PAKISTAN JOURNAL OF EDUCATION

ALLAMA IQBAL OPEN UNIVERSITY
ISLAMABAD - PAKISTAN

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TO THE READER

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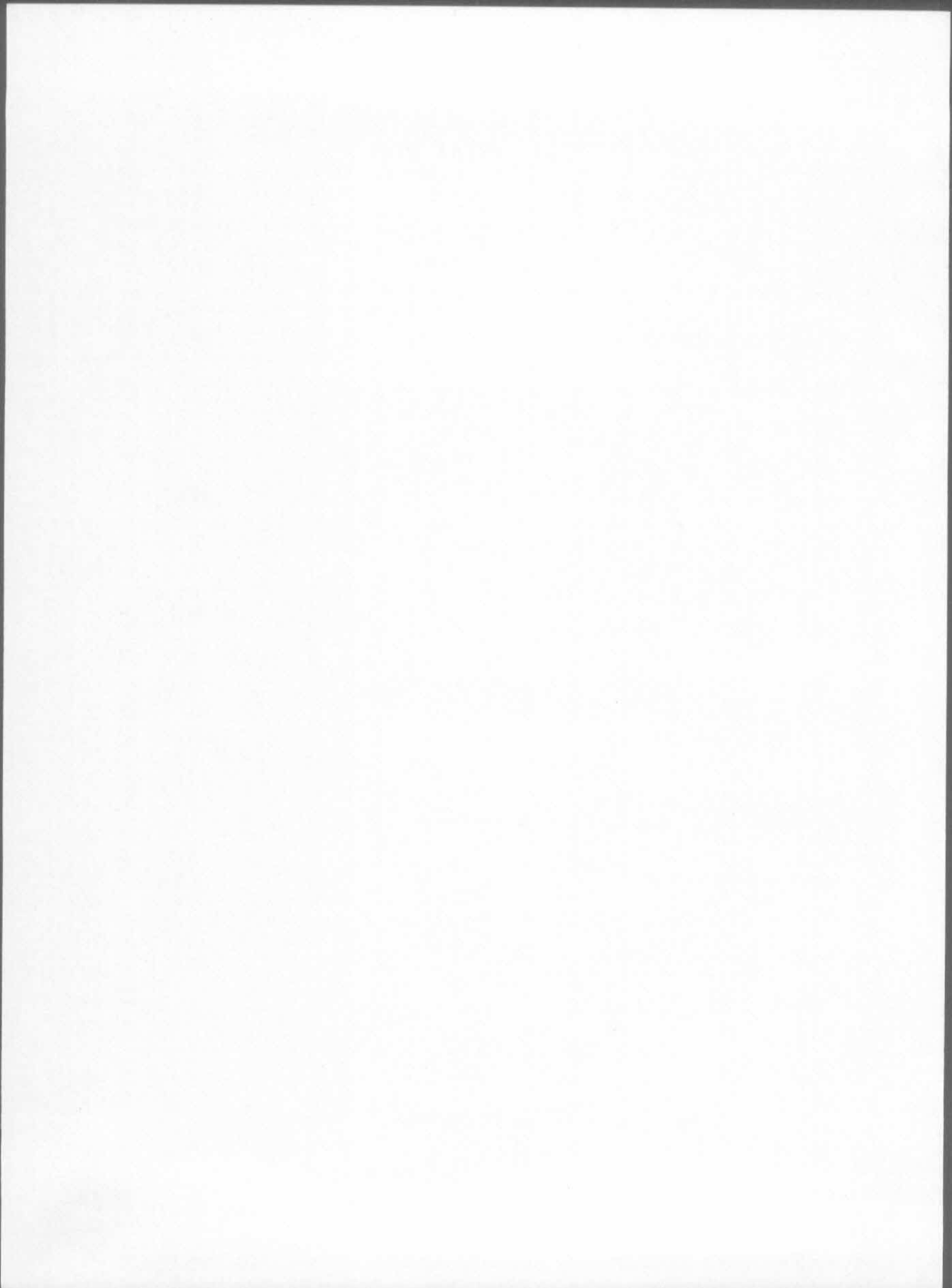
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LANGUAGES PLAY A VITAL ROLE IN THE REALM OF EDUCATION

Language has been described as an essential part of human culture. It is through this physical source of communication that one is inspired to express his inner thinking before the person being addressed. It is this very organ which makes the man most superior to other creatures of the universe. It is entirely due to this blessing that the human being has no parallel on earth.

The circumference of language is not limited merely to day-to-day speech and verbal expression. It holds a vast canvas and plays a vital role in all the spheres of life. Thus, the significance of the language has always had its in-depth impact in the annals of history.

The language also plays an important part in the realm of education. In acquiring knowledge, and getting oneself well-versed in all relevant disciplines, the role of language cannot be brushed aside. It is this very vocal gift bestowed upon by God that enables each of us to acquire education through this effective medium of instruction.

Through a well-known saying of our Holy Prophet (صلى الله عليه وسلم), the significance of language becomes much evident. More than fourteen hundred years ago, the Muslims were ordered even to go as far as China, which at that time was considered such a furthest place the camel-rider could go from Arabia. This saying runs as follows:

اطلبو العلم ولو كان فى الصين

(Even if you have to go to China far acquiring education, go there.)

After going through this *Hadith*, the main point comes to our mind is that the Arabic was the language of Arab Peninsula. The Arabs considered themselves much superior in expressing their feelings and thoughts in Arabic. According to them, the languages of the people of other parts of the world happened to be much inferior. Now, imagine the Command of the Holy Prophet (صلى الله عليه وسلم) through which these very people of the desert were instructed to proceed towards China. Here a question comes to mind: How these Arabic speaking people could achieve education in China – the centre of learning and knowledge since days immemorial – without knowing the language of the said society. And how they dared to learn Chinese which in their view was much inferior to Arabic.

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It becomes evident that through this *Hadith*, the Holy Prophet (ﷺ) had instructed two main things:

1. To acquire knowledge through crossing hundreds of thousands miles.
2. To learn the languages of other places without the sense of superiority of one's own language.

The noted poet, philosopher and educationist, Maulana Jalaluddin Rumi was well aware of the significance of languages. Being the head of world-famed *Madresa* of Konya, he used to teach his disciples in numerous languages, i.e., Arabic, Persian, Tarkish, etc. keeping in view the significance of languages, he had narrated a story in his *Mathnavi*, which is an eye-opener for those who do not like to learn other languages except their own. The story goes on this way:

"Once four persons assembled at a particular place. One of them was Persian, the other was Turk. The third was a Greek while the fourth guy was an Arab. A generous man gave then one *Dirham*. On getting this coin they set a wrangling as to how it should be used. In this regard the following dialogue took place among them:

Persian: Let us have *Angoor*
Arab : No, never! We should buy *Anab*.
Greek : No, *Astafeel* should be brought.
Turk : On no account these things should be purchased.
         Only *Ezam* would be enough."

The main thing these four persons were intending to have, was none but GRAPE. And they all were demanding this very thing in their own language, without knowing the fact that the demand of each of them was none but grape. In this piece of his *Mathnavi*, Maulana Rumi has stressed the point that due to ignorance of other's languages, these four persons became quarrelsome. In their folly they smote each other with their fists.

Through this episode, Jalaluddin Rumi had given us a lesson more than seven hundred years ago that "knowledge of languages is the most essential thing in the spheres of life". Now, it has become more important in this *global village*, where we are living just like family members. As such, the following old adage is required to be dispelled:

زبان یار من ترکی و من ترکی نمی دانم

(The language of my friend is Turkish, and I know nothing about it).

Dr. Mahmudur Rahman
Editor

LABORATORY WORK FOR TRAINEE CHEMISTRY TEACHERS (OPEN UNIVERSITY TEACHER TRAINING IN PAKISTAN)

By

Dr. Iqbal Shah*

Abstract

A survey of students' perceptions relating to chemistry laboratory work, was conducted in both Scotland and Pakistan. In the former country resources and opportunities for labwork are extremely well-developed while, in the latter, they are very limited. The perceived aims of labwork were explored along with the students' experiences.

The idea of pre-laboratory exercise and its power in making labwork much more effective are summarised. In Pakistan, many student-teachers (for secondary teaching) are being taught in an open university setting. The particular problems related to labwork in such a situation are explored and the development of the idea of the pre-laboratory exercise was extended to the idea of a 'paper laboratory' in order to meet some of the observed deficits.

The paper laboratory not only aims to prepare students for hands-on laboratory experiences, but also seeks to introduce the students to the nature and purposes of laboratories in a secondary school setting as well as simulate some of the approaches and data handling which good experiments might generate.

Four such paper laboratories are described and the students' perceptions of their usefulness discussed. This study offers an extension of the pre-lab concept which might be useful not only in open-learning contexts but also in other contexts, particular in relation to the training of secondary teachers of chemistry.

Key Words

Pre-laboratory exercise; laboratory work; paper laboratory; teacher training; open learning.

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Introduction

In Pakistan, students may take a B.Sc. degree in chemistry before applying to study for a B.Ed. as a preparation for teaching in secondary schools. In Allama Iqbal Open University, Islamabad (Pakistan), the training of secondary teachers poses particular problems. The students are scattered over vast areas of the country, coming together only rarely and, in many cases, there is not the local availability of suitable resources for the preparation of these students for the use of laboratories in schools. Indeed, although most schools have some laboratory facilities, frequently they are used to a very limited extent. Thus, aspiring secondary teachers do not even have experience from their pupil days on the use of laboratories in the teaching of chemistry.

In the context of teacher education, laboratory work requires specific goals. If it can be assumed that the first degree (B.Sc.) has offered laboratory work in such a way that students can see the place of the empirical in illustrating ideas, checking ideas and developing new insights, as well as giving students confidence in key practical skills, then laboratory work in teacher education has to be built on these lines. The 'if' is important. The experience in Pakistan is not encouraging.

In many developing countries like Pakistan, science teaching in secondary schools is carried out with the precise objective of preparing students only for a particular university entrance examination, or simply to pass the examination to get admission into some profession, university or college. This leads to a strong tendency for students and parents to want to achieve good grades rather than an understanding of science.

The style of teaching tends to be by lectures; laboratory work is heavily under-emphasised. Secondary and university teachers tend to follow only the set courses and, therefore, for them, teaching is *telling* and learning is *listening* in all too many science classrooms. Assessment is based on recall and recognition rather than understanding. Clearly, such an approach to chemistry teaching demotes understanding as a goal.

There are some laboratories in secondary schools, but the equipment is inadequate and not comparable with that in developed countries. In some schools, the students can see this equipment lying in its cardboard boxes but they are not allowed to use it. There are many reasons and many constraints on the teacher: for example, there is no fund for breakages, there is no fund for the chemicals, and there is no fund for the other necessities used in laboratory work. Many reports have highlighted these problems (eg. Report of Federal Board of Education, 1973).

Secondary chemistry teachers need to gain insights into how to make laboratory work an effective learning situation for school pupils. This goes beyond skills acquisition. It goes beyond the empirical verification of known facts. It must involve the development of meaningful practical situations which illustrate, challenge and provoke enquiry. It must make chemistry real to the young learner and it must illustrate the way the experimental is the key method of enquiry in a science subject. These are daunting aims for any teacher training programme. Seeking to achieve such aims in an open learning context is even more problematic: the theme of this paper.

Looking at University Laboratories

Carnduff and Reid (2003) provided a set of possible reasons for the inclusion of practical work in undergraduate courses in chemistry.
- Illustrating key concepts
- Seeing things for 'real'
- Introducing equipment
- Training in specific practical skills and safety
- Teaching experimental design
- Developing observational skills
- Developing deduction and interpretation skills
- Developing team working skills
- Showing how theory arises from experimentation
- Reporting, presenting, data analysis and discussion
- Developing time management skills
- Enhancing motivation and building confidence
- Developing problem solving skills

Of course, these must be seen as aims encompassing the laboratory programme for an entire degree course. Thus, no one experiment will achieve all these aims. There needs to be progressive development of these skills as the students move through an undergraduate course. Each laboratory course must build on the skills developed in the previous course. To move in the direction of a skills driven programme is not only central to the quality of student progress but results in a more efficient use of laboratory resources (Bennett and O'Neale, 1998). Sadly, such an approach does not even seem to operate in developed countries. For example, in a survey, Maskill and Meester (1993) found that many students in English university chemistry courses, performed over 50 titrations during their first year, not exactly a progressive development of skills.

Many of the skills listed by Carnduff and Reid (2003) become very difficult to develop in laboratory courses which follow detailed laboratory manuals. Students developed *recipe-following* skills (Johnstone, 1997) while the completion of laboratory reports which reflect the production of 'correct' results (often found by collusion with others) cannot justify the time and effort spent in laboratory provision. There needs to be a move back to student participation in experimental design and there are practical strategies for making this possible (eg. Johnstone *et al.*, 1994).

Chemistry Laboratories in Schools

Although the place of the laboratory in the teaching of chemistry is usually accepted, there is little evidence that laboratory instruction is related to student learning in any clear way (see Hodson, 1990; Tobin, 1990 and Gunstone, 1991). Looking at student classes at secondary school level, the observer is left with a strong impression that the students enjoy much of the activity. However, enjoyment is not the same as learning. The observer is also left with a clear impression that the laboratory time is a pleasant change from teacher-centred activities which may make considerable demands on student thinking. Laboratories may simply be a pleasant relief from more demanding activity. Perhaps, in more positive vein, the laboratories simply allow time for ideas to settle and coalesce in the mind, a thought suggested long ago (Johnstone, 1992).

There is a laudable idea that the laboratory can be used to develop the skills which characterise science (see Reid and Serumola, 2006a, 2007). These are sometimes also described as inquiry skills (see Hofstein and Kipnis, 2004). However, they can only be achieved if the laboratory experience is re-constructed very considerably to allow opportunities for such skills to be developed. The typical, recipe-driven laboratory is highly unlikely to achieve this and, in a country like Pakistan, such an approach is largely unattainable, given the background experience of teachers and teacher trainers, and the resources available. This difficulty has been noted by many (eg Keys *et al*, 1999).

There are some key issues here. The problem probably does not lie fundamentally with the teachers. For example, in Scotland, in the 1960s, a new syllabus in chemistry (1962) coupled with new textbooks (CTS 1-5), overtly built the teaching around guided inquiry. This included the laboratory programme. There was considerable evidence from that time of a vibrant laboratory experience (eg Wood, 1975; Johnstone and Wood, 1977) and the popularity of chemistry at school level in Scotland (along with physics) has remained for many decades (SQA, 1962-2006). Over the years, continual changes imposed from above (eg

syllabuses revisions, curriculum guidelines, requirements for assessment of laboratory work) has reduced the impact of this approach considerably. Overall, the history of these events shows clearly that teachers *are* able to undertake such an approach. The key factors controlling whether they *will* undertake such an approach lie in the curriculum specification imposed nationally (in Scotland, in this case) and on assessment demands. Indeed, assessment can totally contort the outcomes (eg Scottish Qualifications Authority, 1999). Some very recent work (El-Sawaf, 2007) has shown, in a much wider context, that teachers in two very different countries identify very precisely the straightjacket that curriculum specification and assessment requirements impose on educational change.

El-Sawaf (2006) in her study showed that the teachers seemed willing to move forward. However, the 'system' of the curriculum and assessment made it too hazardous for them to do so. Teachers are very often seen as 'technicians' doing what their 'masters' have decided they should do. As long as the rewards come from the correct replication of knowledge, the teaching strategies will not change.

In laboratories, the emphasis is on crediting performance related to the correct completion of the task and the production of a correct answer. Roberts and Gott (2006) have illustrated the problem of assessment in the English GCSE system, showing difficulties in current practice, with suspect validity no reliability. Again, this system is imposed on teachers. Earlier, Roberts and Gott (2004) offered some useful ideas for assessment of procedural understanding, as it applies in the English school science curriculum.

The laboratory experience, however, can have a very useful but often undervalued outcome. It can make the taught chemistry real. It can illustrate what is presented in text form. It can 'bring alive' reactions which teachers or books can describe. There is no substitute for seeing it first hand. In a recent study (Hussein, 2006), in a country where there is minimal laboratory experience, the lack of 'feel' for the chemistry was observed again and again in a study which looked at understanding as well as the development of attitudes.

Hofstein and Lunetta (2003) have offered an overview of 20 years of research relating to laboratory instruction at school level. Much of the evidence they consider can be seen in laboratories in many countries. Too often, aims have centred on the manipulation of equipment (see page 31), with little or no emphasis on the idea that the minds of learners should be exploring ideas. They also raise the issue of group work. While there are many social benefits for groupwork, the clear evidence does suggest that it aids learning when learning is seen in terms of conceptual understanding (see Qin *et al.*, 1995).

The whole question of teacher training and continuing professional development has to be considered. This is not easy and much is assumed: that training offered will influence practice in the teaching situation. Very often this simply cannot happen easily in that the constraints imposed from outside the school make the implementation of ideas almost impossible (see Carroll, 2005 and El-Sawaf, 2007).

Gough (1992) notes that laboratories, as currently conceived, are not needed for most. He notes the problem: Are school laboratories to resemble the places where scientists work? He states that they are, "places where students follow recipes, perform routine procedures, rehearse technical skills ...., demonstrate the reliability of selected .... scientific 'laws' or phenomena - and falsify their data when the procedures and demonstrations produce inconclusive or 'unexpected' results." He raises the questions: Are labs for play? Are they for science? Are they for learning? Although few might agree with him on all his points, these are fundamental questions and go to the heart of the issue. Can the school laboratory give students any insight into the process of real scientific enquiry as practised by scientists? Can the school laboratory be a place where meaningful learning takes place or are laboratories places where the learners can simply see the reality of chemical phenomena and 'play' with chemicals, places where there is space to enjoy chemistry and break away from the over theoretical and highly symbolical way it is often taught?

What most research does not address is *why* learning is so difficult in laboratory classes. One exception is the work of Johnstone in university laboratories where he has addressed this issue for older students. Arising from his findings on the importance of looking at information load in learning, Johnstone and Wham (1982) predicted that laboratories simply could not offer good learning experiences (in terms of understanding) because of information overload. This hypothesis was tested in laboratory learning situations (Johnstone *et al.* 1994, 1998) and showed that, by reducing the load, learning increased quite dramatically. The same result has been found again and again in learning outside the laboratory (eg. Danili and Reid, 2004; Hussein, 2006). The importance of understanding the psychology of learning as it applies to laboratory learning needs to be reconsidered.

Why do Laboratories in Chemistry may not Work

The evidence from the literature raises all kinds of doubts about the effectiveness and efficiency of the laboratory experience in school chemistry in

terms of learning outcomes, which are achievable. The reasons could be grouped into five broad areas (see figure 1).

Figure-1
problem Areas for School laboratories

The problem of shared aims   Resources, training and confidence

Why school chemistry laboratories may not work → Who decides?

