with Open Learning. London:Sphere Books Ltd.
- Salaway, G., Katz, R., & Caruso, J.2006.** *The study of undergraduate students and information technology*. EDUCAUSE Center for Applied Research, Volume 7. Retrieved January 22, 2008 from www.educause.edu/ecar/
- Sanders, D., & Morrison-Shetlar, A. 2002.** Student attitudes toward web-enhanced instruction in an introductory biology course. *Journal of Research on Computing in Education*, 33(3), 251-262.
- Sarangi, A., Singh, K. and Roy, S. 2001.** Socio personal and psychological attributes of the trainers of regional institute of rural development. *Ind. Res. J. Ext. Edu* 1 (2):67-70.
- Saxena, S.K. and Mehra,C.2000.**A model for developing curriculum in emerging technology. *Indian J. Training & Development*.1(2): 67-70.
-

- Schuemer, R. 1993.** Some psychological aspects of distance education. Hagen ,Germany : Institute for Research into distance education.
- Senders, E.N. 1968.** Focusing on the village through training, Ministry of Agriculture, New Delhi.
- Shah, S.Y.1991.**The training of adult educators and the university system in India: Themes, Techniques and Issues. *Indian J. Adult Education*. 52(1&2):15-21.
- Sharma, M.C. 2001.**Teacher Education through Distance Mode: An In depth Study. *Indian Journal of Open Learning*, 2001, 10(2), 193-202.
- Shneiderman, B., Borkowski, E. Y., Alavi, M. and Norman, K. 1998.** Emergent patterns of teaching/learning electronic classrooms. *ETR&D*, 46(4): 23-42.
- Simpson, O.2000.** Supporting Students in Open and Distance Learning. London: Kogan Page.
- Singh, M. and Kidd, D.W. 1981.** Need for Simple training techniques Kurukshetra, September,1 pp. 21-22.
- Singh, S. 1990.** A Critical Analysis of T & V System in BIHAR, Unpublished Ph. D. Thesis, Department of Extension Education R. A. U., Bihar.
- Singh, S. 1992.** A study of monthly workshop-cum-training process under T&V system in Western U.P. Unpublished M.Sc. (Agri) thesis. Department of Agricultural Communication. G.B. Pant University of Agriculture and Technology, Pantnagar.
- Smith, K. M. 1994.** May. *Two-way video distance education:* Responding to learning styles for preparing teachers. Paper presented at the Video and Literacy Special Interest Group Symposium at the 39th annual International Reading Association Conference, Toronto, Ontario, Canada.
- Sonone, A. Vadeners, R. V. and Gujar, R. 2003.** Certificate in BPM Programme: Case of vocational Education through Distance learning Mode. *Indian Journal of Open Learning*, 12(1):77-93.
-

Sreekumar, S.S. 1998. Study of Skills Development through Distance Education. *Indian Journal of Open Learning*, 1998, 7(2), 199-204.

Sreekumar, S. S. 2000. Distance Education and Human Recourse Development. *Indian Journal of Open Learning*, 9(2): 172-175.

Srivastava, M. 2002 A Comparative Study on Current Trends in Distance Education in Canada and India. *Turkish Online Journal of Distance Education-TOJDE* October 2002 ISSN 1302-6488 Volume: 3 Number: 4.

Stahmer, Anna., Naswil Idris and Debbie Bolai. 1990. "Development in Telecommunication Technology For Distance Education with Reference to Developing Countries", in Training Needs in Use of Media For Distance Education, (Ed. by Shannon Timmers), Published by Asian Mass Communication Research and Information Centre -AMIC-, Singapore.

Swaminathan, M.S. 2007. Agriculture Cannot Wait. New Horizons in India Agriculture.

Tasci, D. 1999. Applicability of Total Quality Philosophy in Distance Education Institutions. *Indian Journal of Open Learning*, 1999, 8(2), 139-146.

Trotter, A. 2002. Calif. `s online-learning potential evaluated. *Education Week*, 22(8) 11-12.

Tyagi, L.K. 1993. Job satisfaction of the academic staff of college of agriculture, G.B.P.U.A.&T., Pantnagar. Thesis, M.Sc. (Unpublished). Deptt. of Agril. Comm., College of Agriculture, G.B.P.U.A.&T., Pantnagar.

US Department of Defense. 1997. *Reserve Component Programs. FY 1996 Report of the Reserves Policy Board.* Washington, D.C.: Government Printing Office, 1997.

Villi, C. 2003. Study of Knowledge, Attitude, Perception, and Experience of women learners in Open University. *Indian Journal of Open Learning*, 12(1): 95-100.

Weiss, H. M. 2002. Deconstructing job satisfaction: separating evaluations, beliefs and affective experiences. *Human Resource Management Review*, 12, 173-194.

Wikipedia. 2008. Agriculture in India, and the free encyclopedia 29 July.

Williams, D.; Wilson, K.; Richardson, A.; Tuson, J. and Coles, L. 2000. Teacher's ICT skills and knowledge needs. Final report to SOEID. Retrieved 2nd April, 2007 from <http://www.scotland.gov.uk/libraryict/append.title.htm>.008.

Williamson J.2009. The History of Distance Education. February 11, 2009. By, Distance-Education.org Columnist.

Willis, B. 1995. *DISTANCE EDUCATION AT A GLANCE GUIDE 2: Strategies for Teaching at a Distance.* www.westga.edu/~distance.

Woods, J.L. and Ratne, M. 1982. Training of trainers, communications and management training: an analysis of 70 Asian institutions. *Media Asia*.pp.80-84.

Yadav, B. and Verma, T. 1998. Assessing trainers' view about various aspects of training. *Maharashtra Journal of Extension Education*.17:248-255.

Yusuf, M.O. 1999. A conceptual framework on Open University in Nigeria. *Ilorin Journal of Education*, 19:136-144.

APPENDICES

APPENDIX-I

STATES UNDER EACH ZONE	No.of KVKs
Zone I – 62 KVKs	
<u>Delhi</u>	1
<u>Haryana</u>	18
<u>Himachal Pradesh</u>	12
<u>Jammu and Kashmir</u>	14
<u>Punjab</u>	17
Zone II – 79 KVKs	
<u>A & N Islands</u>	2
<u>Bihar</u>	38
<u>Jharkhand</u>	22
<u>West Bengal</u>	17
Zone III – 71 KVKs	
<u>Assam</u>	21
<u>Arunachal Pradesh</u>	12
<u>Manipur</u>	9
<u>Meghalaya</u>	5
<u>Mizoram</u>	8
<u>Nagaland</u>	8
<u>Sikkim</u>	4
<u>Tripura</u>	4
Zone IV – 80 KVKs	
<u>Uttar Pradesh</u>	67
<u>Uttarakhand</u>	13
Zone V – 69 KVKs	
<u>Andhra Pradesh</u>	30
<u>Maharashtra</u>	39
Zone VI - 57 KVKs	
<u>Rajasthan</u>	32
<u>Gujarat</u>	25
Zone VII – 93 KVKs	
<u>Chattisgarh</u>	16
<u>Madhya Pradesh</u>	47
<u>Orissa</u>	30
Zone VIII – 77 KVKs	
<u>Karnataka</u>	28
<u>Tamil Nadu</u>	30
<u>Kerala</u>	14
<u>Goa</u>	2
<u>Pondicherry</u>	2
<u>Lakshadweep</u>	1

APPENDIX-II**List of KVKs in each State**

Zone	State	Name of Host Organization	Type of Host Organization	KVK/District
Zone I	PB	PAU	SAU	Bathinda
Zone I	PB	PAU	SAU	Faridkot
Zone I	PB	PAU	SAU	Fatehgarh Sahib
Zone I	PB	PAU	SAU	Ferozepur
Zone I	PB	PAU	SAU	Gurdaspur
Zone I	PB	PAU	SAU	Hoshiarpur
Zone I	PB	PAU	SAU	Jalandhar
Zone I	PB	PAU	SAU	Kapurthala
Zone I	PB	PAU	SAU	Ludhiana
Zone I	PB	PAU	SAU	Mansa
Zone I	PB	PAU	SAU	Moga
Zone I	PB	PAU	SAU	Muktsar
Zone I	PB	PAU	SAU	Nawanshahar
Zone I	PB	PAU	SAU	Patiala
Zone I	PB	PAU	SAU	Ropar
Zone I	PB	PAU	SAU	Sangrur
Total staff in Punjab				153
Zone I	New Delhi	NHRDF	ICAR	Delhi
Total staff in delhi				9
Zone I	J&K	SKUAST J	SAU	Doda
	J&K	SKUAST J	SAU	Jammu
	J&K	SKUAST J	SAU	Kathua
	J&K	SKUAST J	SAU	Poonch
	J&K	SKUAST J	SAU	Rajouri
	J&K	SKUAST J	SAU	Reasi
	J&K	SKUAST K	SAU	Bandipora
	J&K	SKUAST K	SAU	Budgam
	J&K	SKUAST K	SAU	Kargil
	J&K	SKUAST K	SAU	Kulgam
	J&K	SKUAST K	SAU	Kupwara
	J&K	SKUAST K	SAU	Leh
	J&K	SKUAST K	SAU	Pulwama
	J&K	SKUAST K	SAU	Srinagar
Total staff in J&K				129

Appendix – II : Contd....

Zone	State	Name of Host Organization	Type of Host Organization	KVK/District
Zone IV	Uttarakhand	GBPUAT-P	SAU	Jeolikote,
Zone IV	Uttarakhand	GBPUAT-P	SAU	Gwaldam
Zone IV	Uttarakhand	GBPUAT-P	SAU	Dhanauri
Zone IV	Uttarakhand	GBPUAT-P	SAU	Ranikhet
Zone IV	Uttarakhand	GBPUAT-P	SAU	Bharsar
Zone IV	Uttarakhand	GBPUAT-P	SAU	Jaghdhar
Zone IV	Uttarakhand	GBPUAT-P	SAU	Kashipur
Zone IV	Uttarakhand	GBPUAT-P	SAU	Gaina Ancholi
Zone IV	Uttarakhand	GBPUAT-P	SAU	Dhakrani
	Uttarakhand	GBPUAT-P	SAU	Lohaghat
	Uttarakhand	GBPUAT-P	SAU	Ranichauri
			Total staff in Uttarakhand	76