Assessment issues   The psychology of learning
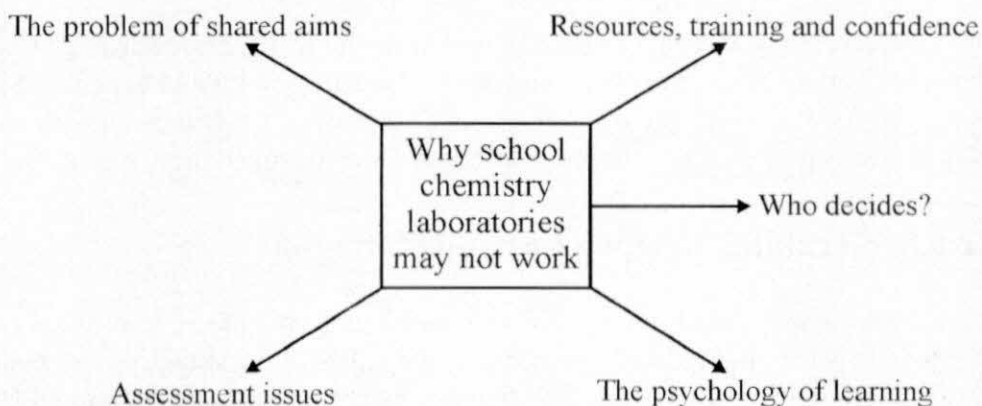
There is a confusion over aims. Some aims are desirable but the laboratory experience makes it difficult for achievement. Other aims are less important and are over-emphasised. In general, the learners and the teachers do not share the same goals while the curriculum planners often have yet a different set of aims.

In many countries, laboratory facilities are good while, in most, they are of very variable quality. Laboratory experiences depend critically in resource levels and laboratories are expensive to equip and run. However, the most important resource is the teacher. Training is needed along with the freedom to apply what is learned. Above all, teachers need to be confidant not only in the practical experimental aspects but also in the way they use the laboratories in learning and in the way the outcomes are valued and rewarded. Even here, there are problems. There is clear evidence that teachers revert back to practices they experienced in their own schooling even after apparently espousing very different paradigms of thought (Carroll, 2005).

This leads to a vital and often ignored issue. The nature and purposes of laboratories, the ways things are resourced or assessed and, indeed, what has to be done are very often decided by those *outside* the school. It is sometimes suggested that teachers are the gatekeepers of learning. However, this function has increasingly been assumed by those who centrally decide educational policy and assessment, teachers being left to implement what others have decreed. Laboratory effectiveness can never be enhanced significantly until this issue is seriously addressed.

The laboratory experience, by its very nature, is high on information. It has been clearly demonstrated that this overload can make learning (seen in terms of understanding) almost impossible. This issue has been addressed in university laboratories to some extent but the clear findings from this research have not been applied to school chemistry where the same problems will arise.

Very often assessment determines everything. If the rewards come from achieving certain skills, then both students and teachers will emphasise these skills. Very often, skills which are easy to assess take priority while those which are less easy to assess receive scant attention. The latter may be much more important.

Teacher Training in Open Learning Situation

This paper seeks to look at the initial perceptions of trainee secondary chemistry teachers in Pakistan, compared to the views of those undergoing the B.Sc. degree in Chemistry in Pakistan. The trainee teachers are scattered all over Pakistan and are taking their B.Ed. degree in an open learning context. They come together for very short periods during which some laboratory instruction is undertaken.

Comparison will also be made with a sample of Level 1 B.Sc. students in Scotland, this group being likely to hold views more typical of a developed country where laboratory work is well established and resourced at all levels in education. Unfortunately, there are insufficient numbers in teacher training in Scotland in Chemistry for comparison purposes, there being no great shortage of chemistry teachers at the moment and, therefore, no need to train many new teachers. The purpose of the comparison is simply to see the key areas where there is potential for development in Pakistan, recognizing that any precise comparison is meaningless in that the educational systems and cultures of the two countries vary enormously. Variables simply cannot be controlled.

The study reported here started by seeking to gain a quick overview of the perceptions of chemistry students and student teachers in Pakistan in relation to laboratory work. It was possible to conduct a similar survey with first year Scottish undergraduates to look for areas where there were very large differences. From this, it was possible to identify a possible way forward in developing new materials which assist in developing better laboratory experiences in chemistry in Pakistan secondary schools.

Student Perceptions of Aims

At the first stage of this study, in order to pinpoint some of the key issues for students in chemistry teacher training in Pakistan, five groups of students completed a short questionnaire towards the end of their year's study (table 1).

Table-1
Samples Used

Student Group	Sample Size	Year
Scottish Level 1 students	193	2001
Scottish Level 1 students	229	2002
Pakistan Level 1 students	229	2002
Pakistan Level 2 students	150	2002
along with		
Pakistan Trainee Teachers (B.Ed.)	118	2002

The aim was not to make detailed comparisons between the two countries in that the two systems of education are radically different in structure, organization and resources. The aim was to look at how perceptions changed in Pakistan as the students' experiences of university chemistry grew, the trainee teachers being drawn from the level 1 and level 2 students in Pakistan. There was also the opportunity to compare the Pakistani situation (where resources and opportunities for labwork are limited) to that of Scotland (where labwork is extremely well developed at both school and university).

In all this, the aim was to find the key issues facing labwork with trainee teachers (B.Ed students) in Pakistan. Not all the questions in all the questionnaires are discussed here. Only those which have a direct bearing on describing the present situation and possibly identifying areas for future development are discussed.

Much research has identified the lack of clearly specified aims for laboratory work in chemistry (eg. Johnstone and Letton, 1988 and 1990). Therefore, it was useful to explore what the students saw as the main reasons for undertaking laboratory work as part of their chemical education. For this purpose, students were offered eight reasons which might be important in seeking to include labwork in chemistry education. They were asked to select three which applied to them. They did not have the place them in any order but just select three. The data obtained (presented as percentages for clarity) are shown in table-2.

Table–2
Reasons for Labwork: Student Perceptions

		Schotland Lavel 1	Pakistan Level 1	Pakistan Level 2	Pakistan Bed
	Samples	211	229	150	118
1	Experimental work makes chemistry more enjoyable for me.	28	45	43	36
2	Experiments illustrate theory for me.	44	35	36	36
3	Laboratory work allows me to test out ideas.	38	31	37	28
4	Experiments allow me to find out about how materials behave.	17	42	31	24
5	Experiments teach me chemistry.	17	37	26	23
6	Experimental skills can be gained in the laboratory	42	26	27	42
7	Experiments assist me to plan and organize	09	12	14	11
8	Experimental work allows me to think about chemistry	31	30	45	33

Because of the nature of this kind of rating data, it is difficult to check statistically for significance. Indeed, while the level 1 and level 2 groups in Pakistan are very similar in make up, the group of trainee teachers are self-selected from those who have completed a degree in chemistry and are likely to be completely different in make-up. Of course, the Scottish group have had a completely different educational journey in chemistry and any statistical comparison is largely meaningless. Nonetheless, the following general observations can be made.

Trends with Pakistani Data

In two questions (2 and 7), ratings have not changed while, in 3 questions (1, 4 and 5), ratings have fallen. The decline in question (1) reflects the decline in positive attitudes with experience - a worrying trend. The decline in (4) and (5) may simply reflect increased realism: with experience, students increasingly appreciate that experimental work has severe limitations in what it has achieved for them.

The rise in question (6) occurs between the second year and the trainee year and may either indicate an emphasis which they have experienced or a commitment to a purpose for their own teaching. In two questions (3 and 8), the highest rating occurs for the second year and may reflect the style of laboratory work in that year.

Trends with Pakistani and Scottish Data

In looking at the Scottish data in the context of that obtained from Pakistan, it has to be recognised that Scottish students have had extensive experience of experimental work in school chemistry while Pakistani students

often have very limited experience. Even at university levels, Pakistani students often have limited labwork opportunities. Their views, as expressed here, may reflect aspiration as well as reality.

Overall, Scottish students are much less convinced that experiments allow them to find out about how materials behave or, indeed, taught them chemistry. This may simply reflect greater experience of how school laboratories are run in Scotland while the Pakistani having lack of experience may give rise to aspiration rather than reality. In contrast, Scottish students are more convinced that experimental skills can be gained in the laboratory. This almost certainly reflects the curriculum emphasis in Scottish school syllabuses. It is notable that no group rates the 'testing of ideas' well ahead of the other 7 options. Given that the gathering of empirical evidence is the basis of all the sciences, this is a matter of concern although it probably reflects what actually happens in so many laboratories where the experiments are designed to illustrate or to verify known 'answers'. This is consistent with the findings from Serumola and Reid (2006, 2007) where they observed a consistent failure of young secondary pupils to appreciate the place of experimentation in the world of science.

An Agenda for Action

It is a matter of concern that the students teachers do not see experimental work as the place to test out ideas and, of the Pakistan groups, are least disposed to see laboratories as places where the behaviour of materials can be explored. Indeed, they do not appear to see laboratories as places where chemistry can be learned although the Scottish group are not enthusiastic about this either. Clearly, there is scope for improvement in the preparation of secondary teachers for Pakistan.

Scottish Students: Reliability

The questionnaires were also used to gain insights into students' opinions about their school and university laboratory experiences in chemistry, as found towards the end of the first year at university after the students had completed three laboratory courses: inorganic, organic and physical. The question (in the semantic differential format developed by Osgood, 1955) is shown in full (with all questions shown polarised one way - positive to the left - for clarity) with the response data shown as percentages.

The survey was used again at the same time the following year with a sample of 211 students. Partly, this was carried out to explore changes in one of the three laboratories in Scotland although this is not discussed here. However, in this one question, their experience of school chemistry was explored and the university laboratory changes would not affect this. It was, therefore, possible to compare the responses for each question statistically in order to see if the questionnaire was reliable in a 'test-retest' sense. As all the parts of all the questions were designed to explore different issues relating to laboratory work, internal consistency is not relevant. The meanings of reliability in the context of science education are discussed in full in Reid (2006) where the importance and nature of reliability is explored. This paper also addresses many of the common pitfalls in this kind of measurement where inappropriate statistics are often used: particularly, parametric statistics being used when normality cannot be assumed; incorrect use of ordinal numbers in a ratio sense.

Table–2
Questions in Common for Two Successive Year Groups

What are your opinions about your school laboratory experiences in chemistry? Tick ONE box on each line. (data shown as %)

Samples Sizes									Chi-Square
N = 193	Useful	15	32	23	15	8	6	Useless	7.6 (df4)
N = 211		15	40	27	9	7	3		n.s.
N = 193	Helpful	15	28	29	12	9	5	Not helpful	7.2 (df4)
N = 211		11	35	31	13	4	3		n.s.
N = 193	Meaningful	11	26	28	17	12	3	Meaningless	2.9 (df4)
N = 211		8	29	32	19	8	3		n.s.
N = 193	Understandable	24	33	24	9	5	3	Not understandable	3.5 (df4)
N = 211		17	36	27	10	6	2		n.s.
N = 193	Satisfying	9	23	31	18	8	9	Not satisfying	5.9 (df4)
N = 211		10	21	30	31	13	5		n.s.
N = 193	Interesting	15	28	30	13	6	4	Not interesting	1.4 (df4)
N = 211		15	27	28	15	9	4		n.s.
N = 193	Well organised	17	28	25	14	8	5	Not well organised	4.1 (df5)
N = 211		11	26	29	15	7	8		n.s.

A comparison of the responses for each part of this question for the two successive years using chi-square as a contingency test showed that no pattern of responses differed statistically in any question, suggesting that reliability was satisfactory. This was encouraging for the use of the questionnaire with Pakistan students. Reid (2003) has outlined the conditions for which test-retest reliability is likely to be high for such questionnaires and the analysis here is consistent with this.

Although table 2 is presented to illustrate the likely test-retest reliability of the questionnaire questions, the data show that, in the eyes of the students in Scotland, their experiences of laboratory work at school level have been largely positive, reflecting an education system where laboratory is well established and highly integrated into the teaching programme.

In Scottish schools and universities, working in pairs is quite common. Another question explored what Scottish students thought of this. It was found that students overwhelmingly (over 75%) liked working in pairs or small groups at school level, with about 15% preferring individual work. In university laboratories, the preference for working in pairs or small groups rose to 85%.

Before looking at the responses of students from Pakistan, the reactions of students in Scotland to their university laboratory experiences is summarized.

Chemistry at University Level

When asked about their opinions on their overall university chemistry laboratory experiences in all chemistry laboratories in Scotland, the following data pattern emerged:

Helpful	22	45	21	6	2	0	Not helpful
Useful	19	34	17	11	10	3	Useless
Meaningful	18	32	20	17	7	2	Meaningless
Understandable	13	41	24	10	7	0	Not understandable
Satisfying	13	33	31	11	8	0	Not satisfying
Interesting	16	32	29	11	5	2	Not interesting
Well organised	24	36	24	5	5	0	Not well organised

In general, students were positive. It is worth-noting that two of the three laboratories they had experienced at university level used pre-laboratory exercises.

Laboratory work in Scottish schools and universities is well established and well organised. This is reflected in the data obtained. It is easy for students to be critical of certain aspects and this may sometimes reflect a lack of commitment. Certainly, the student groups seemed to be aware of some key purposes for laboratory work and see it is a relevant part of their education in chemistry. The overall impression from the questionnaires was that students saw the importance of laboratory work and wished it to be a successful and satisfying experience.

Having looked at the Scottish setting, with its well developed programmes of laboratory work at both school and university, the same approach was used with students in Pakistan to see how they found their laboratory experiences.

Pakistan First year B.Sc. Students

In the questionnaire used in Pakistan, similar questions were asked. The pattern of results is discussed briefly, again shown as percentages for clarity.

What are your opinions about your school laboratory experiences in chemistry?

Tick ONE box on each line.

Useful	51	25	11	4	3	4	Useless
Helpful	55	15	8	7	6	4	Not helpful
Understandable	45	16	17	6	4	4	Not understandable
Satisfying	40	24	14	10	5	4	Not satisfying
Interesting	48	17	7	8	7	14	Boring
Well organised	25	24	17	9	4	13	Not well organised
The best part of chemistry	42	22	13	7	4	4	The worst part of chemistry
Not enjoyable	43	20	8	9	5	10	Enjoyable

The question above was not quite identical to that used in Scotland. However, some general observations can be made. In general, responses to most questions showed the Pakistan sample as more positive than the Scottish sample, suggesting that there is a strong element of aspiration in their responses: responders have a very limited experience of laboratory work and this expresses what they would like it to be. However, they are less positive about the organisation, consistent with the poor facilities and laboratory use in Pakistan.

When asked about their preferences, 69% had liked working in small groups at school and a similar proportion wished group working at university. However, about one quarter wished for individual working.

Another question sought to probe their experiences in chemistry laboratory work, using the Likert approach (Likert, 1932)

Think about your past experiences in chemistry laboratory work.

Tick the box which best reflects your opinion.

		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
(a)	I believe that the laboratory is a vital part in learning chemistry	58	35	5	2	0
(b)	I prefer to have written instructions for experiments	31	48	13	7	0
(c)	All the chemicals and equipment that I needed were easily located	24	33	16	20	5
(d)	I was unsure about what was expected of me in writing up my experiment	15	29	31	11	7
(e)	Laboratory work helps my understanding of chemistry topics	44	39	10	2	3
(f)	Discussions in the laboratory enhance my understanding	39	41	8	7	2
(g)	I only understood the experiment when I started to write about it afterwards	21	32	18	22	5
(h)	I had few opportunities to plan my experiments	17	40	16	18	7
(i)	I felt confident in carrying out the experiments in chemistry.	38	41	11	6	3
(j)	I found writing up about experiments pointless	15	25	21	25	12
(k)	The experimental procedure was clearly explained in the instructions given	28	38	17	8	3
(l)	I was so confused in the laboratory that I ended up following The instructions without understanding what I was doing	7	25	14	28	22
(m)	I feel that examinations should take account of laboratory experiments I have completed	39	36	14	4	4

In many of the questions, students' responses were positive (a,e,f,i,k,l,m) but in many of the others, opinions tend to be scattered. Not too much can be read into the responses, however, due to the limited experience of the students. Nonetheless, they feel that the experimental aspect is important and will assist them. However, they are not so sure about recording data and there is evidence of lack of clear organisation again.

Laboratories in Teacher Training Programmes

Czerniak and Lumpe (1996) note that many teachers receive science instruction in educational settings that separate laboratory work time from lecture time. Information was given but not necessarily integrated with experiments.

Usually the teaching came first and the laboratory experiences came later (Czerniak and Lumpe, 1996). This is typical in Pakistan.

Looking specifically at university courses, Johnstone and Letton (1990) noted that, with all resources given to practical work, many of the aims set by the designers are not being achieved very well. However, in studies where pre-laboratory activities have been employed (Johnstone, et al., 1994) and (Johnstone, et al., 1998), there is clear evidence that learning has increased and motivation has been enhanced. This may offer a useful way forward for Pakistan.

Designers of university laboratory courses might, on reflection, agree that their students experience is a continuum of learning experiences. These might include: previous school work, chemistry lectures, courses in parallel subjects, reading, the internet, workshops, pre-laboratory activities, laboratory experiments, recording, interpreting, reporting, extending, interactive questioning, assessment and feedback, revision and examinations. In considering pre-laboratory exercises, as well as any other material, it is important to design material and methods to take account of this continuum and the requirements for effective learning.

At school level, if the goals of laboratory work are to be met, then the teachers will be the leaders with curiosity, confidence and enthusiasm for science teaching (Horton and Hutchinson, 1997). Developing this quality of teacher is a major problem in Pakistan. Training such teachers in an open learning situation raises even more issues.

Keegan (1996) outlined the educational philosophy of open learning with its emphasis on giving learners choices about:
- Medium or media: whether print, on-line, television or video;
- Place of study: whether at home, in the work place, or any other;
- Time for study: any time;
- Support mechanisms: whether tutors on demand, audio conferences or computer-assisted learning;
- Entry and exit points.

Therefore, the purpose of this study was to develop some model, which can offer support in developing laboratory work in an open learning system. The situation is complicated in that the laboratory experiences had to prepare the students for secondary teaching while being at a postgraduate level in a context where bringing the students together was more or less impossible.

Past research has shown that university laboratories in chemistry tend to be learning situations which are very high on information (see Johnstone and

Wham 1979, 1980, 1982). Students can easily be overwhelmed facing unfamiliar apparatus, instructions, with skills to be recalled or learned, background knowledge to be recalled and the actual experiment to be performed. Figure 1 illustrates what can face students.