APPENDIX-III**Details of each KVK****Krishi Vigyan Kendras in Delhi**

S. No.	Address of Krishi Vigyan Kendras	Host Organization	Year of Sanction
Delhi (1)			
1.	Krishi Vigyan Kendra, Ujwa, New Delhi-110 073	Director, NHRDF, Janakpuri, New Delhi-110058	1995 PSU
Krishi Vigyan Kendras in Jammu & Kashmir			
Jammu & Kashmir (14)			
1.	Kirshi Vigyan Kendra, Maize Breeding Reserch Sub- Station, Distt. Poonch-	Vice-Chancellor, S.K.University of Agricultural Sciences and Technology, Jammu-180012	2007 SAU
2.	Krishi Vigyan Kendra, Vill. Tanda Dera Baba Bahadur Singh, The. Reasi, Distt. Udhampur-	Vice-Chancellor, S.K.University of Agricultural Sciences and Technology, Jammu-180012	2005 SAU
3.	Krishi Vigyan Kendra, Putshee, Bandipora, Distt. Baramulla-193 502	Vice-Chancellor, S.K. University of Agril. Sciences & Technology, Jammu-180012	2005 SAU
4.	Krishi Vigyan Kendra, Gushee, Distt. Kupwara-193 222	Vice-Chancellor, S.K. University of Agril. Sciences & Technology, Jammu-180012	2005 SAU
5.	Krishi Vigyan Kendra, Pombay, Distt. Anantnag-192 101	Vice-Chancellor, S.K. University of Agril. Sciences & Technology, Jammu-180012	2005 SAU
6.	Krishi Vigyan Kendra, SKUAST (K), Distt. Kargil-194 103	Vice-Chancellor, S.K. University of Agril. Sciences & Technology, Jammu-180012	2004 SAU
7.	Krishi Vigyan Kendra, Regional Research Station, VPO. Tandwal, Distt. Rajouri-185 131	Vice-Chancellor, S.K.University of Agricultural Sciences and Technology, Jammu-180012	2002 SAU
8.	Krishi Vigyan Kendra, Gwari, Bhaderwah, Distt. Doda-182 221	Vice-Chancellor, S.K.University of Agricultural Sciences and Technology, Jammu-180012	2002 SAU

9.	Krishi Vigyan Kendra, Shuhama, P.Box No.1277,GPO, Distt. Srinagar-190 001	Vice-Chancellor, S.K. University of Agril. Sciences & Technology, Jammu-180012	2002 SAU
10.	Krishi Vigyan Kendra, Old Airport, P.Box No.91, GPO Srinagar Distt. Budgam-191 111	Vice-Chancellor, S.K. University of Agril. Sciences & Technology, Jammu-180012	2002 SAU
11.	Krishi Vigyan Kendra, SKUAST (K), P.Box No.146, Choglam Road, Housing Colony, Distt. Leh-194 101	Vice-Chancellor, S.K. University of Agril. Sciences & Technology, Jammu-180012	1994 SAU
12.	Krishi Vigyan Kendra, Kalibari, Distt. Kathua-184104	Secretary, Shiv Gramodyog Mandal, Kathua	1993 SAU
13.	Krishi Vigyan Kendra, R.S. Pura, Distt. Jammu-181102	Vice-Chancellor, S.K.University of Agricultural Sciences and Technology, Jammu-180012	1992 SAU
14.	Krishi Vigyan Kendra, Malangpura, PB. No. 1228,GPO Srinagar Distt. Pulwama-190 001	Vice-Chancellor, S.K. University of Agril. Sciences & Technology, Jammu-180012	1983 SAU

Krishi Vigyan Kendras in Punjab

Punjab (17)

1.	Krishi Vigyan Kendra, Opp. DIPS School Nakodar Road, Noor Mahal, Distt. Jalandhar-144039	Vice-Chancellor, Punjab Agricultural University, Ludhiana-141 004	2006 SAU
2.	KrishiVigyan Kendra, Khokhar Khurd, Distt. Mansa	Vice-Chancellor, Punjab Agricultural University, Ludhiana-141 004	2006 SAU
3.	Krishi Vigyan Kendra, VPO. Budh Singh Wala, Distt. Moga-142 001	Vice-Chancellor, Punjab Agricultural University, Ludhiana-141 004	2005 SAU
4.	Krishi Vigyan Kendra, PAU RRS, Haveli Kalan, Ropar Distt. Roopnagar-140001	Vice-Chancellor, Punjab Agricultural University, Ludhiana-141 004	2004 SAU
5.	Krishi Vigyan Kendra, Samrala, Distt. Ludhiana-141 114	Vice-Chancellor, Punjab Agricultural University, Ludhiana-141 004	2004 SAU

6.	Krishi Vigyan Kendra, Usman, Dist Amritsar-143 001	Vice-Chancellor, Punjab Agricultural University, Ludhiana-141 004	2004 SAU
7.	Krishi Vigyan Kendra, Goneana, Distt. Muktsar-152 026	Vice-Chancellor, Punjab Agricultural University, Ludhiana-141 004	2004 SAU
8.	Krishi Vigyan Kendra, Shamsher Nagar, Sirhind, Distt. Fatehgarh Sahib-	Vice-Chancellor, Punjab Agricultural University, Ludhiana-141 004	2004 SAU
9.	Krishi Vigyan Kendra, PAU Regional Research Station, Distt. Faridkot-151 203	Vice-Chancellor, Punjab Agricultural University, Ludhiana-141 004	1995 SAU
10.	Krishi Vigyan Kendra, Kheri, Distt. Sangrur-148 001	Vice-Chancellor, Punjab Agricultural University, Ludhiana-141 004	1995 SAU
11.	Krishi Vigyan Kendra, VPO Langroya, Distt. Nawanshahar-144 516	Vice-Chancellor, Punjab Agricultural University, Ludhiana-141 004	1995 SAU
12.	Krishi Vigyan Kendra, Dabwali Road, Near Kheti Bhawan, Distt. Bathinda-151 001	Vice-Chancellor, Punjab Agricultural University, Ludhiana-141 004	1992 SAU
13.	Krishi Vigyan Kendra, Post Box No.22, Distt. Patiala-147 001	Vice-Chancellor, Punjab Agricultural University, Ludhiana-141 004	1992 SAU
14.	Krishi Vigyan Kendra, Mallewal Road, Distt. Ferozepur-152 001	Vice-Chancellor, Punjab Agricultural University, Ludhiana-141 004	1990 SAU
15.	Krishi Vigyan Kendra, Vill. Bahawal, PO. Mahilpur, Distt. Hoshiarpur-146 105	Vice-Chancellor, Punjab Agricultural University, Ludhiana-141 004	1990 SAU
16.	Krishi Vigyan Kendra, J.J. Farm, Near New Grain Market, Sultanpur Road, PO. Sheikhupur, Distt. Kapurthala-144 620	Vice-Chancellor, Punjab Agricultural University, Ludhiana-141 004	1990 SAU
17.	Krishi Vigyan Kendra, PAU Research Station, Distt. Gurdaspur-143 521	Vice-Chancellor, Punjab Agricultural University, Ludhiana-141 004	1982 SAU

Uttarakhand (11)

1.	Krishi Vigyan Kendra, Jeolikote, Distt. Nainital-263135	Vice-Chancellor, G. B. Pant University of Agriculture and Technology, Pantnagar-263 145	2004 SAU
2.	Krishi Vigyan Kendra, Gwaldam, Distt. Chamoli-246441	Vice-Chancellor, G. B. Pant University of Agriculture and Technology, Pantnagar-263 145	2004 SAU
3.	Krishi Vigyan Kendra, Dhanauri Distt. Haridwar-249404	Vice-Chancellor, G. B. Pant University of Agriculture and Technology, Pantnagar-263 145	2004 SAU
4.	Krishi Vigyan Kendra, Chaubatia, Ranikhet, Distt. Almora-263651	Vice-Chancellor, G. B. Pant University of Agriculture and Technology, Pantnagar-263 145	2004 SAU
5.	Krishi Vigyan Kendra, VCSGCH, Bharsar, Via Chipalghat Distt. Pauri Garhwal-46123	Vice-Chancellor, G. B. Pant University of Agriculture and Technology, Pantnagar-263 145	2004 SAU
6.	Krishi Vigyan Kendra, Jahdhar, Via Guptakashi Distt. Rudraprayag-246439	Vice-Chancellor, G. B. Pant University of Agriculture and Technology, Pantnagar-263 145	2004 SAU
7.	Krishi Vigyan Kendra, Sugarcane Research Centre, Bajpur Road, Kashipur, Distt. Udham Singh Nagar-244713	Vice-Chancellor, G. B. Pant University of Agriculture and Technology, Pantnagar-263 145	2004 SAU
8.	Krishi Vigyan Kendra, PO. Gaina Ancholi, Distt. Pithouragarh-262501	Vice-Chancellor, G. B. Pant University of Agriculture and Technology, Pantnagar-263 145	2004 SAU
9.	Krishi Vigyan Kendra, Dhakrani, PO. Herbertpur, Distt. Dehradun-248001	Vice-Chancellor, G. B. Pant University of Agriculture and Technology, Pantnagar-263 145	2004 SAU
10.	Krishi Vigyan Kendra, PO. Gulchora, Lohaghat, Distt. Champawat-262524	Vice-Chancellor, G. B. Pant University of Agriculture and Technology, Pantnagar-263 145	1994 SAU
11.	Krishi Vigyan Kendra, GBPUAT Hill Campus, Ranichauri, Distt. Tehri Garhwal-249199	Vice-Chancellor, G. B. Pant University of Agriculture and Technology, Pantnagar-263 145	1983 SAU

APPENDIX – IV

Values of coefficient of correlation

X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11	X12	X13	X14	X15	X16	X17	X18	X19
X1	0.146*	-0.218**	0.213**	0.061ns	0.170*	0.001ns	0.141ns	0.017ns	0.132ns	-0.088ns	-0.002ns	-0.248**	-0.090ns	0.129ns	0.129ns	-0.045ns	-0.159*	-0.092ns
X2		-0.135ns	0.745**	0.029ns	0.260**	-0.025ns	0.256ns	-0.129ns	0.150*	0.187**	0.061ns	0.180*	-0.002ns	-0.049ns	-0.177	-0.098ns	-0.201**	-0.063ns
X3			-0.217**	-0.056ns	-0.149*	0.045ns	-0.214**	0.152*	-0.263**	0.039ns	-0.073ns	0.038ns	0.012ns	-0.060ns	0.209**	0.165*	0.112ns	0.090ns
X4				-0.037ns	0.215**	0.078ns	0.138ns	-0.162*	0.120ns	0.155*	0.016ns	0.030ns	0.052ns	0.029ns	-0.217**	-0.129ns	-0.197**	-0.093ns
X5					0.119ns	0.040ns	0.145*	0.019ns	-0.034ns	0.047ns	0.006ns	-0.047ns	-0.018ns	0.043ns	-0.073ns	-0.203**	-0.090ns	-0.088ns
X6						0.000ns	0.134ns	-0.140ns	0.105ns	-0.060ns	0.036ns	0.173*	0.046ns	0-0.059ns	-0.102ns	-0.040ns	-0.081ns	-0.009ns
X7							0.079ns	-0.089ns	-0.047ns	0.085ns	0.182*	-0.075ns	-0.027ns	-0.050ns	-0.024ns	0.006ns	0.001ns	0.012ns
X8								0.106ns	0.206**	0.017ns	0.223**	0.252**	0.108ns	0.073ns	0.146*	0.017ns	0.162*	0.204**
X9									0.225**	0.029ns	0.236**	-0.125ns	0.012ns	0.057ns	0.034ns	0.096ns	-0.069ns	0.066ns
X10										0.007ns	0.182*	-0.067ns	0.219**	-0.154*	-0.321**	-0.221**	-0.281**	-0.134ns
X11											0.150*	0.163*	0.297**	0.329**	0.203**	0.298**	0.048ns	0.319**
X12												0.311**	0.080ns	0.104ns	0.300**	0.328**	0.089ns	0.503**
X13													0.329**	0.245**	0.376**	0.348**	0.481**	0.639**
X14														0.296**	0.180*	0.364**	0.222**	0.514**
X15															0.653**	0.642**	0.414**	0.708**
X16																0.717**	0.588**	0.819**
X17																	0.429**	0.836**
X18																		0.664**
X19																		

*Significant at 5 per cent level of significance

**Significant at 1 per cent level of significance

ns: non significant

APPENDIX-V (Questionnaire for Trainers)

**Department of Agricultural Communication, College of Agriculture,
G. B. Pant University of Agriculture and Technology, Pantnagar-263145
Distt. Udham Singh Nagar, Uttarakhand**

**Dr. B. Kumar
Professor & Head**

Dear Dr._____

One of my doctoral students Ms. Aparna Rajput has taken up her thesis-research work on **“Designing Strategy for KVK Trainers’ Training in Trainers’ Skills through Distance Learning – A Study in North India”**. As you already know that distance learning is an emerging area in agriculture extension and there is very little experience available, Looking to your rich professional experience, we have decided to seek your expert advice on type of content and methods appropriate for training of KVK trainers in trainers’ skills through distance learning.