Figure–2
What might face a student in the laboratory
(derived from Johnstone and Wham, 1982)

Names of apparatus and
materials to be recognised
and associated

Theory to be recalled

Skills to be recalled

New skills to
be learned

New written instructions

New verbal instructions

Input from Actual
Experiment
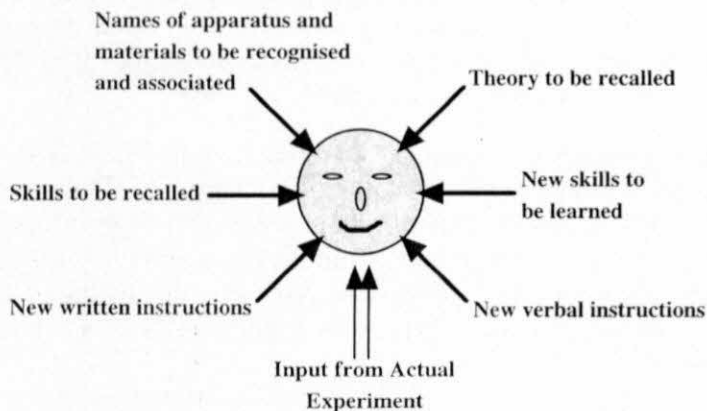
To solve this problem, an idea of the pre-laboratory task was developed. This might involve a short set of exercises (on paper or at a computer) which prepared the mind for what was coming in the experiment, thus reducing the potential information overload facing the student. Carnduff and Reid (2003) reviewed the use of prelabs in the UK and beyond and collated some of the purposes for such prelab experiences. Their check list is summarised here:

1. Stimulate the student to think through the laboratory work, with a mind prepared for what will happen.
2. Encourage students to recall or find facts such as structures, equations, formulae, definitions, terminology, symbolisms, physical properties, safety hazards or disposal procedures.
3. Check that the experimental procedure has been read and understood and it can offer practice in data handling, drawings or calculations of the kind to be used in the write-up.
4. Lead the student into thinking about the procedure or the concepts and may encourage the student to connect and revise prior knowledge, thus providing some reassurance about grasp of the topic.
5. Offer experiences in planning (the apparatus, the procedure, the quantities, the data presentation).
6. Bridge the (common) gap between laboratory and lecture, experiment and application.

Earlier research (Johnstone *et al*, 1994, 1998) had shown the enormous power of the pre-learning idea in increasing student understanding (as well as developing more positive attitudes) as well as hinting at the use of post-laboratory exercises to test for understanding and give opportunities for students to apply ideas learned.

The idea of the paper laboratory was suggested, this being a development of the prelab and postlab ideas. The paper laboratory was conceived as a possible means to meet the observed deficits observed in the response to the questionnaire questions along with being a possible way forward in an open learning situation, seeking to meet the needs of trainee teachers in developing their skills in using laboratories in a constructive way in the future.

In a sense the paper laboratory was planned to break a cycle of poor practice in Pakistan. Trainee teachers had little experience of laboratory work in their own school days, meaning that they had no model of good practice. Their undergraduate experiences had also been limited. In an open learning setting, they could not brought together for extended periods of time to gain the necessary experience and, indeed, in their short times together, they faced resource and experience problems.

Aims of Paper Laboratories

It has been noted that it is difficult to bring students together into laboratories for anything other than very short periods of time while the students have limited experience of laboratories from their undergraduate days and almost no models of good experience from their school days. Therefore, it is imperative to use what little opportunities that do exist extremely effectively.

The aim in this study was to extend the use of prelabs and postlabs into what became called 'paper labs'. These paper labs had three general aims:
- To prepare students for hands on laboratory experiences;
- To introduce the students to the nature and purposes of laboratories in a secondary school setting;
- To simulate some of the approaches and data handling which good experiments might generate.
- To apply the outcomes from experimental data in practical situations.

In an open university setting for training chemistry teachers, it is particularly important to set clear goals which are shared with students. There will be very limited time for 'hands on' laboratory experience in such courses but it is possible that some outcomes can be achieved through paper-based exercises. These paper-based laboratories must take into account the previous experience of the students (through their B.Sc programmes) and the needs of the students as they enter secondary teaching.

The intention of the paper lab was not to replace traditional wet labs. The aim was to prepare the students for their limited access to wet labs so that the time could be used much more profitably. Another aim was to offer to students who were trainee secondary teachers an opportunity to see what could be done in a school laboratory where they had had little experience themselves as school pupils. The paper lab aimed to serve as a kind of model of good practice.

For undergraduate chemistry laboratory work, paper laboratory aims may or may not be similar to the actual laboratory work. These aims can be grouped into the following broad overlapping themes. Many are very similar to the set of aims set out by Hofstein and Lunetta (2003). The students (trainee teachers) may be able:

(a)   To see something of the way science operates as it seeks to gain answers from the physical world;

(b)   To think about practical problem solving;

(c)   To understand theoretical models and their application in the real world;

(d)   To illustrate chemical ideas.

(e)   To understand /explore the procedure of experimental work.

(f)   To find the applications of chemistry knowledge.

Development of Paper Laboratories

In this exploratory study, a set of four paper laboratories was developed. Together, they were designed as a set with the following features:

(a)   They were based on chemistry which would be relevant for school courses at secondary level but the demand level of thinking was designed to be appropriate for B.Sc. graduates in Pakistan.

(b)   They were set in several parts, each with exercises and questions to be returned to a tutor by post who would then send the next part (for practical reasons, in the trial, they were used as a single package).

(c)   They tried to offer to the student's insights into ways by which experimental work could be used in secondary teaching.

(d)   They used accessible layout, diagrams and illustrations, to offer a model for teachers to use in schools.

(e)   They incorporated the features of pre-laboratory experiences, the gaining and interpreting of experimental evidence, the application of findings in real life.

(f)   The tried to make chemistry real and relate it strongly to applications.

The four paper labs had the following themes (reflecting syllabus needs in Pakistan):

(1)   Making simple Inorganic Compounds

(2)   Corrosion and Electrolysis

(3)   Carbonated Rocks
(4)   Fats and Oils

The four paper labs were constructed and then revised in the light of comments from experienced chemistry teachers in Scotland. These paper labs were sent to Pakistan and distributed by post to a sample of chemistry students who were training to be teachers. Selections from the paper labs are shown in the appendix.

It proved impossible to gain information about the effectiveness of such paper labs in enabling student teachers to become better equipped to operate laboratory experiences for school pupils. This would have required several years of work. What was possible was to allow a sample of student teachers to try them out, and to look at their opinions of the paper labs. This was conducted with 150 students. 75 evaluation sheets were returned by post, a return rate of 50%.

Presentation and Analysis of Data

The data collected through the use of the four paper labs in this study are presented below. The survey used is shown, with the responses (N=75) in percentages.

		SA	A	N	D	SD
(1)	The organisation of the paper labs was excellent.	35	60	4	0	0
(2)	The presentation of the material in these paper labs was clear.	42	53	3	1	0
(3)	The paper labs were too long.	0	15	31	46	5
(4)	I did not like the style of the paper labs.	0	1	6	76	15
(5)	The knowledge required to use the paper labs was reasonable.	24	56	16	0	0
(6)	The paper labs involved too much practical detail.	9	36	23	25	5
(7)	I found the paper lab useful to prepare labs in future.	41	41	8	10	0
(8)	The paper labs did not add to my understanding of chemistry.	1	5	11	48	32
(9)	The paper labs have altered my views of practical work.	11	63	20	4	1
(10)	I found paper labs to be little more than a cookbook.	4	11	35	36	11
(11)	Overall, I found useful information to help me as a teacher.	43	45	6	1	0
(12)	The style of the paper labs was different from my usual practical book.	33	49	5	3	0
(13)	I am even more confused about making simple inorganic compounds.	0	11	12	53	23
(14)	I never really understood corrosion and electrolysis until I completed the paper lab.	16	21	11	31	19

(15) I understand about soaps and detergents much better now.   25   55 11 5   1

(16) The paper lab on chalk gave me many ideas for my future   28   48 17 6   1
      school pupils.

(17) Please make any comments you wish about the paper labs.

The students free response comments (question 17) were collated under the following headings:

		Percentage
(1)	Style was interesting and new	24
(2)	Useful for teachers	19
(3)	Needs to be polished	16
(4)	Useful for students	13
(5)	Informative	15
(6)	Well organized	11
(7)	Thought provoking	9
(8)	Improved my knowledge about labs	9
(9)	Will change my teaching	9

From the student responses, clearly they appreciated the paper labs and see their usefulness. Overall, the students have positive attitude towards these paper labs from all aspects. Of the specific topics covered by the paper labs, the responses suggest that, in three of them they have been particularly successful. However, there is some reservation with the students about the understanding of corrosion and electrolysis.

Their views about mechanical issues are positive: issues like organisation, presentation and length of the paper laboratories. The comments about the knowledge which was presented in these paper labs and the understanding of these paper labs are both positive. Clearly the paper labs are regarded as useful and the style certainly appeared to be new and interesting.

In looking at their free responses, many are encouraging. However, it is a matter of considerable concern that so few indicated in any way that the prelabs would change their teaching. This may simply reflect the recall and recognition basis of assessment in Pakistan, this giving a context where the skills and experiences arising from labwork would bring few benefits in terms of examination performance. There is considerable pressure on teachers to get the maximum examination performace from students.

It was not possible to interview students to gain further insights on the questionnaire results, with students scattered all over a large country. Equally, it

was not possible to set any kind of formal test to check the value of the paper labs. Their content was so totally new, with no control group being possible. There was no way to get them together for any formal testing procedure.

Thus, while the data obtained are encouraging, they offer no insight into the effectiveness of the paper labs in teacher training or in enhancing pupil learning. The study has shown that the idea of the paper lab is acceptable and that the respondees think that some of the aims are being fulfilled. This is sufficiently encouraging to allow a fuller development of the idea across a wider range of themes, with the occasional laboratory experiences being re-structured in the light of them. It will take many years to gain any evidence if they are having the desired affect in enhancing the laboratory experiences of pupils in Pakistan.

Conclusion

The paper lab idea was based on the evidence gained by the survey of what was going on in laboratory work in Pakistan as well as on the findings from research related to laboratory learning. The latter had shown the power of the prelab and postlab ideas in enhancing undergraduate laboratory experiences and learning. One critical feature was that the paper labs were designed at the level of those who had completed their B.Sc. in Chemistry in Pakistan while, at the same time, using chemistry which was relevant to the school syllabus in Pakistan, offering some kind of model of how such experimental work might be undertaken in schools.

Time did not permit a long term study of the effectiveness of the paper labs with trainee teachers or, more importantly, on the quality of learning achieved by school pupils. That is an experiment for the future. However, this study has shown that they are workable in the context of the situation in Pakistan where laboratory work at school and first degree level is not too well established.

This group of trainee teachers found the paper labs helpful and the signs are that they do offer a kind of template for good practice, which will benefit pupils of the future. It is to be hoped that scientific attitudes and skills can be developed in science trainee teachers by the purposeful use of the paper labs and, by putting the students in activities, involving them in discussion and designing the experiments.

An important question is whether the paper labs will bring benefit to the pupils. However, with so little practical work currently in most schools, the paper labs offer a template illustrating how to run experimental work and what it can do.

This may be particularly important with trainee teachers who themselves have no model from their own school days of how laboratories should operate.

Of course, paper laboratories are not the same was 'wet' laboratories. They cannot give the students the 'feel' for the use of equipment and chemicals. There are no smells, no colour changes, direct observations from real equipment or reactions. They cannot train students for the practical skills in using equipment and handling chemicals safely.

The paper labs seek to *prepare* students so that they can make more of their limited time in 'wet' laboratories. They seek to prepare students by linking experimental to theoretical ideas. They seek to provoke thought and encourage the kind of thinking in which the experimental is seen as the source of evidence from which conclusions can be drawn.

It has to be recognised that the empirical is the fundamental way in which science enquiry works and, therefore, this has an important place in teaching in a subject like chemistry. However, laboratory teaching is expensive in time, manpower and resources. It is essential that the maximum benefits are obtained from the laboratory experiences. The idea of the paper labs was to offer the support and direction necessary so that student teachers, in an open learning situation, would be better equipped to take advantage of their limited time in laboratories during teaching as well as preparing them for the use of laboratories in schools when they become teachers.

REFERENCES

Bennett, S. and O'Neale, K., (1998), Skills development and practical work in Chemistry, *University Chemistry Education*, 2(2), pp. 58–62.

Carnduff, J. and Reid, N., (2003), *Enhancing undergraduate chemistry laboratories, Pre-laboratory and Post-laboratory exercises-examples and advice*, London, The Royal Society of Chemistry.

Carroll, M., (2005), Experience, Intention and Practice in the Teaching of Five to Fourteen Primary Science, PhD Thesis, University of Glasgow, Glasgow.

Czeriak, C. M. and Lumpa, A.T., (1996), Relationship between teacher beliefs and science education reform, *Journal of Science Teacher Education*, 7(4), pp. 247–266.

Danili, E. and Reid, N. (2004), Some Strategies to improve performance in school chemistry, based on two cognitive factors, *Research in Science and Technological Education*, 22(2), pp. 203–226.

El-Sawaf, M., (2007), Educational Beliefs Development with pre- and in-serbice teachers using Perry's model: a cross-cultural study, PhD Thesis, University of Glasgow, Glasgow

Federal Board of Education Report, (1973), Ministry of Education, Goverment of Pakistan, Islamabad, Pakistan.

Gough, N. (1992), *Laboratories in Schools: Material Places, Mythic Places*, Paper presented at the Annual Meeting of AERA, San Francisco, CA.

Gunstone, R.F., (1991), *Reconstructing theory from practical work*, in Woolnough, B.E., (ed), Practical Science, Buckinham: Open University Press.

Hodson, D., (1990), A critical look at practical working in school science, *School Science Review*, 70, pp. 33–40.

Hofstein, A. and Kipnis, M. (2004), Providing high school chemistry students with opportunties to develop learning skills in an inquiry-type laboratory: a case study, *International Journal of Science Education*, 26(1), pp. 47–62.

Hofstein, A. and Lunetta, V.N. (2003), The Laboratory in Science Education: Foundations for the Twenty-First Century, *Science Education*, 88(1), pp. 28–54.

Horton, R.L. and Hutchinson, S., (1997), *Nurturing scientific literacy among youth through experimentally based curriculum materials*, National network for science and technology, C/o Julie Chapin, 6H Berkly Hall, Michigan State University, E. Lansing.

Hussein, F.K.A., (2006), *Exploring attitudes and difficulties in school chemistry in the Emirate*, PhD Thesis, University of Glasgow, Glasgow.

Keegan, D. (1996), *Foundation of Distance Education*, 3rd edition, London, Routledge.

Likert, R.A., (1932), *Technique for the measurement of Attitudes*, New York, Colombia University Press.

Johnstone, A.H. (1992), Some thoughts about teaching and learning in laboratories, *Science Technology*, 25, pp. 2–4.

Johnstone, A.H., (1997), Laboratory work does not interest students, *University Chemistry Education*, 74(3), pp. 262–268.

Johnstone, A.H. and Al-Shuaili, A. (2005), Learning in the laboratory; some thoughts from the literature, University Chemistry Education, 2001, 5(2), pp. 42–51.

Johnstone, A.H. and Letton, K.M. (1988), Is Practical Work Practicable?, *Journal of College Science Teaching*, 18 (3), pp. 190–92.

Johnstone, A.H. and Letton, K.M. (1990), Investigation undergraduate laboratory work, *Education in Chemistry*, 27 (1), 9–11.

Johnstone, A.H. and Morrison, T.I. (1964, 1965, 1966, 1967 and 1969), *Chemistry Takes Shape*, volumes I, II, III, IV, V, London, Heinmann Educational Books.

Johnstone, A.H., Sleet, R.J. and Vianna, J.F. (1994), An information processing model of learning: its application to an undergraduate laboratory course in chemistry, *Studies in Higher Education*, 13(2), pp. 187–192.

Johnstone, A.H., Watt, A. and Zaman, T.U., (1998), The students' attitude and cognitive change to a Physics Laboratory, *Physics Education*, 35(1), pp. 22–28.

Johnstone, A.H. and Wham, A.J.B., (1979), A Model for Undergraduate Practical Work, *Education in Chemistry*, 16, pp. 16-17.

Johnstone, A.H. and Wham, A.J.B., (1980), A Case for Variety in Practical Work, *School Science Review*, 61 (217), pp. 762–5.

Johnstone, A.H. and Wham, A.J.B., (1982) Demands of Practical Work, *Education in Chemistry*, 19(3), pp. 71–73.

Keys, W.C., Hand, B., Vaughn, P., and Collins, S., (1999) Using the science writing heuristic as a tool for learning from laboratory investigations in secondary science, *Journal of Research in Science Teaching*, 36, pp. 1065–1084.

Maskill, M.A.M. and Meester, R., (1993), *First year practical classes in undergraduate chemistry courses in England and Wales*, London, The Royal Society of Chemistry.

Osgood, C.E., (1955). Attitude Measurement, *Psychology Reviews*, 62, pp. 42–45.

Qin, Z., Johnson, D. W., and Johnson, R. T., (1995), Cooperative versus competitive efforts and problem solving, *Review of Educational Research*, 65 (2), pp. 129–143.

Reid, N. (2003) *Getting Started in Pedagogical Research in Higher Education*, LTSN Physical Science, LTSN, Hull, ISBN 1-903815-07-X

Reid, N. (2006) Thoughts on Attitude Measurement, *Research in Science and Technological Education*, 23(1)

Reid, N. and Serumola, L. (2006a), Scientific Enquiry: The Nature and Place of Experimentation: a review, *Journal of Science Education*, 7(1), pp. 1–15.

Reid, N. and Serumola, L. (2006b), Scientific Enquiry: The Nature and Place of Experimentation: some recent evidence, *Journal of Science Education*, 7(2), pp.88–94.

Roberts, R and Gott, R., (2004) A written test for procedural understanding: a way forward for assessment in the UK (sic) science curriculum, *Research in Science and Technological Education*, 22(1), pp. 5–21.

Roberts, R and Gott, R., (2006) Assessment of performance in practical science and pupil attributes, *Assessment in Education*, 13(1), pp. 45–67.

Scottish Certificate of Education (1962), *Chemistry at the Ordinary and Higher Grades*, Dalkeith, Edinburgh, Scottish Certificate of Education Examination Board.

Scottish Qualifications Authority, (1999), *Scottish Certificate of Education: Standard Grade Revised Arrangements in Chemistry at General and Credit Levels in and after 1999*, section 4.7, online at: http://www.sqa.org.uk.

Scottish Qualifications Authority, (1962-2006), Statistics of Examinations, (formerly published by SCEEB, Dalkeith, Edinburgh), now on line at: http://www.sqa.org.uk.

Tobin, K. (1990) Research on Science Laboratory activities: in pursuit of better questions and answers to improve learning, *School Science and Mathematics*, 90, pp. 403–418.

Wood, C.A. (1975), *An evaluation of practical work in chemistry at the higher grade of the S.C.E.*, MSc Thesis, University of Glasgow, Glasgow.

Wood, C.A. (1977), Practical Work in its own Right, *Education in Chemistry*, 14, p. 11.

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COMPARISON OF STUDENTS' ATTITUDE TOWARDS INCLUSIVE EDUCATION IN SPECIAL AND INCLUSIVE SCHOOLS

By

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Abstract

The present study was conducted to compare the attitude of special students towards Inclusive Education. The objectives of this study were to find out which type of school students had positive attitude towards inclusion, which type of attitude was more positive and to find the effects of inclusion on special students. For this purpose, both quantitative and qualitative methods were used. Population of this study was based on all special students of Inclusive and special schools of Rawalpindi and Islamabad. Sample size was 100. About 50 students were selected, each from special schools and Inclusive schools. Self-made questionnaire was used as a research tool. It consisted of three categories: academic attitude, social attitude and psychological attitude. Five point Likert scale was used for answering the questions. Data analysis was done manually by obtaining the mean value of each question and each category and then the total mean of the questionnaire. Through this study it was concluded that Inclusive school students had positive, but the special school students had negative attitude towards Inclusive Education. It was recommended to give proper and complete information to all stakeholders of Inclusive education and trained teachers should be provided in Inclusive schools.

Introduction

The students are a crucial part of any education system. Whole education system revolves around the students. Everything that is planned in this system, is basically aimed at making better learning possible for the students. If any revolution is made in this system, it effects students' attitude. As a result it brings

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change in their behavior. Ajzen and Fishbein (as cited in Dunn (Ed.), 1994: p. 4) said that attitudes are good predictors of behaviors. This research was conducted to compare the attitude of primary level special students towards Inclusive Education in Special schools and Inclusive schools of Rawalpindi and Islamabad. Special children are part of every society. They have right to education similar to the non-handicapped children. Special Education Institutions are made especially for handicapped children. The Inclusive Education has been devised to meet the diverse needs of all types of students. Students' attitude towards Inclusive Education is a great predictor of understanding whether they want to avoid or approach it.

Inclusive Education

Inclusive education is a system in which all students study in same environment irrespective of their differences. The students with and without disabilities or difficulties are enrolled in regular schools. Appropriate support is provided to the students according to their disabilities. Inclusive schools enable students to participate in their life irrespective of their differences. The main aspect of Inclusive education is that support services are brought to the child, rather than the child is brought to the support services.

According to Shahzadi (2000, p.2), inclusion is a philosophy that exerts that classrooms and communities are not complete unless children with all needs and gifts are welcome to it. Inclusive schools are those schools in which students with disabilities attend the school and the classroom that he\she would attend without having had a disability.

According to Dash (2006, p. 29), Inclusive schooling is the practice of including everyone — irrespective of talent, disability, socio economic background, or cultural origin — in supportive mainstream schools and classrooms where the needs of all children are met. In Inclusive schools, teacher adjusts the study environment, study material and other activities according to the needs of the children. The teacher tries to fulfil all educational, behavioral and social needs of the child in a regular school setting. Higher expectations of teacher motivate the child towards higher achievement. Special child learn how to work and interact with non-disabled children. It is a social benefit of Inclusive schooling, which can work to make the special child independent.

Inclusive Education in Pakistan

In 1994, the Salamanca Statement advocated for the need of Inclusive

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schooling. It recommended all international communities to support Inclusive Education like all other education programmes. It asked NGOs, United Nations and its specialized agencies to prop up the integrated special education provision. Then, this idea came to Pakistan and debates were started regarding the establishment of Inclusive schools. Inclusive Education programme was started in Pakistan by the Federal Ministry of Education. For this purpose, it had to make modifications in school environment, adapted curriculum for children with Special Educational Needs (SEN) and to train the teachers to teach children with disabilities. To make this programme successful, the financial resources, new infrastructure and new educational policies were needed.

It is the duty of a society to fulfil all basic needs of handicapped people. Equal opportunities should be provided to the disabled people in all aspects of life. Naz and Aurangzaib found that Muslim scholars and leaders believed that it is the duty of the society to provide appropriate education to children with disabilities in Inclusive environments (UNICEF, 2003, p.22). At present, the programme of Inclusive Education is at its initial stages in Pakistan. Inclusive schools were restricted to big cities only and Inclusive Education project was started only at primary level. Schools are given resources to make the environment (both academic and physical) accessible for special children; teachers-are given training to handle children with disabilities. However, it's not enough. They need much more.

Positive Features of Inclusive Education

In the society different people have different backgrounds. People must accept, respect and appreciate each other's backgrounds. Thus, children must be educated accordingly, right from their primary level. For this, Inclusive schools are needed which can promote wider social acceptance, peace and cooperation. If proper arrangements are made and guidance is available in Inclusive schools, handicapped and non-handicapped children learn how to live in a community. They learn social and academic skills. They gain positive attitudes towards one another. Children learn to respect individual differences and to develop friendship. If the special children are accepted in Inclusive schools, societal attitudes towards disability can also become positive.

Vendercook, et al (as cited in Dash. 2006, p. 29-30) says that in Inclusive classrooms all children are enriched by having the opportunity to learn from one another, grow to care for one another, and gain attitudes, skills and values necessary for our communities.

When children with disabilities are included in regular schools, they learn many academic, daily life, social and communication skills while interacting with non-disabled peers. Children with disabilities learn to make their social lives well and non-disabled people learn to accept the special people as like them. They also learn the values of equality and teachers to adopt to different teaching styles. Including handicapped and non-handicapped children in the same classroom creates a demanding environment that facilitates the development or enhances their skills, while special schools make very few demands on their students. In Inclusive Education, parents and teachers make realistic expectations about what these children can do. While special schools make the students dependent, it becomes difficult for special school students to compete with outer world. They have to face difficulties while interacting with normal people. Wehman (as cited in Dash. 2006, p. 30) says that special school students are treated as "special" and not as "normal". This concept creates a feeling of insulation in people who are different from others.

According to Forman (2001, p.6), the presence of students with disabilities in general education classroom provides training opportunities and experiences that might not otherwise be part of curriculum.

Special Education

Special Education is given in the special institution that is modified for students with special needs, who are below average or above average, such as learning differences, mental health problems, specific disabilities (physical or developmental) and giftedness. At present there are special schools for four types of disabilities: physically impaired, visually impaired, deaf and dumb and mentally retarded. In these institutions special education teachers are appointed. All equipment for the concerned disability is provided by the Government. Modifications are made to fulfil their needs. These modifications can be changed in curriculum, aides or equipment, and the provision of specialized facilities that allow the students to participate in the educational environment to the fullest extent possible.

Attitude

Allport (as cited in Deppler., et al, 2004, p. 41) suggests that an attitude is basically a readiness to respond in a particular kind of way; but attitudes also are very emotional because they reflect the ways we evaluate people (including ourselves) and things. Attitudes guide a person whether he\she likes or dislikes and whether he\she wants to avoids or approaches something or some person. People do not come on the earth with attitudes. They learn them from their

society. Social psychology considers how attitudes are formulated during interaction with people and how people perceive one another. When we meet or avoid other people, our perceptions and our behaviors are strongly influenced by them because attitudes are the basics of perceptions. Attitudes remain with us for a long period of time. They are persistent.

Callan, et al (1999, p. 49) describes that attitudes are often defined as learned reactions for or against an object or a class of objects. In the definition of attitude there are three aspects worth emphasizing. First, attitudes are always directed towards objects. Objects here should be understood generally to include physical objects, social objects, behaviours, social issue and the like. Second, attitudes are learned, presumably through socialisation. Third, attitudes are always concerned with the evaluative dimensions of for or against, like or dislike, or approach or avoidance. In other words, attitudes are concerned with an evaluative reaction to objects, whether affective, cognitive or behavioral.

Attitude Formation

Psychologists have identified three major influences on the formation of attitudes:
1. Social influences
2. Cognitive influences
3. Behavioral influences

These three influences make our attitudes and they can change our behaviour during our lives.

Social Influences on Attitudes

Attitudes make the social life possible for people. It means the influence of society or the influence of other people on the formation of attitudes. Attitudes are not inborn. They are learned by the society. In the early stages of life there are two major influences on the formation of child's attitudes. The first one and the most important are the parents. Because the first interaction of the child happens to be with his parents. After parents, child interacts with his peers. Therefore, peers are the second main members of the society that influence the formation of child's attitudes.

Cognitive Influences on Attitudes

Mostly children learn attitudes by other people of the society, but sometimes children find logic or reasoning about what is told by others. They

relate the information with what they already know and then evaluate it. By this process they learn new attitudes. For example, disable children try to find out reasons that why they should be admitted in Inclusive schools. They think that whether it is good for them to be educated with normal children or not, or whether their needs can be fulfilled in Inclusive schools or not. They rationally evaluate Inclusive education in relation to their position.

Behavioral Influences on Attitudes

The third influence on child's attitude is its own behavior. If the child finds the environment according to his\her behavior, he\she will develop a positive attitude. If the environment of Inclusive school correlates with the behavior of special students, then obviously they will like to be educated with non-disabled children. But, if they find the environment of Inclusive schools against their conduct, they will develop negative attitudes.

Inclusive School students' Attitude towards Inclusive Education

When the students come to school, they bring their own learning strengths, weaknesses and needs. Physical, intellectual, cultural, emotional, social aspects can influence their learning abilities. These aspects also influence their attitudes. Children can develop positive or negative attitudes towards Inclusive Education. When the child goes to school, he\she has to adjust him\herself in a new environment. He\she has to establish new relations and ward off possible attacks from the peers. He\she makes him\herself acceptable to others. At this stage, the child compares himself\herself with his\her non-handicapped peers. If the students become successful in this environment, they accept it, but if they have repeated feelings of inferiority and failure they will develop a negative attitude towards Inclusive Education.

Inclusive school child's attitude towards Inclusive Education depends on the attitudes of other people, which include his parents, teachers and above all his classmates. If the non-disabled children accept the presence of the disabled child in their class, they accept that they are children like them. They can learn in this environment and have same rights that others have. It will have a positive effect on the special child studying in Inclusive school. So his\her attitude will become positive. But, if the non-disabled children have negative attitudes towards special child, the special child is more prone to develop negative attitude towards Inclusive education. They will not like to interact with normal children; they feel jealous, shy, fearful and anxious. They may have low self-esteem and may not be able to learn because of being psychologically unsatisfied.

Special School Students' Attitude towards Inclusive Education

Special school students' attitude towards Inclusive Education depends on the given information and their perceptions about Inclusive Education. Their attitude can be positive if the information is conveyed properly. If they have misunderstandings or they feel special schools better for them, their attitude can be negative towards inclusion. They will be unsure about their abilities and have fear to be teased by the normal classmates. In special schools they have all students like them. They don't feel any hesitation or shyness while interacting with their classmates. They feel that all students have same abilities and no one is superior to other. On the other hand, the special students may feel it pleasant to study with normal classmates in ordinary schools. This feeling can improve their academic success.

Social Interaction of Special Children in Inclusive Schools

All children need an educational system that can help them to develop relationships and prepare them for life. Inclusive Education teaches social values to all the children. On the other hand, sometimes special school children feel fearful and ignorant. But, inclusion can reduce fear and builds friendship, respect and understanding.

Inclusive classrooms offer the interaction of disabled students with their non-disabled peers by which special students learn to develop social relations. Inclusion permits friendship among handicapped and non-handicapped peers. Peer relationships are highly valued in the society and associated with many positive outcomes (Wong, 1992, p.136). On the other hand, sometimes, special students have to face difficulty in peer acceptance in Inclusive schools. They may have behavioral and attention problems which may interfere with their social adjustment. They can have failure to attend, poor concentration, distractibility, emotional instability, impulsivity, slowness in starting tasks and hyperactivity.

Wong, (1992, p. 136) reported that only 16% students with L.D exhibit social skills comparable to their non-disabled peers. He also said that 75% students with L.D were found to exhibit social skills deficit. In Inclusive schools such students have more chances to develop social skills. Generally speaking, the special students face difficulty in developing social relations with their peers. Teachers are aware of it, but they believe that positive social skills should be learned at home and it's the family's responsibility. School system and parents do not value social skills also. Teachers do not consider them as the element of curricula. Therefore, teachers of Inclusive education need proper training to appreciate the importance of social skills in the academic life of the students.

Research on the classroom behavior of learning disabled children in mainstream classes has depicted the learning disabled child as displaying various maladaptive behavior patterns. L.D children display behavior patterns, which are inconsistent with learning in mainstream classes (Bender, 1987, p. 317). Inclusive schooling can have negative effect on the non-disabled children of Inclusive school. If L.D students behave negatively in the class, they will disturb other students.

Academic Success of Special Students in Inclusive Schools

The classroom environment has influence on the learning status of students and their outcomes. So, the environments of Inclusive schools have effect on academic success of disabled and non-disabled students. Special students have to adopt the same syllabus as their normal peers adopt, but they need some modifications to access that curriculum. In Inclusive schools the achievement level of handicapped students can become high because of realistic expectations of teachers and parents. In the Inclusive environment students can get much knowledge from their peers because Inclusive classrooms offer a wide circle of support. However, their achievement level can become lower if same assessment procedure is used for special and non-disabled students, because their abilities are different from each other.

Psychological Effects of Inclusion on Special Students

The Inclusive schools have psychological influences on both special and normal students because it's a different environment for both. Sometimes students have to face difficulty in adjustment. Disabled students may not be well liked by their non-disabled peers and teachers. They may be poorly accepted and neglected by their classmates. They feel loneliness because they could not develop good relations with their peers. Because of this, they may develop low self-esteem. If the special students compare themselves with non-disabled classmates, this may develop negative self-concept and inferiority complex. Special students may find it difficult to move and to study in ordinary schools because these schools are not well equipped.

Research Objectives

The objectives of the study were following:
- To compare Special School students' and Inclusive School students' attitude towards Inclusive Education.
- To find out which type of attitude is more positive towards Inclusive Education in Inclusive and Special schools students.
- To find out effects of Inclusive Education on special students.

Methodology

The survey method was used during the research. Both quantitative and qualitative methods were used for analyzing the result of the study. Research was based on descriptive study because it described the attitude of students towards Inclusive Education in Special and Inclusive schools.

The population of study included all Inclusive and Special Schools of Rawalpindi and Islamabad. The purposive sampling technique was used. The data was obtained from two types of participants, i.e., the students from Inclusive schools and the second was the students from Special schools. Sample size was four Inclusive schools and four Special schools. About 50 students belonged to Inclusive schools, while 50 students were from Special schools. Only primary school students were involved in the study because Inclusive Education was introduced at primary level only. Three types of disabled students were taken from both kinds of schools, which were physically impaired, visually impaired and hearing-impaired children. The rationale behind that was to make the sample parallel and comparable. These three types of disability could be found in both types of schools and these children could answer the researcher well. About 25 students were physically disabled, 20 students were visually impaired and 5 students were hearing impaired.

Self-made questionnaire was used as a tool for data collection. It consisted of twenty questions. About 18 questions were closed ended, while two questions were open-ended. Five point Likert Scale was used. The options included always (5), often (4), don't know (3), sometimes (2) and never (1).

The questionnaires were divided into three categories, i.e.: Academic Attitude, Social Attitude and Psychological Attitude. The first category included questions on Inclusive education, the teaching strategies, difficulty level of the content, assignments and academic results. In second category the questions included items on friendship, participation in play and co-curricular activities, help by peers and relation with peers and teachers. The third category included the questions related to feelings of hesitation, fear, loneliness, inferiority complex and satisfaction.

Procedure

The study was conducted in Special and Inclusive schools. Questionnaire was constructed for data collection. Firstly, data was collected from Inclusive schools. There were many categories of special children in Inclusive schools but

questionnaire were filled by only three types of disabled students, i.e., physically, visually and hearing impaired because these type of students could answer and understand the questions well. The second reason was that these three types were found in special schools also. The researcher explained the instructions and answering options in front of the students. The researcher asked questions because all students could not read questionnaire well. Answers were recorded on the questionnaire. Then, data was obtained from special schools. One school of visually impaired, one of hearing impaired and two schools of physically impaired were chosen. Students were taken in the same number from same classes as from Inclusive schools. The questionnaire was administered in the same way as in the Inclusive schools. However, when the data was obtained from hearing-impaired students, the questions were asked by their teachers in sign language and answers were recorded on the questionnaires.

Results

Demographic Profiles

Table–1
Class and Sample Strength Profile

Class	Inclusive school		Special school	
	Number of students	Percentage	Number of students	Percentage
1st	9	9	9	9
2nd	9	9	9	9
3rd	9	9	9	9
4th	16	16	16	16
5th	7	7	7	7
Total	50	50	50	50

Graph–1
Class and Sample Strength Profile

38
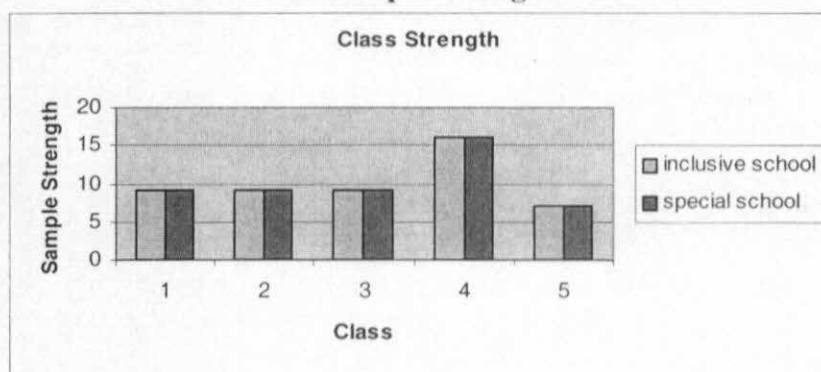
Table–2
Age Profile

Age of students	Number of Inclusive school students	Number of Special school students
6-8years	12	3
9-11years	24	16
12-14years	14	19
15-17years	0	10
18-20years	0	1
Total	50	50

Graph–2
Age Profile
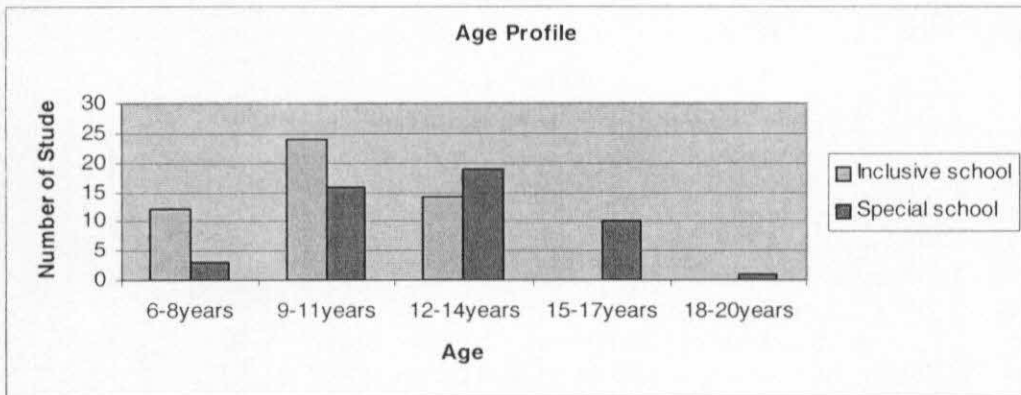
Table–3
Disability Profile

Disability	Number of Inclusive school students	Number of Special school students
Physically impaired	25	25
Visually impaired	20	20
Hearing impaired	5	5
Total	50	50

Graph–3
Disability Profile
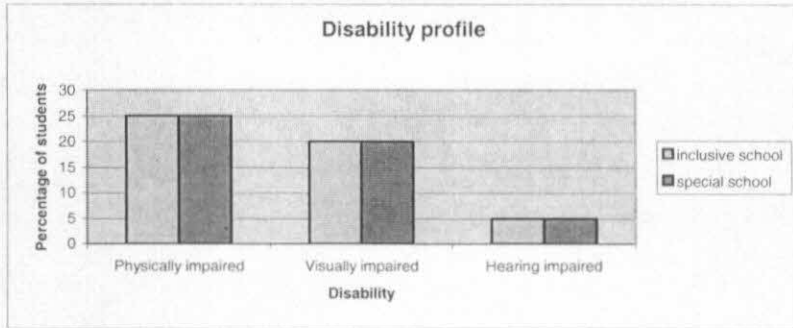
Disability profile

Legend: inclusive school, special school

Y-axis: Percentage of students (0–30)
X-axis: Disability — Physically impaired, Visually impaired, Hearing impaired

Quantitative Analysis of the Close-ended Questions
(Special Students' Attitude towards Inclusive Education in Inclusive Schools)

This section describes the results of questionnaire that was filled by only Inclusive School Students. Questionnaire was divided into three categories; further each category consisted of six questions. Two open-ended questions were also included.