I would be personally grateful if you can send your response in enclosed proforma to the student promptly. She is at crucial stage of her research and your expert help will determine direction of her research. Please feel free as your inputs will be kept anonymous and used for research work only. The response may kindly be sent to the following address:

**Aparna Rajput (Ph.D. Student)
4, Lambert Square
Pantnagar-263145**

Looking forward to your kind help.

Yours Sincerely

(B. Kumar)

**Department of Agricultural Communication, College of Agriculture,
G. B. Pant University of Agriculture and Technology, Pantnagar-263145
Distt. Udham Singh Nagar, Uttarakhand**

**Designing Strategy for KVK Trainers' Training in Trainers' Skills
through Distance Learning – A Study in North India**

Please tick (✓) in the appropriate option.

1. Name : _____

2. Gender: Male

☐

Female

☐

3. Age

a) Below 30

b) 30-35

c) 35-40

d) 40 and above

4. Medium of Schooling

- English

☐

- Hindi

☐

5. Educational Qualification

a) Graduation

b) Masters

c) Ph.D.

d) Any other

6. Work Experience (in years):-

1. Teaching _____

2. Research _____

3. Extension _____

4. Any other (specify) _____

7. Yours area of Specialization _____

8. Rank in KVK

a) Programme Coordinator

b) SMS

c) Programme Assistant

d) Other _____

9. Experience with Distance Learning

9.1 Please indicate whether you studied any course through distance learning
(Please tick (✓) the appropriate one)

a) No ()

b) Yes ()

9.2 If yes, please give details regarding distance learning course/es offered by you.

S.No.	Title	Institution	Duration of Distance learning course			
			3month	3-6month	6month-1year	1year or more
1.						
2.						
3.						
4.						

10. Training Experience.

10.1 Did you ever attend training on any aspect of trainers' skills?- **Yes/ No.**

10.2 If yes, then, please give details below-

S.No.	Type of Course	Institution (4-International, 3-National, 2- Regional & 1-Local)	Duration of Training			
			1wk	2 wks	4wks	More than 4 wks
1.						
2.						
3.						
4.						

11. Computer Proficiency

Please indicate your proficiency in working with different computer programme by ticking in right box.

Computer Software	Level of Proficiency			
	Excellent	Good	Average	Poor
1.MS Word				
2.MS PowerPoint				
3.MS Excel				
4.Scanning of Photo /Image				
5.Internet				
6.E-mail				
7.Searching on Worldwide Web				
8.Handling LCD projector				
9. Data Transferring with Mobile				
10. Photoshop				
11.Pagemaker				
12.Movie maker				

12. Job preference

Please indicate your preference among different job - options such as training, extension, teaching, administration and research by putting tick (√) in appropriate box.

Training [] Extension [] Teaching []
Administration [] Research []

13. Motivational profile of trainers

Given below are motivational factors which stimulate people to work more. Please indicate the extent to which you consider them important in inducing additional motivation in you for work. Please give score in the column at the right hand side from 1 to 5 indicating importance of each item.

(Where 1= Least important, 2=Less important, 3= Important, 4=Very important, 5=Most important)

Motivational factors

- Recognition _____
- Better relation with superiors _____
- Good leadership and guidance _____
- Better relation with co-workers _____
- Job-security _____
- Scope to shoulder responsibility _____
- Scope for taking initiative _____
- Better physical working condition _____
- Chance for advancement _____
- Sense of meaning and accomplishment in job _____
- Proximity from native place _____
- Gain in pay and perquisites _____

14. Job Satisfaction

Given below are few statements expressing one's satisfaction in his/her job. Against each statement, a five point continuum with categories ranging from 'strongly agree' to strongly disagrees' through 'agree', 'undecided' and 'disagree' is given. You are requested to tick (√) the appropriate response category against each statement expressing your agreement or disagreement with the

statement.SA= strongly agree, A=Agree, UD=Undecided, DA= Disagree, SDA=Strongly Disagree

S.No.	Statements	SA	A	UD	DA	SDA
1.	My job is like a hobby to me					
2.	My job is usually interesting enough to keep me from getting bored					
3.	It seems that my friends are more interested in their jobs					
4.	I consider my job rather unpleasant					
5.	I enjoy my work more than my leisure time					
6.	I am often bored with my job					
7.	I feel fairly well satisfied with my present job					
8.	Most of the time I have to force myself to go to work					
9.	I am satisfied with my job for the time being					
10.	I feel that my job is no more interesting than others, I could get					
11.	I definitely dislike my work					
12.	I feel that I am enthusiastic about my work					
13.	Most days, I am enthusiastic about my work					
14.	Each day of work seems like it will never end					
15.	I like my job better than the average workers does					
16.	My job is pretty uninteresting					
17.	I find real enjoyment in my work					
18.	I am disappointed that I ever took this job					

15. Preference for Method of Distance learning:

Please give your preference for method you would like to use for distance learning course by ticking [√] in appropriate box. Given below is the list of media generally used in distance learning?

Method	Most Preferred	Preferred	Least Preferred
1. Radio lesson			
2. Television lesson			
3. Teleconferencing			
4. Radio conferencing			
5. Internet			
6. E-mail			
7. Print			

16. Level of Difficulty in Training tasks:

Given below are different training tasks that a trainer has to do in organizing training. Please rank different training tasks according to the level of difficulty experienced by you as 1,2,3,4. Where 4 stands for most difficult, 3 for difficult, 2 for less difficult, 1 for least difficult task.

Tasks	Level of Difficulty
Formulation of need assessment tests	
Formulation training objective	
Designing complete training programme	
Use of Training Methods	
Arrangement of Physical training environment.	
Implementation of training course.	
Evaluation of training programme	

17. Perception about different media

Please indicate your perception about different dimensions of media by scoring on different parameters for each medium from 1 to 7 where 1 indicates

minimum and 7 indicates maximum. (For e.g. if you find level of interactivity maximum in computer then write 7 in the box below computer)

Items	Print	Radio	T.V.	Computer	Internet	Telephone	Video
Level of Interactivity (means how interactive is the particular media)							
Level of Accessibility (means how much is the particular media is within your reach)							
Level of Convenience (means easiness in learning through particular media)							
Level of Individualized learning. (means how far the media is helpful in promoting personal learning)							
Level of Understanding (how far is the media prove helpful in acquiring skill through distance learning)							
Level of Flexibility & User friendliness (how far are you comfortable with using particular media)							
Level of Difficulty in use (how far the media is complicated in use)							
Level of Cost Effectiveness (how far the media appropriate in terms of cost)							

18. Media Availability

Given below is the list of media. Please indicate where you have access to the following media by ticking [√] in the appropriate boxes.

Media	Owned	Provided by KVK	Both
Television			
Newspaper			
Radio			
Computer/Laptop			
Internet			
Mobile			

19. Media Usage

Given below are the media generally used in distance learning? Please indicate frequency of media use by you for learning of new information by rating them from 1 to 4 where 4 stands for Regularly ,3 for Occasionally , 2 for Sometimes, 1 for Never. In order to indicate purpose of media use write 2 in case of use of media only for knowledge and 1 for some other purposes.

MEDIA	FREQUENCY OF USE Regularly(4)/Occasionally(3)/ Sometimes(2)/Never (1)	PURPOSE OF MEDIA USE (Knowledge-2,any other-1)
Television		
Newspaper		
Radio		
Computer/Laptop		
Internet		
Mobile		

20. Opinion about Training Areas

Given below are some broad training areas related with trainers' roles. Please indicate your opinion about importance of these areas for KVK trainers by ticking the appropriate category from 5 to 1,whereas 5 indicates most important , 4 indicates important , 3 indicates undecided, 2 indicates less important and 1 indicates least important.

Areas of Training	5	4	3	2	1
Basics of adult learning					
Training need assessment techniques					
Designing training programme					
Use of training methods					
Training implementation					
Preparation of training literature					
Monitoring and evaluation					

20.1 Given below are some sub-areas of major training area with trainers' roles. Please indicate your opinion about importance of these sub-areas for yourself by ticking the appropriate category from 5 to 1, whereas 5 indicates most important, 4 indicates important, 3 indicates undecided, 2 indicates less important and 1 indicates least important.

a) Adult Learning

Sub-areas of adult learning	5	4	3	2	1
Creation of learning environment					
Recognition of individual differences					
Learner-centered approach					
Facilitating adult learning					
Use of motivation techniques					

b) Training needs assessment

Sub-areas of training need assessment	5	4	3	2	1
Methods of 'training need assessment'					
Preparation of reports on 'training need assessment'					

c) Designing training programme

Sub-areas of designing training programme	5	4	3	2	1
'Planning' a training programme					
Designing training sessions					
Selection of appropriate training methods					

d) Use of Training methods

Training methods	5	4	3	2	1
Participatory lecture					
Group discussion					
Role play					
Case study					
Games					
Workshop					
Buzz session					
Brain storming					
Study and field visits					
Demonstration					

e) Training implementation

Sub-areas of Training implementation	5	4	3	2	1
Use of micro-lab					
Use of experiential learning cycle					
Use of team training					
Handling problem situations					
Use of media					
Giving and receiving feedback					

f) Preparation of training literature

Sub-areas of Preparation of training literature	5	4	3	2	1
Preparation of training Brochure					
Preparation of reading materials					
Preparation of training manual					

g) Monitoring and evaluation

Sub-areas of Monitoring and evaluation	5	4	3	2	1
Developing a monitoring system					
Use of evaluation techniques					
Preparation of evaluation report					

21. Constraints in learning through Distance Learning

Given below are list of constraints usually occurred in distance learning. Against each parameter, a five point continuum with categories ranging from 'SA' to 'SDA' through 'A', 'UD' and 'DA' is given. You are requested to tick [✓] the appropriate response against each one expressing your agreement or disagreement.

S.No.	Constraints	SA	A	UD	DA	SD
--------------	--------------------	-----------	----------	-----------	-----------	-----------

22. (D) Please indicate your preferences for type of instructors suitable for distance learning courses on trainers' skill (please tick the appropriate option)

- | | |
|------------------------------|-------------------|
| a) University Professors | b) Scientist |
| c) Subject Matter Specialist | d) any other_____ |

22. (E) Please indicate your preference for contacting with instructor; you would like it through (please tick the appropriate option)

- | | |
|--------------------------|---------------------------------|
| a) Visit to Study centre | b) Individual/ Group Counseling |
| c) Online counseling | d) Video-conferencing |
| e) Audio-conferencing | f) Any other |

22. (F) Please indicate your preference regarding right duration for evaluating students in distance learning courses (please tick the appropriate option)

- | | |
|---------------|----------------------|
| a) Monthly | b) every three month |
| c) Biannually | d) Annually |

22. (G) Please indicate your preferences for the medium of learning through distance learning (please tick the appropriate option)

- | | |
|-----------|-------------|
| a) Online | b) Computer |
| c) Print | d) Radio |

22. (H) Please indicate your preference for most suitable approach to receive performance skill through distance learning (please tick appropriate option)

1. Practical exercises in the form of assignments
2. Actual organization of training by participants under supervision
3. Organization of training by participants at work place
4. A combination of above (please elaborate)
5. Any other (please specify) _____

22. (I) What should be the right duration for providing practical exposure in distance learning courses?