Table–4
Academic Attitude of Inclusive Schools Students

Sr. No.	Questions	N	Mean
1	I like Inclusive Education.	50	4.5
2	I learn more in this school.	50	3.84
3	Whatever my teachers teach, I understand.	50	3.74
4	My academic syllabus is easy for me.	50	3.56
5	I can do my class and homework easily.	50	3.86
6	Results of my class tests and papers are good.	50	3.32
	Total		**22.82**

Graph–4
Academic Attitude of Inclusive Schools Students

Academic Attitude

Legend: Mean Values

Y-axis: Mean Values (0–5)
X-axis: Items — Item 1, Item 2, Item 3, Item 4, Item 5, Item 6

40
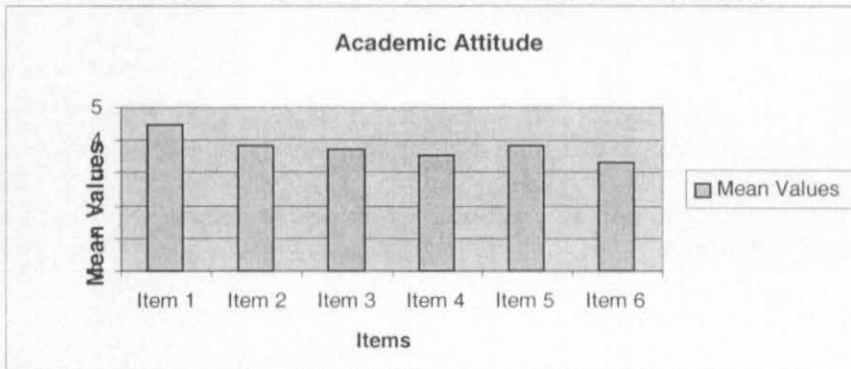
Table–5
Social Attitude of Inclusive School Children

Sr. No.	Questions	N	Mean
7	I have friendly relations with all my classmates.	50	3.7
8	I always take part in play with my classmates.	50	3.2
9	My classmates treat me kindly.	50	3.78
10	My teachers treat me kindly.	50	4.66
11	My teacher and classmates provide me help in all my activities.	50	3.78
12	I take part in all extra-curricular activities of my class.	50	3.72
	Total		**22.84**

Graph–5
Social Attitude of Inclusive School Children
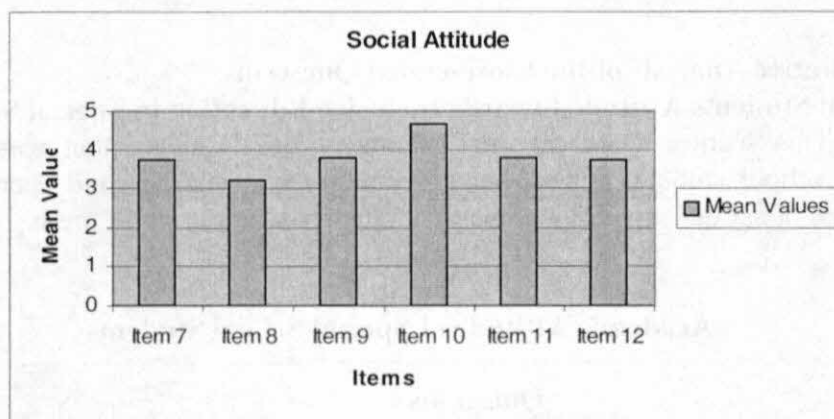
Social Attitude

Table–6
Psychological Attitude of Inclusive School Students

Sr. No.	Questions	N	Mean
13	I don't feel any hesitation while studying with my normal classmates.	50	3.66
14	I don't feel fearful while studying with my normal classmates.	50	4.14
15	I don't feel myself alone in my class.	50	3.74
16	My teacher and classmates don't say anything, which can hurt me.	50	3.36
17	I don't have inferiority complex.	50	4.04
18	I am satisfied in this school.	50	4.18
	Total		**23.12**

Graph–6
Psychological Attitude of Inclusive School Students
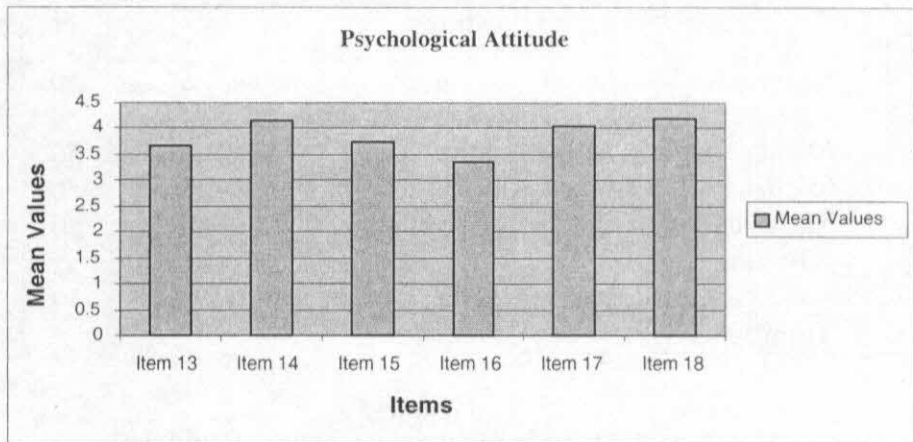
Psychological Attitude

Quantitative Analysis of the Close-ended Questions
(Special Students Attitude towards Inclusive Education in Special Schools)

This section deals with the results of questionnaire that was filled by special school students. Questionnaire had three categories and each category consisted of six questions. Two open-ended questions were also there.

Table–7
Academic Attitude of Special School Students

Sr. No.	Questions	N	Mean
1	I like Inclusive Education.	50	1.74
2	Inclusive school students learn more than Special School students.	50	2.36
3	Inclusive schoolteachers teach better than Special schoolteachers.	50	2.44
4	Syllabus of Inclusive school is easier than Special school.	50	2.24
5	Inclusive School students can do their class work and homework easier than special school students.	50	2.4
6	Inclusive school students' academic results are better than special school students.	50	2.2
	Total		**13.38**

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Graph–7
Academic Attitude of Special School Students

Academic Attitude

Bar chart showing Mean scores for Item 1 through Item 6. Y-axis "Mean scores" ranges from 0 to 3. Item 1 ≈ 1.75, Item 2 ≈ 2.4, Item 3 ≈ 2.45, Item 4 ≈ 2.25, Item 5 ≈ 2.45, Item 6 ≈ 2.2. X-axis labeled "Items". Legend: Mean scores.

Table–8
Social Attitude of Special School Students

Sr. No.	Questions	N	Mean
7	Inclusive school students do more friendship than special school students.	50	2.08
8	Inclusive school students take more part in play than Special school students.	50	2.3
9	Inclusive school students treat their special classmates more kindly than special schools.	50	2.3
10	Inclusive school teachers treat their special students more kindly than special schools.	50	2.38
11	Attitude of Inclusive school teachers and students is more helpful than Special school.	50	2.4
12	Inclusive school students take more part in extra curricular activities of class than special school students.	50	2.38
	Total		**13.84**

Graph–8
Social Attitude of Special School Students
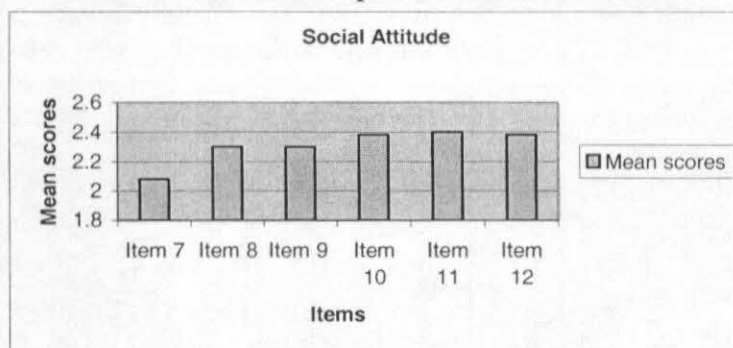
Social Attitude

Table–9
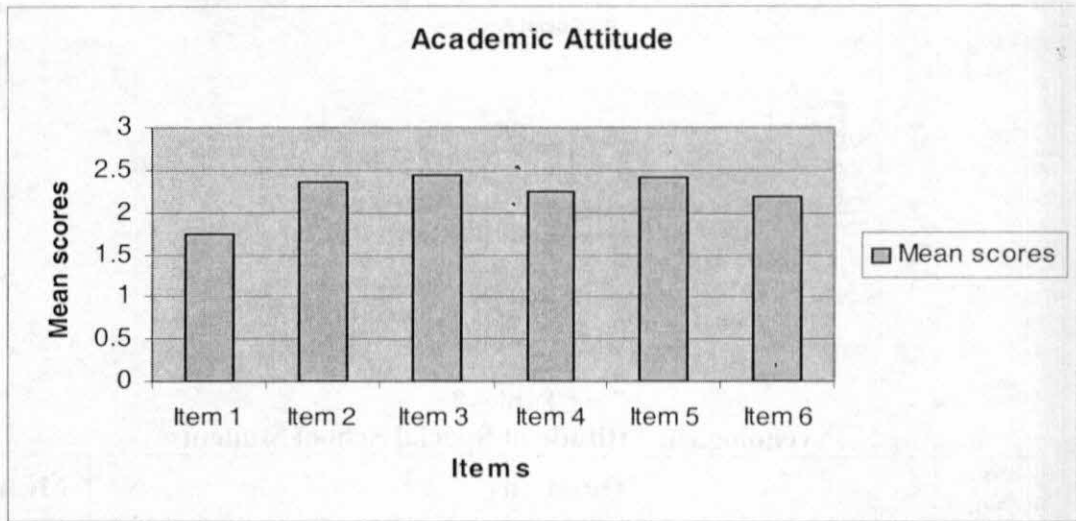## Psychological Attitude of Special School Students

Sr. No.	Questions	N	Mean
13	Inclusive school students don't feel any hesitation in class instead of special school students.	50	2.36
14	Inclusive school students don't feel any fear from their classmates instead of special school students.	50	2.22
15	Inclusive school students don't feel themselves alone in the class instead of special school students.	50	2.5
16	In Inclusive schools teachers and students don't say any thing which can hurt special children as compared by special schools.	50	2.5
17	Inclusive school students don't feel themselves inferior as compared by special school students.	50	2.5
18	Special students feel more satisfied in Inclusive schools than special schools.	50	2.3
	Total		**14.38**

Graph – 9
Psychological Attitude of Special School Students

Psychological Attitude
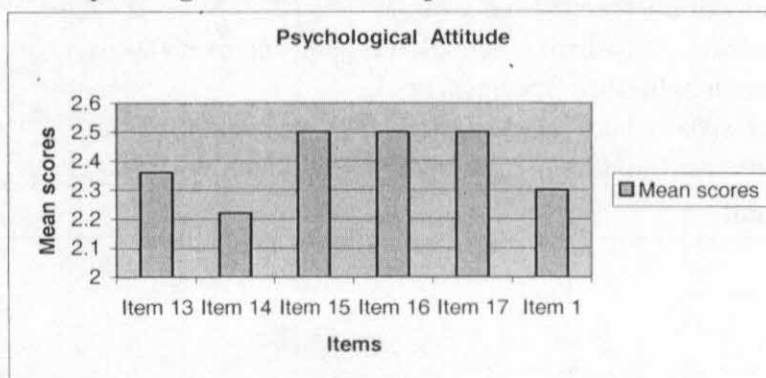
Discussion and Conclusion

In the light of above findings, the following conclusions are drawn:

Inclusive school students had positive while special school students had negative attitude towards Inclusive Education. Both type of school students favored their own education system. They liked to be educated in their own schools. The psychological attitude of Inclusive school students and also of special school students was more positive than academic and social attitudes. In any case, it is concluded on the basis of research findings that Inclusive Education is good education system for special students. It is beneficial for their academic, social and psychological development. But it's not suitable for all special students i.e., students with severe disabilities. For instance, it is difficult to include mentally retarded and totally deaf students in Inclusive schools. Because both need specialized services that are not available till now in Inclusive schools of Pakistan.

Special students are the main aspect of Inclusive Education and for which the Inclusive Schools were developed. In our country students are not much aware of Inclusive Education and they have different perceptions about it. So the study was conducted to examine the difference between the attitudes of students who are studying in Inclusive Schools and the students who are studying in Special Schools. The number of special children in Inclusive schools was too small. Schools reported that at the admission time they took interview from the child and assess child's disability. No experts were used for this purpose. The age of special school students was more than Inclusive school students. In Inclusive schools most of the children were found with physically and visually impaired, very few number of children were hearing impaired. The results of questionnaires showed that there was a difference between the attitude of Special and Inclusive school children towards Inclusive education. Academic attitude of Special and Inclusive school students was contrasting. Inclusive school students liked their own education system. They said that Inclusive schools were better for the education of handicapped students. In the positive attitude of Inclusive school 'students' Inclusive schoolteachers played the great role. They taught them same syllabus. Academic assessment criteria was also same for special and normal students. So the academic results of these students were satisfactory in Inclusive schools. Therefore, special students were left behind than their normal classmates. Special school students believed that special schools could fulfil the educational needs of handicapped students better. They said that in special schools they learn more and could do their class and homework easily than Inclusive schools. The highest mean value of first category (table no.7) was 2.44, which was about the easiness

of academic content. Special school students believed that their lessons were easy than normal schools because they knew that their syllabus was selective and short. The questions, which were about special school teachers and students' academic results, were in favour of special school system. The total mean value of the academic attitude category illustrated that Inclusive school students had more positive academic attitude towards inclusion than special school students.

In the second category, which was about social attitude towards Inclusive Education, the mean value of Inclusive school students' was higher than special school students. They said that Inclusive school students had better relations with their classmates and teachers and that they also participate more in co-curricular activities. They responded that they were more social and made friends in class. The question that was about students' attitude regarding his\her teacher got the highest mean value; 4.66 in social attitude category (table no. 5). It revealed that Inclusive school students had better relations with their teachers. The lowest mean value was 3.2; which was the question about participation in play. It was lower because in Inclusive school mostly students were normal and they chose games according to their abilities not according to the abilities of special students. Social attitude of special school students towards inclusion (table no. 8) was not similar to the Inclusive school students. They said that they make more friends and participate more in play then the special students of Inclusive schools. They also said that their relations with their classmates and teachers were more positive. The total mean value of this category also illustrated the difference between the attitude of Inclusive and Special school students.

The third section of the questionnaire was about the psychological attitude towards Inclusive Education. Psychological attitude of the Inclusive school students (table no. 6) was also optimistic. Students from Inclusive schools said that they did not have any feeling of fear, loneliness or inferiority complex. They were satisfied in the environment of Inclusive schools. But some students were found having inferiority complex and feelings of hesitation while interacting with normal classmates. But most of the Inclusive school children were found having positive psychological attitude. The responses of special school students (table no. 9) were contrasting to the Inclusive school students. They believed that special students would not be psychologically satisfied in Inclusive schools. They thought that handicapped students will feel hesitant and loneliness in Inclusive schools because normal students and teachers would not care about their feelings. The analysis of open-ended questions also supported the results of close-ended questions. The Inclusive school students favored their educational system, mostly because of teachers. Only some students liked special schools and they said that they feel easy while studying with handicapped peers. While special school

students liked special schools. But they had variety in their reasons. The out of school social attitude was more positive in special school students. More number of special school students were interested in play and they played variety of games instead of Inclusive school students.

The total mean of Inclusive school questionnaire; Inclusive School Students' Attitude towards Inclusive Education was 68.84 and special school questionnaire; Special School Students' Attitude towards Inclusive Education was 42.06. It showed that both type of school students supported their own education system.

Recommendations

- The goal of Inclusive Education should be made clear to all school principals, administrators, class teachers, students and parents. Information should be provided to the public also.

- Information should be given to the special students first about whatever advancement or change made in the education system concerned with special students.

- Inclusive schools should make modifications in their infrastructure and should provide more facilities to special students.

- Inclusive schools should reconsider their academic assessment criteria, so that handicapped students can be assessed according to their own improvement criteria.

- Trained Special Education teachers should be provided in Inclusive schools that can help regular class teachers. Regular school teachers should also be given proper tainting to how to handle and teach special students.

- Resource teachers should be provided or team-teaching should be used in Inclusive schools.

- Children with mild and moderate disabilities should be included in Inclusive schools but not with sever disabilities because children with sever disabilities can disturb the environment of school.

REFERENCES

Callan, V.J., Gallious, C., Kashima, Y., and Noller, P. (1999). *Social Psychology.* (2nd ed). Australia: National Library Australia Cataloguing-in-publication Data. Star printers.

Dash, N. (2006). *Inclusive Education (For children with special needs)-* USA: Atlantc Publishers and Distributors (p) LTD.

Forman, N. (Eds). (2001). *Integration and Inclusion in Action.* (2nd Ed). Australia: National Library of Australia Cataloging-in-publication Data. Printed by Thomson Learning.

Shahzadi, S. (2007, November). History of Special Education in Pakistan. *Pakistan Special.*

Shahzadi, S. (2000). International Special Education Congress2000, Including the Excluded, *Inclusive Education: Perspective of Services.* Retrieved at February 24, 2008, from www.isec2000.org.uk/abstracts/papers_s/shahzadi1. htm - 20k

UNICEF, (2003). Examples of Inclusive Education Pakistan. The United Nation's Children Funds (UNICEF) 2003. Retrieved April 7, 2008, from http:// www. unicef.org /rosa/inclusivePak.pdf.

Wong, Y. L. Bernice. (Eds). (1992). Contemporary Intervention Research in Learning Disabilities (An International Perspective). New York: Springer-Verlag.

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A STUDY OF THE RELATIONSHIP OF ATTITUDES AND ACHIEVEMENT TOWARDS MATHEMATICS

By

*Muhammad Safdar**

*Attia Begum***

Abstract

Mathematics is considered as the father of all sciences: basic, social and mind. In Punjab (Pakistan), mathematics is a compulsory subject taught at elementary and secondary level. A large number of students opting mathematics at the higher grades from which entry to higher education is possible. This paper presented the process through which an instrument was constructed and validated to measure the attitude towards mathematics. 200 elementary level students (100 boys and 100 girls) 12 to 15 years of age, were randomly selected from 20 Government Institutions (i.e.10 boys and 10 girls' schools). The construct "attitude towards mathematics" was broken down into seven domains or subscales (critical observation, rationality, reflectivity, courage, productivity, appreciation, curiosity). Forty statements (20 positive and 20 negative) were developed which relate to the study of mathematics, and the students were asked to respond to these statements on a five point Likert type scale. To accept or reject the statements, t-test was used. The value of 't' for each statement was calculated and compared with the table value. The statements having t-calculated value greater than t-table value were retained while other removed from the instrument.

Finally, 28 statements were included in the instrument. This final questionnaire was administered to the sample and all the questions were marked. The marks for each student were added up to give a total score. The highest scores is said to indicate the most positive attitude.