- | | |
|------------|------------|
| a) 1 week | b) 2 weeks |
| c) 3 weeks | d) 1month |

Thank you very much for your time in completing this

APPENDIX-VI (Questionnaire for Experts)

**Department of Agricultural Communication, College of Agriculture,
G. B. Pant University of Agriculture and Technology, Pantnagar-263145
Distt. Udham Singh Nagar, Uttarakhand**

**Dr B. Kumar
Professor & Head**

Dear Dr._____

One of my doctoral students Ms. Aparna Rajput has taken up her thesis-research work on **“Designing Strategy for KVK Trainers’ Training in Trainers’ Skills through Distance Learning – A Study in North India”**. As you already know that distance learning is an emerging area in agriculture extension and there is very little experience available, Looking to your rich professional experience, we have decided to seek your expert advice on type of content and methods appropriate for training of KVK trainers in trainers’ skills through distance learning.

I would be personally grateful if you can send your response in enclosed proforma to the student promptly. She is at crucial stage of her research and your expert help will determine direction of her research. Please feel free as your inputs will be kept anonymous and used for research work only. The response may kindly be sent to the following address:

**Aparna Rajput (Ph.D. Student)
4, Lambert Square
Pantnagar-263145**

Looking forward to your kind help.

Yours Sincerely

(B. Kumar)

**Department of Agricultural Communication, College of Agriculture,
G. B. Pant University of Agriculture and Technology, Pantnagar-263145
Distt. Udham Singh Nagar, Uttarakhand**

Designing Strategy for KVK Trainers' Training in Trainers' Skills through Distance Learning – A Study in North India

1. Importance of training area

Given below are some broad training areas related with trainers' roles. Please indicate your opinion about importance of these areas for KVK trainers by ticking the appropriate category from 5 to 1, whereas 5 indicates most important, 4 indicates important, 3 indicates undecided, 2 indicates less important and 1 indicates least important.

Areas of Training	5	4	3	2	1
Basics of Adult Learning					
Training Need Assessment techniques					
Designing Training Programme					
Use of Training Methods					
Training Implementation					
Preparation of Training Literature					
Monitoring and Evaluation					

2. Given below are some sub-areas of major training area with trainers' roles. Please indicate your opinion about importance of these sub-areas for KVK trainers by ticking the appropriate category from 5 to 1, whereas 5 indicates most important, 4 indicates important, 3 indicates undecided, 2 indicates less important and 1 indicates least important.

2.1 Adult Learning

Sub-areas of adult learning	5	4	3	2	1
Creation of learning environment					
Recognition of individual differences					
Learner-centered approach					
Facilitating adult learning					
Use of motivation techniques					

2.2 Training Need Assessment

Sub-areas of training need assessment	5	4	3	2	1
Methods of 'training need assessment'					
Preparation of reports on 'training need assessment'					

2.3 Designing Training Programme

Sub-areas of designing training programme	5	4	3	2	1
'Planning' a training programme					
Designing training sessions					
Selection of appropriate training methods					

2.4 Use of Training Methods

Training methods	5	4	3	2	1
Participatory lecture					
Group discussion					
Role play					
Case study					
Games					
Workshop					
Buzz session					
Brain storming					
Study and field visits					
Demonstration					

2.5 Training Implementation

Sub-areas of Training implementation	5	4	3	2	1
Use of micro-lab					
Use of experiential learning cycle					
Use of team training					
Handling problem situations					
Use of media					
Giving and receiving feedback					

2.6 Preparation of Training Literature

Sub-areas of Preparation of training literature	5	4	3	2	1
Preparation of training Brochure					
Preparation of reading materials					
Preparation of training manual					

2.7 Monitoring and Evaluation

Sub-areas of Monitoring and Evaluation	5	4	3	2	1
Developing a monitoring system					
Use of evaluation techniques					
Preparation of evaluation report					

3. Perception regarding Methods:

Given below is the list of methods generally used in distance learning ,kindly give your perception regarding usefulness of different methods by making tick mark in appropriate box.

Method of Distance Learning	Most Preferred	Preferred	Least Preferred
1. Radio Lesson			
2. Television Lesson			
3. Teleconferencing			
4. Radio Conferencing			
5. Internet			
6. E-mail			
7. Print			

Suggestions _____

**Thank you very much for your time in completing
this questionnaire.**

VITA

Ms. Aparna Rajput, author of this manuscript was born on 5 January 1983 in Pantnagar, District Udham Singh Nagar (Uttarakhand). She passed High School and Intermediate Examination in the year 1998 & 2000, respectively from campus school Pantnagar. She completed B.Sc. (Agriculture) from G.B. Pant University of Agriculture and Technology, Pantnagar in 2005. In the same year she got admission in the college of Post Graduate Studies, G.B. Pant University of Agriculture and Technology, Pantnagar for Master's Degree with major in Agricultural Extension & Communication. After completion of her Master's degree in the year 2005, she joined the Ph.D. programme with major in Agricultural Extension and Communication in the same institution. During her Ph.D. Degree programme, she was recipient of UGC-NET JRF Fellowship. She qualified UGC-NET held during June, 2009 in Adult Education including Continuing Education and ARS NET held during September, 2010 in Agricultural Extension. She has already published a review paper on the central theme of the thesis in the proceedings of International Conference on New Trends in Education and Their Implications, 11-13 November, 2010 Antalya-Turkey.