To find the relationship between attitude questionnaire scores and the scores achieved in the subject of mathematics, an achievement test was developed, tried out, and administered to the sample.

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This work will be found to be best predictor of students' intentions to classify and enrol students in mathematics classes. In the comparison of 'attitude towards mathematics' of boys and girls, the girls reflected fewer attitudes than boys. From the results obtained, it is possible to determine the areas of the curriculum where there are difficulties, especially for girls.

The outcomes suggest some ways through which mathematics curriculum planners can develop courses in mathematics, which will prove attractive and interesting for both sexes.

Introduction

A number of research studies investigated the relationship between the Cognitive and the Affective domains. Ma and Kishor (1997, p.2) quotes the views of Maker (1982) that it is impossible to separate the cognitive from the affective domains in any activity. The most important is that there is a cognitive component to every affective objective and an affective component to every cognitive objective.

According to Leder (1987, p.217), "the nature of mathematics learning requires exploration of affective as well as cognitive factors. The major description of the affective domain in mathematics is attitudes". Rather than exploring all components in the affective domain as they relate to the cognitive domain, mathematics educators have traditionally taken the relationship between attitude towards mathematics and achievement in mathematics as their major concern (Ma and Kishor 1997, p.92). Attitude is central to the educative process, both as ends and means; thus, the development of favourable attitude among the students towards a particular subject is a state goal of the most educational programmes. In view of Johnson (1979, p.500), "the purpose of assessing students' attitudes is to use information to modify and improve instructional programmes. Attitude should have no effect on students' grades, and the teachers should not evaluate on the basis of whether or not their students have positive attitudes. But components of instructional programme such as teaching strategies and curriculum materials can be modified on the basis of the students.

In the area of attitude Questionnaire construction, there is always a need to develop a valid and reliable instrument that helps to measure students' attitude towards a particular subject. Hence, this paper presented the process through which an instrument was constructed and validated.

What are Attitudes?

Attitudes express our evaluation of something or someone. They may be based on our knowledge, our feelings and our behaviour, and they may influence

future behaviour. In the context of studies in the sciences, attitudes are evaluations which may influence thinking and behaviour. According to the Encyclopedia Britannica (1987, p.687), "attitude logically are hypothetical constructs, i.e. they are inferred but not objectively observable. They are manifested in conscious experience, verbal reports, and gross behaviour". Attitude is an internal condition of an individual rather than overt expression. It is a tendency to act (readiness to act); a mental "set" not the act itself.

Anderson (1981), in International Encyclopedia of Education (1995, p.381), has identified the following five common features of attitude:

1. The Emotional Component
Attitude may include cognitive and behavioural components as well. However, it is evident that attitude is an affective characteristic, and that emotions are involved. The feeling can be positive, negative or somewhere in between.

2. The Target
Feelings are directed towards or away from some target that may often be an abstract idea. The most common targets in educational research and evaluation involve objectives that are associated with the school and specific curricula of subject areas within the school (e.g. reading, mathematics).

3. Direction
Attitudes are feelings, which are directed towards or away from some target. When attitudes are favourably directed towards the target, they are said to be positive. Likewise, when attitudes are directed unfavourably towards the target, they are said to be negative.

The measurement of attitudes typically begins with the identification and specialization of opposite statements and adjectives, which involve the ideas of favourable or unfavourable, like or dislike, satisfied or dissatisfied.

4. Intensity
Not only attitudes differ in their direction, they also differ in their intensity. Some people experience and express more intense feelings than do others. Practically speaking students who cannot wait until they get to school are different in terms of the intensity of their attitudes from those who enjoy school once there.

5. Consistency
The consistency of an attitude relates to the strength of an individual's feelings towards a particular object in different settings or situations. It differs from the stability of attitudes overtime, and the interrelatedness of Kindred attitudes, which may involve a more deeply internalized world view. Attitude scales attempt to determine what an individual believes, perceive or feel.

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Attitudes can be measured towards self, others, situations, other activities etc. Attitudes are highly complex and can affect learning extensively.

In the opinion of Reid and Skryabina, (2002, p.33), there are four broad areas where we might wish to explore attitudes in relation to students:

a) Attitudes towards subjects being studied;
b) Attitudes towards study itself;
c) Attitudes towards the implications arising from themes being studied;
d) The so-called scientific attitude.

Several kinds of scales are found in literature. Gay (1987, p.146) states that there are four basic types of scales used to measure attitude; **(1) Likert scale** (ask an individual to respond to a series of statements by indicating whether he/she strongly agree (SA), Agree (A), is undecided (U), disagree (D), or strongly disagree (DA) with each statement). **(2) Semantic differential scale** (ask an individual to give a qualitative rating to the subject of the attitude on a number of bipolar adjective, such as good-bad, fair-unfair, friendly-unfriendly, etc. Semantic differential scales usually have 5 to 7 intervals with a neutral attitude being assigned a score value 0). **(3) Thurston scale** (ask an individual to select from a list of statements that represent different points of view those with which he or she is in agreement. Each item has an associated point value between 1 and 11; point values for each item are determined by averaging the values of the items assigned by a number of "judges"). **(4) Guttmann scale** (ask the individuals to agree or disagree with a number of statements. It attempts to determine whether an attitude is unidimensional, i.e. it produces a cumulative scale. In a cumulative, an individual who agrees with a given statement also agrees with all related preceding statements). **Rating Scales** (also used to measure attitudes towards others. Such scales ask an individual to rate another individual on a number of behavioral dimensions. There are two basic types of such rating scales. One type is composed of items that ask an individual to rate another on a continuum (good to bad, excellent to poor). The second type asks the individual to rate another on a number of items by selecting the most appropriate response category (e.g., excellent, above average, average, below average, poor). Two problems associated with rating scales are referred to as the *halo effect* and the *generosity error*.

The Construction of Attitudinal Items

Developing a good questionnaire is an art and it takes a good deal of practice to achieve good results. Reid, (2002) and Shah (2004) identified a set of procedures which can help to develop a better questionnaire:

a) Write down as precisely as possible what you are trying to find out;
b) Decide what types of questions would be helpful;
c) Be creative and write down as many ideas for questions as you can;

By applying this procedure, the researcher found the values of 't' for every statement and then arranged in rank order. Then 28 statements were selected with highest t- Value for the instrument. The values of 't' in rank order are shown in the table -1.

Table–1
Calculated t values for each statement of the attitude scale and their arrangement in descending order (t-table =2.0, df =98)

S. No.	Statement No.	t calculated
1.	34	6.4
2.	6	5.6
3.	30	5.6
4.	5	5.5
5.	11	5.4
6.	21	5.1
7.	14	5.0
8.	28	4.3
9.	23	4.2
10.	19	4.0
11.	22	3.9
12.	10	3.9
13.	29	3.8
14.	8	3.8
15.	3	3.6
16.	20	3.5
17.	27	3.4
18.	31	3.4
19.	7	3.4
20.	17	3.1
21.	18	3.0
22.	4	2.9
23.	25	2.9
24.	26	2.8
25.	15	2.8
26.	2	2.8
27.	9	2.7
28.	16	2.3
29.	12	1.9
30.	32	1.9
31.	13	1.6
32.	35	1.4
33.	01	0.9
34.	6	0.2
35.	36	0.01

It is obvious from the table that the statement No.12, 32, 13, 35, 01, 06 and 36 were removed from the instrument having t-value less than t-table value.

Table–2
The calculation of t for evaluating the difference in the mean response to an attitude statement by High and Low achiever (N=100, for a favourable statement)

Response Categories	High achievers				Low achievers			
	X	f	Fx	Fx^2	X	f	fx	fx^2
SA	5	40	200	1000	5	15	75	375
A	4	10	40	160	4	10	40	160
U	3	-	-	-	3	10	30	90
D	2	-	-	-	2	15	30	60
SD	1	-	-	-	1	-	-	-
Σ		50 N	240 $\sum X$	1160 $\sum X^2$		50 N	175 $\sum X$	685 $\sum X^2$

$\overline{X}_H = 240/ 50 = 4.8$

$S_H = X_H^2 - \dfrac{(\sum X_H)^2}{N}$

$= 1160 - \dfrac{(240)^2}{50}$

$= 8.0$

$\overline{X}_L = 175/ 50 = 3.5$

$S_L = X_L^2 - \dfrac{(\sum X_L)^2}{N}$

$= 685 - \dfrac{(175)^2}{50}$

$= 72.5$

$$t = \frac{\overline{X}_h - \overline{X}_l}{\sqrt{\dfrac{S_h^2 + S_l^2}{N(N-l)}}}$$

$$= \frac{4.8 - 3.5}{\sqrt{\dfrac{8 + 72.5}{50(50-1)}}}$$

$$= 2.3$$

Reliability of Attitude Scale

After the selection of statements, the instrument was divided into two parts, i.e. scores achieved by the students in the favourable statements (positive) and unfavourable statements (negative). With the help of these two sets of scores, the researchers calculated the reliability (internal consistency) of the instrument by using split-half method. First, the correlation co-efficient (r) was measured, which gives the internal consistency of the instrument. Then by using, the Spearman Brown formula, the reliability of the full instrument was calculated (0.83).

Achievement Test

In the view of Grounlund (1971, p.5), "achievement test is designed to show as to what extent, the person tested has achieved the objectives of particular course." The purpose of achievement test is to measure some aspects of the intellectual competence of human being; what a person has learned to know or to do. According to International Encyclopedia of Social Sciences, (1972), teachers use achievement test to measure the attainments of their students, employers use achievement test to measure the competence of prospective employees, and professional associations use achievement test to exclude unqualified applicants from the practice of the profession.

Achievement tests, in the schools, are useful to distinguish students form higher competence to those of lower competence. Most of the educationist and psychologists agreed that the following four major steps should be considered in achievement testing: (1) the preparation or selection of the test, (2) the administration of the test to the examinees, (3) the scoring of the answer given and (4) the interpretation of the resulting scores.

Test in mathematics have been constructed for a variety of objective. At the elementary school level, mostly computational skills and problem solving are measured. Vashist, (1993) argues that although the majority of achievement tests in mathematics deal with computation and problem solving but in recent years, new trend towards construction of tests, which measure such objectives as arithmetic vocabulary and concepts, quantitative relationship, mathematical understanding and mathematical judgment.

All the Government elementary/secondary school students of 8th class of district Jhelum were the target population for this study.

There were 156 secondary and elementary schools in district Jhelum in the year 2007. From the total population of 156 schools, 20 schools were randomly selected (i.e. 05 rural boys, 05 rural girls, 05 urban boys, 05 urban girls). Then,

from each selected school, 10 students were randomly selected. Hence, the total number of subjects was confined to 200 and shown in table below in table-3.

Table–3
Sex wise / Area wise, Sample Distribution

	Urban	Rural	Total
Boys	50	50	100
Girls	50	50	100
Total	100	100	200

In order to draw any valid conclusion from a research, the tools used for the measurement of variables should be reliable and valid. This requirement is met by employing highly sophisticated statistics to make the tool validate and reliable. The researcher constructed tools of his own for this purpose and validated. The present study required the following tools and measures:

- **Attitude Scale**

  An attitude scale developed on the format of five points rating scale to measure the attitude towards mathematics. It consists of 28 statements and shown in the Appendix-A.

- **Achievement Test**

  A test of 100 marks (objective and subjective) constructed from the elementary school mathematics textbook published by the Punjab Text Book Board Lahore, Pakistan. The achievement test is shown in the Appendix.

Development of Achievement Test

To find out the correlation between the independent variable (attitude scale test scores) and the dependent variable (achievement test scores), the achievement test of 100 marks developed, administered to the same sample and marked. The test was consisted of multiple choices test items, short type and long (work problems) type problems.

The quantitative analysis of the test i.e., item difficulty, item validity (discrimination index) was calculated, and then the test items were revised. The reliability of test was calculated by using Kuder Richardson formula (KR-21), which was 0.96.

To find the relationship between the attitude scores and achievement test scores in the subject of mathematics product moment method was used. The correlation coefficient was 0.71 (high moderate correlation).

The table of specification and the achievement test in the subject of mathematics (class 8th) are presented in appendix "B".

Results

Table–4
Comparison of mean score of students achieved in the attitude scale towards mathematics (Boys vs. Girls)

Sample	N	Mean Score
Boys	100	116.33
Girls	100	109.56

It is indicated from the table-4 that the mean score of the boys is higher than Girls. That is the table shows higher attitude towards mathematics in favour of boys. The above-mentioned result supports the results of Pettitt, Lisa (1995) that the girls may not realize that their preferred future careers can require course work in Math; it seems prudent for Math teachers to discuss with the students many professional fields that require for Math. Therefore, the girls show comparatively negative attitude towards mathematics.

Stipek, Deborah, Granlinski, Hadi (1991), explore the beliefs of girls and boys and indicate that the girls have lower expectations for themselves in math than boys. The girls believe that they don't have mathematical ability that is why they perform not well as boys. From the table-3, a histogram is presented below which give clearer picture.

Figure–2

Comparison of mean score of students achieved in the attitude scale towards mathematics (Boys vs. Girls)
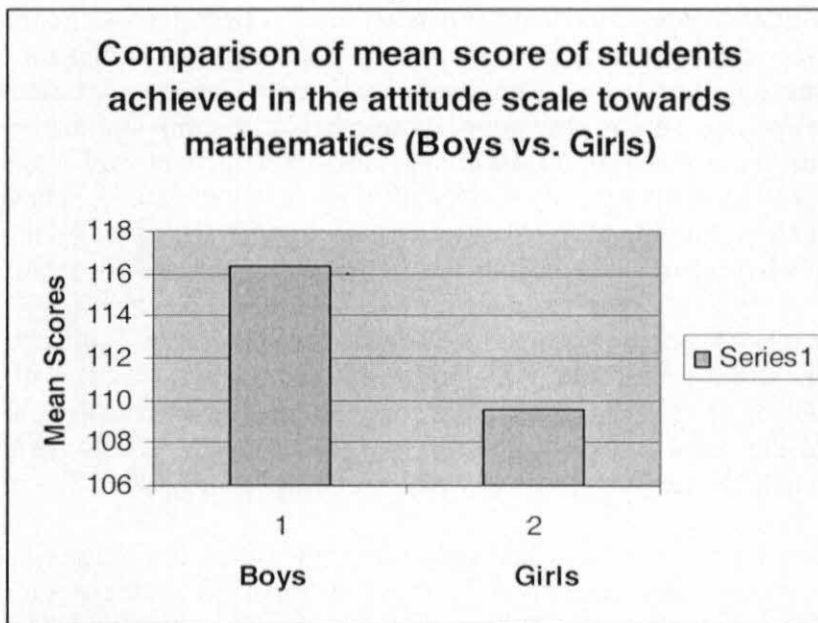
Table–5
Comparison of mean score of students achieved in the attitude scale towards mathematics (Urban Boys vs. Rural Boys and Urban Girls vs. Rural Girls)

Sample	N	Mean Score
Urban Boys	50	120.8
Rural Boys	50	111.8
Urban Girls	50	112.6
Rural Girls	50	106.5

It is indicated from the table-5 that, at elementary level, the urban boys have more positive attitude towards mathematics than the rural boys. Similarly, the urban girls have more favourable attitude towards mathematics than rural girls. Comparatively negative attitude in the rural students indicates some barriers which create hindrance for the development of positive attitude among the rural students (boys and girls). Barriers include teachers, parents and society's impact. (Clewell, Beatrice and Anderson, 1991). Kumar (1995), states that the personal examples of the teachers and environment of the class help to develop the positive attitude towards a subject / object. According to Leach, L. (1994), the role of the teacher is very critical in girls' success. She suggests that girls' low participation and their negative attitude towards math are greatly affected by teacher attitude.

Discussion

The mathematics course at elementary level is not very successful in terms of promoting students' interests towards the subject especially for girls. In Pakistan, the approach is content-based rather than application-based and not appealing to pupils. That is why very less number of students opt mathematics in higher grades, and this proportion is very small for girls at higher classes. As mathematics is compulsory subject at elementary level, and students have to pass this subject for promotion to next grade, that is why the result showed the positive correlation between students' attitude scores and their achievement score.

Institutions should arrange to assess the students' attitude towards mathematics at the time of their enrolment and then capitalize upon them while offering courses of studies. From the results obtained, it is possible to determine the areas of the curriculum where there are difficulties, especially for girls. The results also help the teachers to review their teaching strategies.

In the light of findings and discussion, measures can be adopted by the curriculum planers and developers to make the mathematics curriculum more interesting and application-based.

REFERENCES

Clewell, Beatrice and Anderson (1991). *Women of Color in Mathematics, Science and Engineering: A Review of the Literacy: a review of literature*. Center for Women Policy Studies. Washington, DC.

Gay, L.R. (1987). *Educational Research*. New York: Merrill Publishing Company.

Groundlund.E. and Robert L. (1971). *Measurement and Evaluation in Teaching*, 5th Ed. New York, Macmillan Publishing Company.

Hannula, M. (2002). *Attitude Towards Mathematics: Emotions, Expectations and Values*. Educational Studies in Mathematics. http://www.mathematics attitude survey.htm 1/31/2007.

Johnson, D. (1979). *Educational Psychology*. London: Prentice Hall Inc., Englewood Cliff.

Johnstone, A.H. Watt, A. and Zaman, T.U (1998). The students' attitude and cognition change to a physics laboratory, *Physics Education*, 33(1), pp. 22–29.

Leach, Lisa, Sexism in the Classroom: A self Quiz for Teachers. *Science Scope*, V.17 (6). PP. 54-59, March 1994.

Ma, Xin and Kishor, N (1997). *Assessing the Relationship between Attitude towards Mathematics and Achievement in Mathematics. A Meta-Analysis Journal for Research in Mathematics Education*. Vol. 28, No. 1.

Norman, R. and Elena, A. Skryabina. (2002). *Attitude towards Physics*. Research in Science and Technology Education: Vol. 20, No. 1. University of Glasgow, UK.

Pettitt, Lisa (1995). *Middle School Students' Perception of Math and Science Abilities and Related Careers*. Paper presented at The 61st Biennial Meeting of the Society for Research in Child Development, Indianapolis, March 30-April 2, 1995.

Reid, N. and Skryabina, E. A. (2002). Attitude towards Physics. *Research in Science and Technological Education*. Vol. 20, No. 1, 2002. pp. 67–81.

Reid, N. (2004). *Getting Started in Pedagogical Research*. LTSN Physics Sciences Practice Guide. (Hull, LTSN).

Reid, N. (2006). Thoughts on attitude measurement. *Research in Science and Technological Education*. Vol. 24, No. 1, May 2006. pp. 3–27.

Shah, I. (2004). *Making University Laboratory Work in Chemistry more Effective.*, Unpublished doctoral dissertation. Glasgow: Glasgow University, Scotland.

Stiper, Deborah, Granlinski, Heidi. (1991). Gender Difference in Children's Achievement-Related Belief and Emotional Responses to Success and Failure in Mathematics. *Journal of Educational Psychology*, v.83 (3). pp.361-371.

Vashist, SR. (1993). *Perspective in Measurement and Evaluation in Education*, 1st ed. Vol. 4, Delhi: Anmol Publisher.

Dear Students

I am interested in your ideas about mathematics. Your views about these statements help me to understand what you think about mathematic. Read the statements carefully, and put (X) in the box of your choice against each statement.