Address

Aparna Rajput

D/o Mr. N.K. Rajput

4, Lambert Square

Pantnagar (U.S. Nagar)

Uttarakhand, India

E-mail: aparnarajput7@gmail.com

ABSTRACT

Name : Aparna Rajput **Id.No.** : 28065
Sem. & year of admission: 2nd Sem, 2007-08 **Degree** : Ph.D
Major : Agricultural Extension & **Deptt** : Agricultural
Communication Communication
Minor : Social Sciences
Thesis Title : “**Designing Strategy for KVK Trainers’ Training in Trainers’ Skills through Distance Learning – A Study in North India**”
Advisor : Dr. B. Kumar

Looking to the large number of KVK trainers in the country and need for basic minimum competence in trainers’ skill, distance learning can be viable option for filling the gap. Now, SAUs are also being equipped with ICTs infrastructure and opportunities to provide courses through distance learning. Analytical research design was used for conducting the study, 43 KVK were selected through purposive sampling. 367 trainers were selected through census method from KVK of four states i.e. J&K, Punjab, Delhi and Uttarakhand. Trainers were taken from all three ranks i.e. programme coordinator, subject matter specialist and programme assistant. The findings of the study indicated that maximum number of the trainers were above 40 years, male, from Hindi medium schooling, specialization in field other than agriculture extension, subject matter specialist, Ph.D., had middle level of work experience, had not received training in distance learning, had received some training in trainers’ skill, had medium motivational profile and low level of job satisfaction. Main training areas preferred by trainers for training were use of training methods, monitoring and evaluation and training need assessment techniques. Media preferred by majority were print and internet. Most trainers preferred print, television and e-mail as method for distance learning. Top two ranked constraints in the process of distance learning were unavailability of infrastructure and insufficient interaction with instructors. Further the study revealed that job preference and training received in trainers’ skill had positive and significant relationship with opinion about training areas.



(Birendra Kumar)
Advisor



(Aparna Rajput)
Author

सारांश

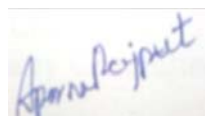
नाम	: अपर्णा राजपूत	परिचयांक	: २८०६५
षट्मास एवं प्रवेश का वर्ष	: द्वितीय, २००७-०८	उपाधि	: पी.एच.डी.
मुख्य विषय	: कृषि विस्तार और संचार	विभाग	: कृषि संचार
गौण विषय	: समाज विज्ञान		
शोध शीर्षक	: “ कृषि विज्ञान केन्द्रों के प्रशिक्षकों के प्रशिक्षण कला में दूर शिक्षा द्वारा प्रशिक्षण की रणनीति : उत्तर भारत में एक अध्ययन ”		
सलाहकार	: डा० बी. कुमार		

कृषि विज्ञान केन्द्रों में बड़ी संख्या में मौजूद प्रशिक्षकों को प्रशिक्षण कला में बुनियादी योग्यता देने के लिए दूर शिक्षा एक व्यवहार्य विकल्प है। अब, राज्य कृषि विश्वविद्यालय में भी आई.सी.टी. की बुनियादी सुविधायें मौजूद हैं। जो कि दूर शिक्षा के माध्यम से पाठ्यक्रम उपलब्ध कराने में सक्षम हैं। इस अध्ययन में विश्लेषणात्मक अनुसंधान का उपयोग किया गया था। ४३ कृषि विज्ञान केन्द्रों से सोद्देश्य नमूने तकनीकी से चूने गये थे, ३६७ प्रशिक्षकों को जनगणना विधि के माध्यम से चार प्रदेशों से (जम्मू-कश्मीर, पंजाब, दिल्ली और उत्तराखण्ड) चूना गया था। प्रशिक्षकों को सभी पदों में से यानी कार्यक्रम समन्वयक, विषय विशेषज्ञ और सहायक कार्यक्रम में से चुना गया था। अध्ययन के निष्कर्षों से पता चला कि अधिकतर प्रशिक्षक चालिस साल से ज्यादा उम्र के पुरुष थे, कृषि विस्तार के अलावा अन्य क्षेत्रों में से थे, हिन्दी माध्यम की स्कूली शिक्षा से थे, विषय विशेषज्ञ थे, पी. एच. डी. थे, कार्य अनुभव के मध्यम स्तर से थे, दूर शिक्षा में कम अनुभव प्राप्त किये हुये थे, मध्यम प्रेरक प्रोफाइल और नौकरी से संतुष्टि के कम स्तर से थे। प्रशिक्षकों द्वारा पसंद किये गये मुख्य प्रशिक्षण के क्षेत्र थे- प्रशिक्षण विधियाँ, निगरानी और मूल्यांकन, प्रशिक्षण की जरूरत मूल्यांकन तकनीकों में, अधिकतम प्रशिक्षकों द्वारा पसंद किया गया-प्रिंट और इन्टरनेट को। प्रशिक्षकों द्वारा सबसे ज्यादा पसंद किये गये प्रिंट, टेलिविजन और ई-मेल दूर शिक्षा के माध्यम के रूप में। बुनियादी सुविधाओं की अनुपलब्धता और प्रशिक्षकों के साथ कम सम्पर्क को दूर शिक्षा में कमी माना गया। आगे अध्ययन से यह भी पता चला कि नौकरी वरीयता और प्रशिक्षण कौशल में प्रशिक्षण प्राप्त का प्रशिक्षण क्षेत्रों के बारे में राय के साथ सकारात्मक और महत्वपूर्ण सम्बन्ध था।



(बी. कुमार)

सलाहकार



(अपर्णा राजपूत)

लेखिका