S. No.	Statements	SA	A	UD	DA	SDA
1	Mathematics is curious to me.					
2	Mathematic is needed in order to keep the world running.					
3	There is nothing creative about mathematics; it is just memorizing the formula.					
4	I don't like mathematics because it is boring.					
5	Mathematics is less liked by people than art or literature.					
6	I try to learn mathematics because it helps to develop my mind.					
7	Mathematicians are the people who discover things and are creative.					
8	Using the computer is a good way for me to learn mathematics.					
9	Mathematics is an individual activity, which has no benefit for others.					
10	Mathematics makes me confused to understand things.					
11	Mathematics helps me to understand the natural Phenomena in a better way.					
12	Mathematics is not important in everyday life.					
13	The rules learnt in previous classes are not helpful in next classes.					
14	I am fond of seeking new information about mathematics.					
15	Lecture method is helpful for me in learning mathematics.					
16	Mathematics enables a person for better planning.					
17	Mathematics develops the sense of observation.					

18	I feel pleasure after solving the mathematical problems.					
19	Clean and beautiful formation of diagrams in geometry develops the sense of organization in students.					
20	It is not necessary for a scientist to be a mathematician also.					
21	Mathematics develops reasoning in students which makes a way towards new discoveries.					
22	Mathematics will become source of income for me.					
23	It is better for me to get fame in any game rather than studying mathematics.					
24	Mathematics is foundation of all sciences.					
25	I don't like school because I have to learn mathematics there.					
26	Mathematics develops in us the qualities of truthfulness and honesty.					
27	Mathematics helps in understanding a solving any problems systematically.					
28	Mathematics has aesthetic value because mathematicians seek for truth and truth has beauty.					

TABLE OF SPECIFICATION FOR CLASS 8 MATHEMATICS

Sr. No.	Content Area	Objectives			Total
		Knows specific facts	Understands principles & generalizations	Applies principles & generalizations	
1.	Set Theory	01	02	08	11
2.	Rationale Numbers	01	05	04	06
3.	Number System with Base 2 and 5	01	01	04	06
4.	Proportion	01	01	07	09
5.	Square Root	01	01	04	06
6.	Percentage	01	01	04	06
7.	Algebra and Linear Equation	01	02	16	19
8.	Information/Graph	01	01	12	14
9.	Theoretical Geometry	00	02	12	14
10.	Practical Geometry	01	01	07	09
	Total	**09**	**17**	**74**	**100**

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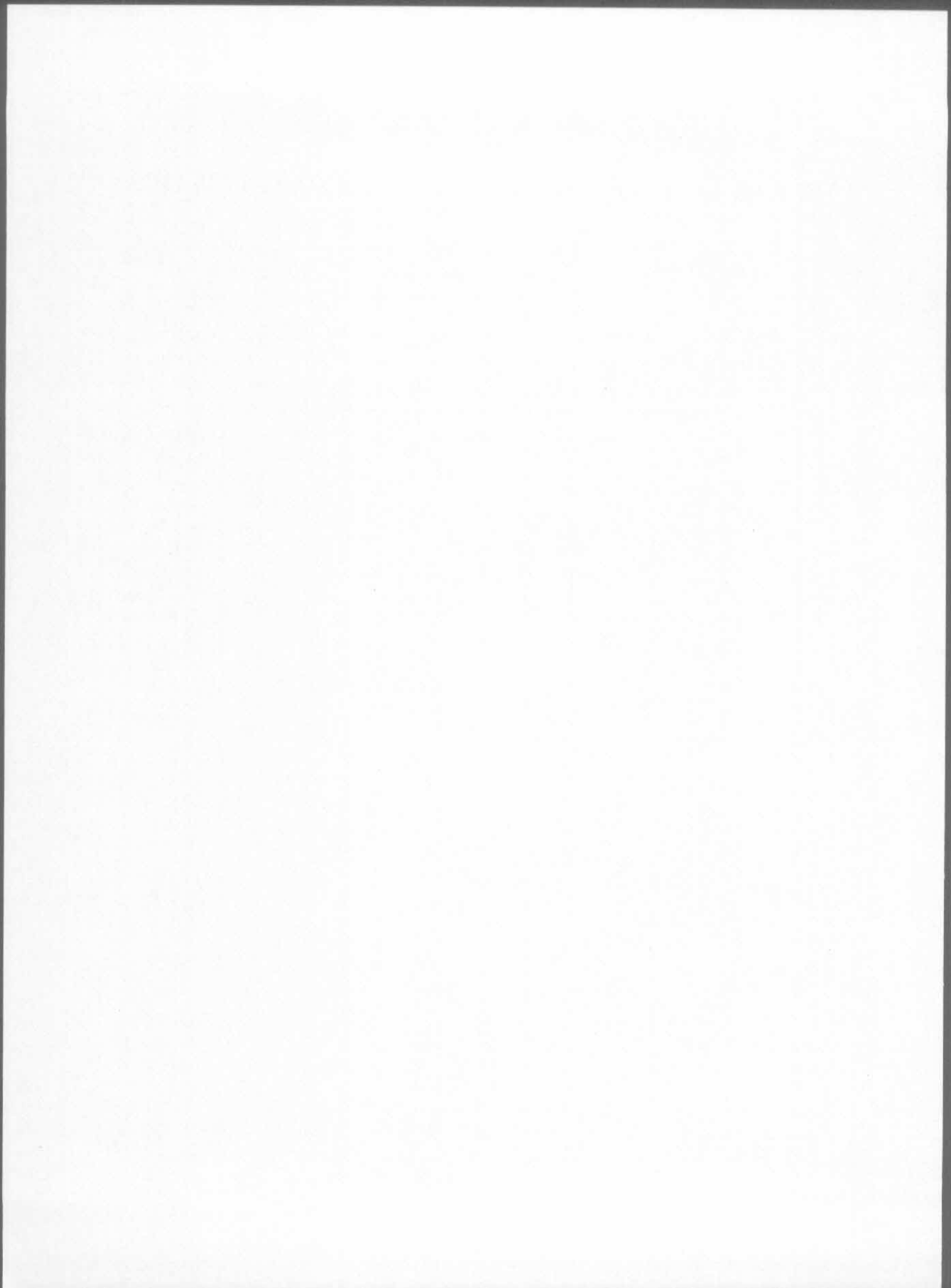
EVALUATING THE EFFECTIVENESS OF AIOU TELEVISION

By

Dr. Syed Abdul Siraj

Abstract

Television makes education different from other teaching modes, such as book, lecture, radio, computer, etc. There are a number of things television can do better than the average teacher and traditional educational institutions. Situations where both teacher and educational institutions are not available, television is the answer to obtain educational objectives (Lochte, 1993). Evaluating the effectiveness of television for distance education is of high significance, particularly in the developing countries, where resources are limited and population is unmanageable and even scattered. In Pakistan, television programmes are available for the Allama Iqbal Open University (AIOU) students, but they have not properly been investigated for learning of students in terms of: contents, format, presentation, motivational capacity, students' exposure to programmes, their integrativeness with other teaching aids, etc. This paper is an attempt to evaluate the effectiveness of AIOU television programmes. The study finds that AIOU TV airtime, day and duration are not suitable to students. Students mostly rely on the textbooks for making assignment and reparation for examination. However, students discuss TV programmes during the tutorial meetings. TV programmes make up deficiency for the missed tutorials and also benefits students while writing assignments to some extent.

Introduction

Use of Television for Learning

Selecting appropriate medium for the distance learner is a key in distance education. The majority of earlier studies in the West indicate that television is beneficial for learning. Learning from television is a psychological process which involves perception, selection, interpreting both visual and aural information, relating that information to prior learning or experience, and possible conversion

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of visual and aural perceptions into other mental modes, such as imaginary or words, (Tony Bates, 1983). Traver (1964-66) found that auditory method of learning has not much impact as compared to the audio-video method of learning.

All distance education institutions are using television for instruction. Allama Iqbal Open University (AIOU) is not using television extensively. There are only a few number of courses that provide television component as a support medium for instruction. Textbooks are the main source for presenting knowledge to the students. Whatever television programmes are available to the AIOU's students, they have not yet been properly looked into in terms of effectiveness from the points of view of contents, format, presentation, motivational capacity, students' exposure to these programmes, their integrativeness with other teaching aids, etc.

In Pakistan, particularly in AIOU, there is a major constraint with regard to the use of modern media techniques. The practitioner's attitudes seem stranger and irrelevant when communicating with the student in general and rural students in particular. It is necessary to get familiar with the structure and methods of instruction through TV in order to develop an integrated approach of communication strategies. For effective production of educational TV programmes, there is a need of collaboration between the researcher and the producer, and the aim should be to find out that the use of television is potentially useful for the students' studies. Evaluating the effectiveness of television for distance education seems to be much significant, particularly in the developing countries where resources are limited and population is unmanageable.

Evaluating educational television requires value judgment, assessment of students' achievement, continuation, termination or modification of an existing programme or adoption of a new programme. In this context, Chiam Tah Wen (1977) explains that there are two types of evaluation, the 'Summative', and the 'Formative' evaluation. Formative evaluation is conducted for the development of new educational television programmes. In the formative evaluation, student learning needs, his readiness for learning and problems he encounters while learning are assessed. Its purpose is to assist the teacher and student to re-programme the teaching aid. Summative evaluation is used to ascertain, or assess the effectiveness of the existing programme in the context of teaching and learning. Its main purpose is to assist in certification or validation and in future selection. For effective production of educational TV programmes, there is a need of collaboration between the researcher and producer and effort should be made to find out whether the system of analysis followed in the West is applicable to our

situation. If not, what are the modifications that need to be done before any strategy is developed?

With the growth of research in distance education, Alistair (1984) argues that a number of writers have lamented at the apparent lack of a clearly defined paradigm for research and the few empirical findings relating to studying at a distance. In this regard, Baath (1982) commented that "there is a severe lack of scientifically validated knowledge-someone would perform a very great service, indeed, if he/she would carry out a major empirical research study on the learning strategies of distance students--if possible including intensive studies by means of interview and even observations of actual learner behavior".

The earlier studies on educational television in UK (Himmelweit, Oppenheim and Vine, 1958), the USA (Schramm, Lyle and Parker, 1977), Japan (Furu, 1962), and Australia (Compbell, 1962) tended to focus on the effects of television on homework, school performance, family life, and reading habit, etc. They attempted to compare viewers with non-viewers in a way, which perhaps tended to overlook the fact that non-possession of television set could be linked with various factors (e.g. poverty or unfavorable attitudes to the medium) which make comparison unreliable.

Response to educational television is affected by many learner variables. B Wade and R.A. Poole (1983) analyzed that amongst these are social class, intelligence, sex, personality, and learning style. Apart from this the nature of response itself causes difficulty. It might be supposed that television influences a viewer's attitude most strongly when dealing with subjects remote from his direct personal experience, but evidence suggests that this is not always so. Roshier, N. (1969) explained in this regard that "our images of crime, for example, very much reflect its social reality rather than what we see of it via the media" and Nunnally J, C. (1961) viewed that "the same is true of our attitudes to mental illness". In research among children, television has not been proved to be of any great importance in influencing attitudes to violence (Howitt, 1973), to race (Hartmann and Husband, 1974), and to the social behaviour among children lacking older siblings (Howitt and Cumberbatach, 1971). However, Kemelfield, (1972) has pointed out that findings are sometimes contradictory. For example, he found that "children living in high-density immigrant areas in UK, became far less certain of their pro-Pakistani feelings after viewing the programme *Our neighbor*, which had the unintended effect of emphasizing differences rather than extolling uniqueness".

The literature reveals that there is a great criticism on the experimental methods of research. As Bates, et al (1981) commented on the failure of experimental research by saying that experimental studies are lacking both in the theoretical framework of students learns from television, and in the requirements of experimental control, with control of variables, take the students completely outside from the real learning context. Contrary to experimental method of research in educational setting, Parlett and Hamilton (1976) used the term illuminative evaluation, which aimed to know what is really going on in learning process. In this method the emphases is on the holistic studies carried out in the natural settings, rather than in the laboratory conditions, using qualitative methods of interview and observational techniques with less prominence on quantitative methods and statistical manipulation of survey data.

The need for evaluating educational television arises repeatedly in order to achieve maximum results from educational television. For that the media practitioners have to adapt themselves to new situation, keep abreast of innovations and harness the technology to the interest and needs of the students. Edward B. Lasher (1975) has presented a scale for evaluating educational television programmes which he divided into three sections: "The first section contains the bibliographic or identifying information, such as the title, format of material, the producer, the distributor, length of the programme, cost, and the year the programme was produced. This section also contains information on content area, the specific audience, and objective of the programme. The second section is about the description of the title, key concepts, and the skills used. The third section can be the evaluation itself". (Edward B. Lasher, 1975)

A fundamental concern of research in education is what students actually learn from studying and the different ways in which learning is conceptualized. Alistair Morgam, (1984) is of the view that "learning is seen as the acquisition of pieces of knowledge and information. In contrast, learning can be seen as change in one's way of conceptualizing an idea, or aspect of reality." To him, to 'really understand' a set of ideas, concepts or subject area, it seems that the learner must engage in a de-structuring of the knowledge or subject material, followed by a re-structuring of the material in relation to the learner's existing conceptual framework.

Findings from the studies of Margret, G. (1977) provided important insights into the frames of reference regarding students' approach to TV learning material and programme formats. The study found that students have different preferences for different programme format, for example, dramatic presentation, have mentally 'switched off' and missed the entire educational message of the programme.

Whereas some students get attracted by programme like 'actuality' and they, too, miss the point of the programme (Margret G, 1977). The study also highlighted that specific production technique may cause intrusion on overall purpose of the programme. The students' ability to make the most of broadcast material can be badly affected by meeting assignment deadlines and when these assignments are unrelated to broadcasts, students have been found to be inadequately prepared for programmes or to skip them altogether(Margret G, 1977).

A seminar in Poona (India) in 1975 on educational television concluded that "children programmes should be devoted to experimenting traditional formats, including the use of realistic documentary, animation, puppetry, fantasy, etc. S.K. Mullick (1977) viewed that "no universal models could be applied in media decision because the response of audience, local culture condition and the availability of infrastructure have to be reckoned." He further emphasized that "television often descends to sheer entertainment. In communication the target audience has to be constantly borne in mind---its social, economic, and cultural profile---so that decision-making for media programmes is relevant to the consumers. After all, TV is a show business and its prime aim is to hold the interest of the audience, to make the audience believe that it is getting its money's worth. The switch-off knob is a nightmare for those who are in the entertainment trade. What we have to do is to face this great challenge of skillfully combining entertainment with content, if we want to bring in social change-which is the major objective of TV."

AIOU Experience

Television Broadcasting came to Pakistan in the early 60s. A small pilot TV Station established at Lahore from where transmission was first beamed in Black and White on November 26, 1964. PTV Corporation's broadcasts are family oriented and they carters the need of local audience by showing eastern family programmes. PTV began colour transmission on, February 19, 1979. The broad objective of PTV broadcasts is family oriented. During the decades of 1970s, 1980s and 1990s, PTV dramas and teleplays were considered as the best in Indian Subcontinent.

Pakistan television also runs educational programmes in which a slate of two hour is given to Allama Iqbal Open University (AIOU). The transmission timings were from 1.00 PM to 7.00 PM. The education broadcast transmissions cover about 60 % of domestic population and 30% of area. However, expansion is in the process, which would increase to 75% of population and 33.6% of area coverage.

AIOU imparts education to its BA level students through various teaching modes; viz, Textbook, TV programmes, Tutorials, and Radio programmes. Textbook in Distance Educating system the world over is the main stay, which plays an important role in students' performance in assignments and examination. AIOU provides textbooks to BA students at the start of the semester. Television programmes supplement student's study along with the textbooks. There are five TV programmes for each course at the BA level available to students only once at about 1.00 p.m. to 2.00 p.m. on different days of the week during the semester. Tutorial is a teaching support for which the University appoints relevant qualified part time teacher (tutor) belonging to school, college or university. Teacher-students face-to-face communication (Tutorial) takes place fortnightly for one and an half hour within the jurisdiction of the regional directorate after the office hours. Venue of the tutorial meeting is usually at schools or colleges. Students' attendance is not mandatory. Those students who are living in far-flung areas and cannot attend tutorial meeting, they remain in touch with the tutor through correspondence.

Research Question

The investigation was determined through the following research questions:

> What is the perception of the Allama Iqbal Open University students regarding the use of television as supplementary source of learning, and how far television as medium contributes to the students' learning?

The data was collected through mailed questionnaire from the AIOU BA level students enrolled in Spring 2004 Semester for the courses "Economics" code No. 402, "Islamiyat" code No. 416, "Health and Nutrition" code No. 484 and "Food and Nutrition" code No.485. Students of these courses were selected as units of analysis because these courses were credit based and had the support of TV programmes. Total number of students enrolled in these courses was about 7000 scattered heterogeneously in all part of the country. Total sample size selected randomly from the university's admission list of 2004 is 342.

Results

AIOU Teaching Modes

Figure 1 shows percentage distribution of students liking and disliking the textbook. As evident from the figure, 60% of the students liked textbook very

much. However, 32% just liked the textbook whereas 4% did not express their opinion (Chi-square = 226.947; p = .000).

Figure-1

Distribution of students for liking and disliking of textbook
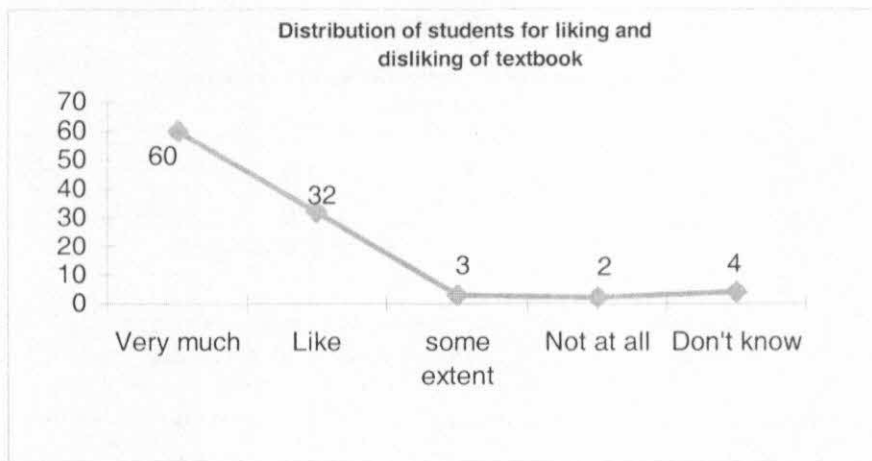
Figure 2 reports students' responses regarding likeness of TV programmes as a supplementary teaching aid. As evident from the Figure, 33% students liked TV programmes, 25% greatly liked, 23% liked TV programmes to some extent, 7% students did not like, and 13% students did not express their opinion on the liking and disliking of TV programmes as a supplementary teaching aid (Chi-square = 34.361; p = .000).

Figure-2

Distribution of students for liking and disliking TV programs
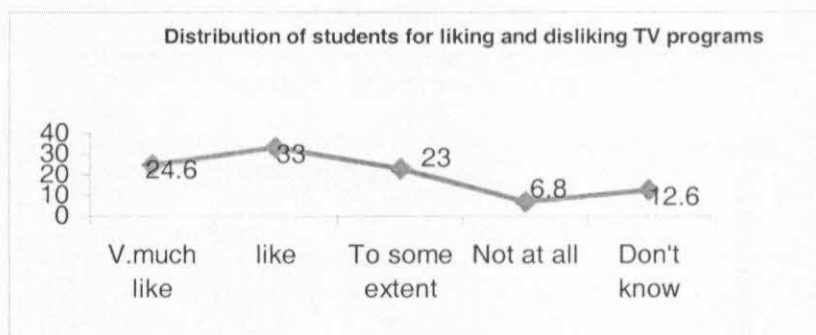
Figure 3 shows students responses of liking and disliking of tutorial. As evident from the Figure, 35% students liked tutorial, 19.4% liked it very much, 23% liked it to some extent and10% did not like it (Chi-square = 63.880; p = .000). Regarding the overall comparison of different teaching modes, i.e. textbook, TV, Tutorial and radio. Students were asked to choose the teaching

mode they like most. As depicted by the Figure, (37%) liked textbook, 27 % chose tutorial, 26% liked T V programmes, and 16% students favored radio programmes (Chi square = 8.340; p = .03).

Figure-3

Dististribution of students liking and disliking tutorials
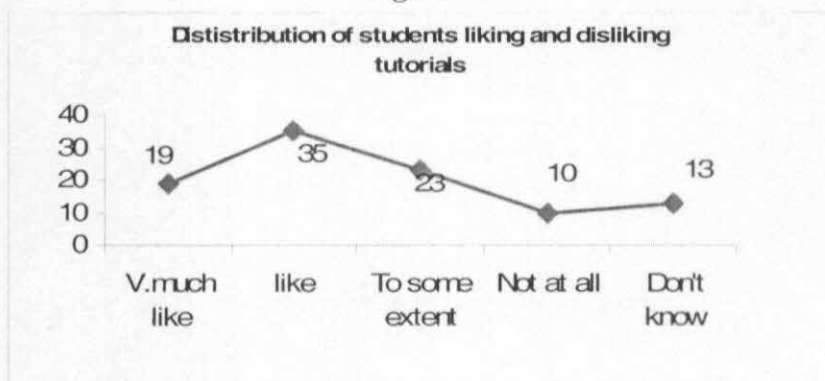
Students Exposure to AlOU TV

Figure 5 indicates that majority of students do not watch AIOU TV to frequently, however, they do watch them to some extent (Chi-square = 113.081; p = .000). Figure 6 reveals reasons for not having watched AIOU TV programmes by the students in their courses during the semester is the airtime which do not suit them (Chi-square = 152.024; p = .000).

Figure-5

Frequency of watching TV programs

Figure 6: Students' reasons for not having watched TV Programms during the semester
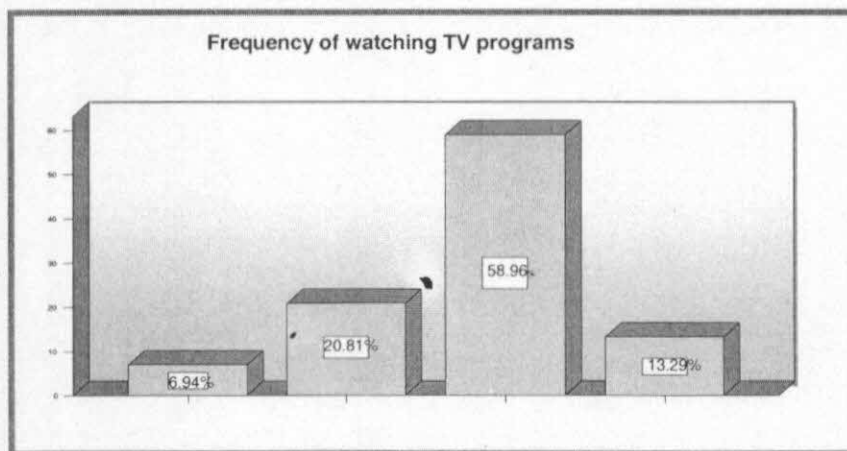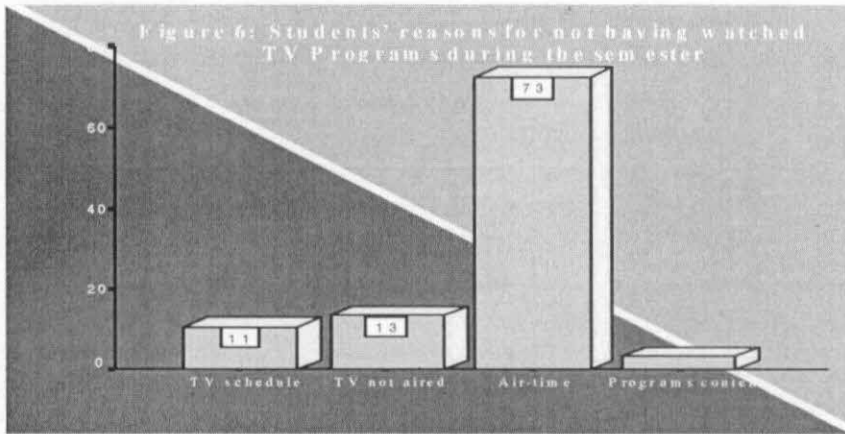
Students' Need to Watch AIOU TV Programmes During Semester

40% students want to watch TV programmes at the beginning of semester, 35% before submitting the assignments, 15% before final examination and 10 % wants to watch at different times during the semester (Chi-square = 84.321; p = .000), (figure 7)
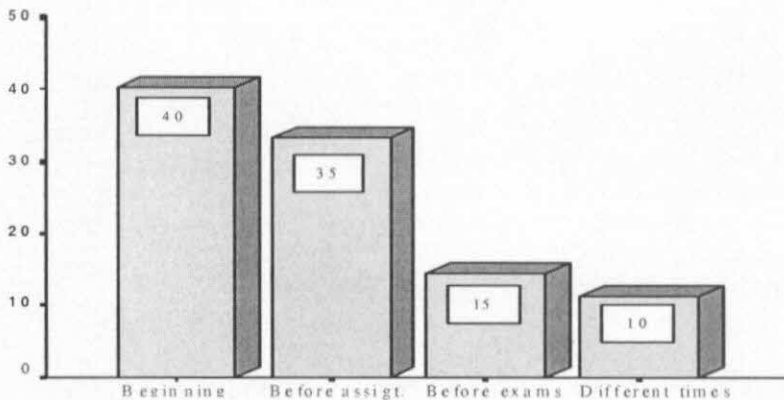
Suitability of AIOU TV Broadcast Day and Time

Figure 8 reveals that majority of students (82%) wanted to watch AIOU TV programmes on Sunday. (Chi-square = 34.783; p = .000). Majority of the students feel that airtime of the AIOU TV is not suitable to them (Chi-square = 34.761; p = .000), (figure 9)
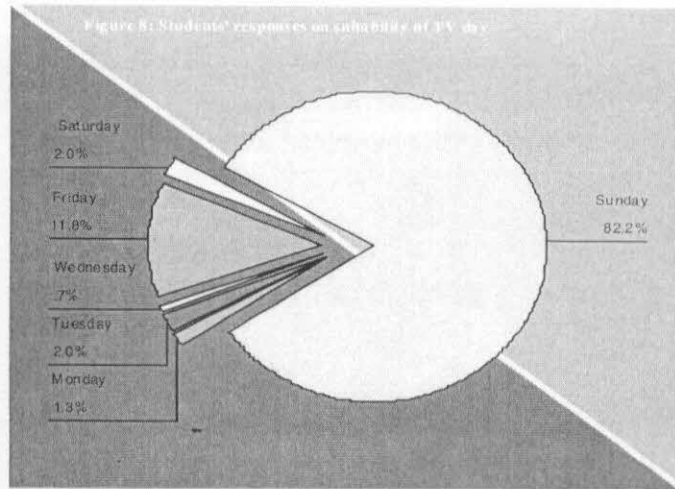
Figure 9: Suitability of TV airtime
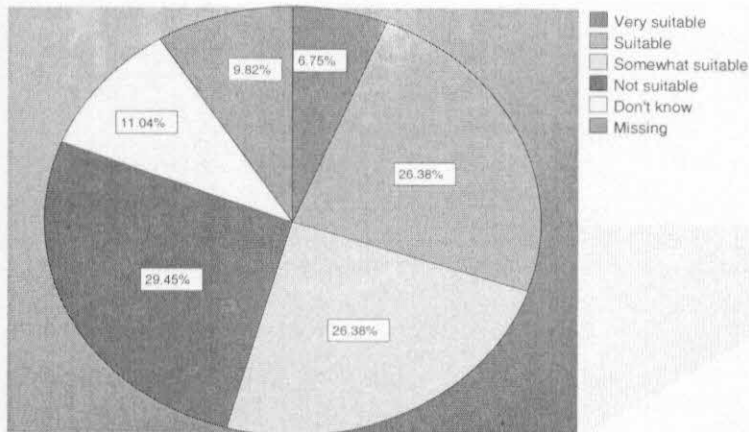
Writing Assignments Before and After Watching TV Programmes

Data given in Figure 10 reveals students responses on writing assignments before and after watching TV programmes. Majority of the students (51%) responded that they have submitted their assignments after watching TV programmes, whereas, 34% students wrote their assignments before watching TV programmes. There were also 15% who wrote assignments some time before and sometime after watching TV programmes (Chi-square = 85.000; p = .000).

Figure 10: Distribution of students for writing assignments before and after watching TV programs
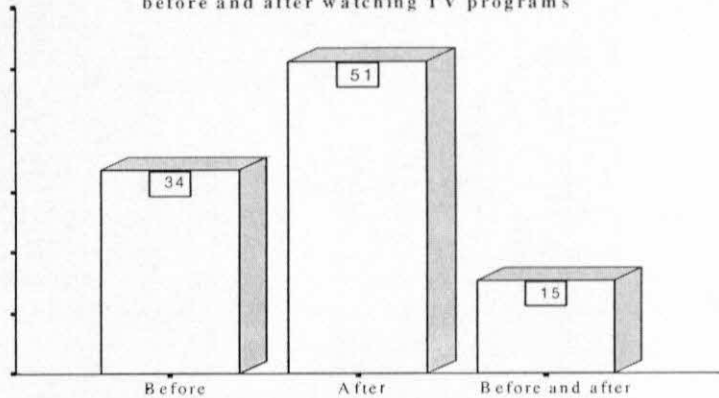
Students' Discussion on TV Programmes in Tutorials

Figure 11 gives percentage distribution of students' discussion on TV programmes in tutorials during the semester. As clear from the Figure, 63% students discussed TV programmes to some extent. Similarly, 28% did not discuss TV programme at all whereas, 18% students reported that the often discussed TV programmes in the tutorials (Chi-square = 22.950; p = .000).

Figure 11: Students' discussion on TV programs in tutorials
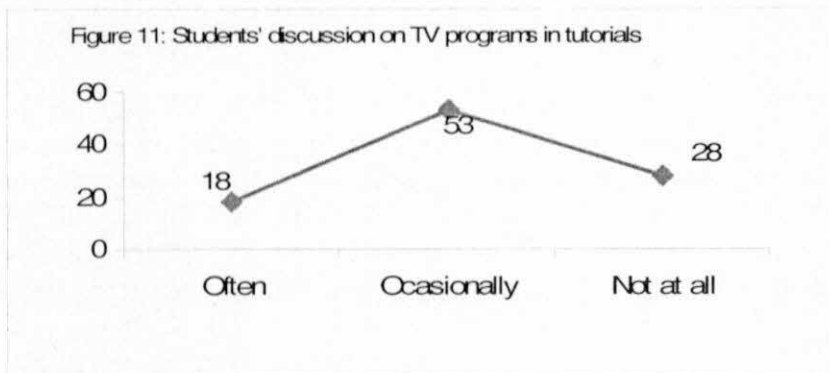
Figure 12 provides information on whether TV programmes compensated students for the missed tutorials during the semester. 44% students viewed that TV programmes made up the deficiency for the missed tutorials to some extent. However, 31% reported that TV programmes greatly made up the deficiency. Similarly, 17% expressed no view in this sphere. However, there were 9% opined that TV programmes did not make up the deficiency (Chi-square = 44.914; p = .000).

Figure 12: Students responses on TV programs for making up deficiency for the missed tutorials
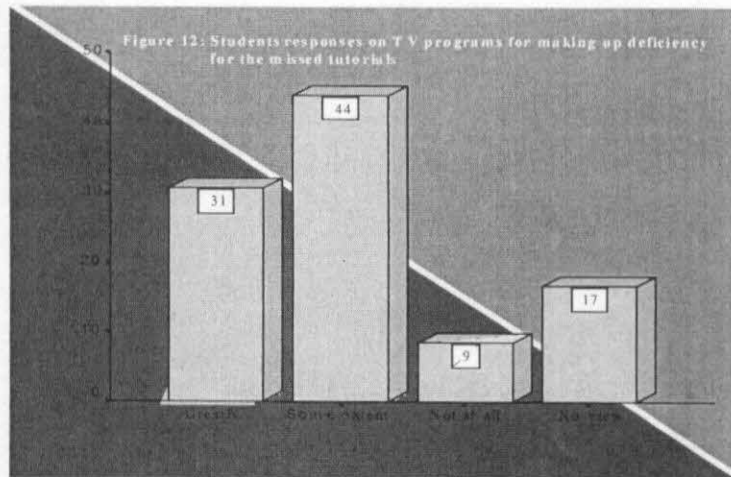
Discussion

In the AIOU experience, textbook might be easy for comprehension as well as a great source of reliance. In the AIOU system, assignments and final examinations are based on textbooks. Television is the third choice of students for learning seems probably not coming to the expectations of students as a supplementary source of learning. Whereas students get sufficient benefit from tutorials as compare to TV.

The main reason for not having watched AIOU TV programmes by the students in their courses during the semester are the airtime of the AIOU TV programmes did not suit them. Quite a large number of students demanding to have TV programme aired between 4.00 to 7.00 p.m. On the contrary, AIOU TV programmes are aired from PTV at between 2 to 3 p.m. The university's TV airtime does not suit to students as during these times, majority of them work in offices. Students want to watch AIOU TV between 6-7 p.m. This is quite obvious that working students can only do their study at these times. In the study of Karim et al (2001) also indicated that the suitable airtime for TV programmes at the Open University in Bangladesh is from 16.00 p.m. to 18.00 p.m. On the contrary, AIOU TV programmes are aired from PTV between 2 to 3 p.m.—the only time slot that PTV has allocated for AIOU. Whereas, PTV in its routine schedule allocates rest of the broadcast time to regional programmes, commercials, news, dramas, prime time programmes, and late night English or Urdu movies.

Besides, students responded that TV programme be aired on Sunday. On Sunday all the working students (who are in majority) have their holiday on from

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government and private office. Karim et al (2001) also reveals that students like to watch TV programmes of the Bangladesh Open University on Fridays (an official holiday in Bangladesh).

AIOU students are of the view that TV programmes should be presented at the beginning of semester. This might be due to the fact that students at the start of the semester want to make conceptual clarity for understanding the textbooks through TV programmes and to write assignments confidently.

Regarding the effectiveness TV for assignment, it does have some effects as majority of the students submit their assignments after watching TV programmes. If the airtime and day of are suitable to the students' need, in that case, AIOU TV programmes provide better insight into the subject, and thus students prefer to write assignments after watching TV programmes. The effectiveness of the TV programme can also be evident from the fact that student while attending fortnightly tutorial discuss TV programme relating to their courses. TV also makes up their deficiency for missed tutorials.

Conclusion

In the AIOU experience, textbook might be easy for comprehension as well as a great source of reliance and thus an effective medium in the system. TV airtime, day and duration are not suitable to students of AIOU as most of them are employed and thus rely on textbook for making assignments and preparing for examination. However, students discuss TV programme during the tutorial meetings and make up deficiency for the missed tutorials. AIOU TV is beneficial for students while writing assignments.

Notwithstanding, it has generally been observed that AIOU TV programmes are made day in, day out, with no idea of how they will be effective for the students learning. For effective production of educational TV programmes, there is a need of collaboration between the researchers/academicians and the producers and the aim should be to find out the potential use of television for the students' effective leaning.

REFERENCERS

Alistair M. (1984) A report on qualitative methodologies in research in distance education. *Australian Journal of Distance Education*, 5, (8) pp. 252–265.

B Wade and R. A. Poole (1983) Responses to educational Television. *Journal of educational Television*, Vol. 9, No. 1. pp. 22–30.

Baat, J.A. (1982) Distance students' learning—Empirical findings and theoretical deliberations. *Distance Education*, 3, (1). pp. 6–27.

Christopher Jones, (1983) Piaget's Theories and some possible implications for Educational Television. *Journal of Distance Educational Television*, Vol. 9, No. 1, UK, Oxford shire. pp. 44–49.

Compbell,W. J. (1962) *Television and the Australian Adolescent*. Sydney, Angus and Robertson. pp. 176–80.

Edward B. Lasher (1975) Evaluative Criteria of Non-Print material: A Compromise. Audio-visual Instruction, *Evaluation and Selection of Media*, Volume 20, No. 4. pp. 17–18.

Furu, T. (1962) *Television and children's life*. Tokyo, Japanese Broadcasting Cooperation. pp. 324–328.

G. F McVEY (1975) Components of an effective multi-media system for college and university instructor. Audio-visual Instruction. *Evaluation and Selection of Media*, Value 20, No. 4. pp. 39–47.

Hartman, P. and Husband, C. (1974) *Racism and the mass media*, London, Davis Poynter. pp. 123–130.

Himmelweit, Oppenheim and Vine, 1958) *Television and the children*. oxford university Press. p. 213.

Howitt D. and Cumberbatch, G. (1971) *The ethnology of imitation* unpublished article university of Leicester. p. 136.

Howitt D. (1973) Atitudes towards violence and mass media exposure, *Gazette*, 17. pp. 208–234.

Joan Bliss, (1983) Piaget's Theories and some possible implecations for Educational Television. *Journal of Distance Educational Television*, Vol. 9, No. 1, UK, Oxfordshire. p. 36.

Kemelfield, G. (1972) *The evaluation of school broadcasting: piloting a new approach.* Leeds, university center for television research and London, ITA. p. 154.

M. Franceklein (1975). A perspective on improving the effectiveness of curriculum material. Audio-visual Instruction. *Evaluation and Selection of Media*, Volume 20, No. 4. p. 39.

Margret Gallagaher, Programme Evaluation methods at the Open University. *Evaluating Educational Television and Radio*, Ed. Tony Bates and John Rabinson, Milton Keyens, 1977, p. 176.

Nunnally J. C, (1961) *Popular Conceptions of Mental Health.* New York, Holt, Rinehart and Winston. p. 342.

Parlett. M. and Hamilton, D. (1976) Evaluation is Illumination. In Tawny, D. (Ed) (1978) Curriculum Evaluation today: trends and Implication. London: Macmillan. pp. 79–85.

Roshier, N. (1969) *Crime and the Press*, P.hd thesis. University of Newcastle Upon Tyne. pp. 195–197.

S. K. Mullick, Decision Making: A communication strategy in TV programmes building. *Evaluating Educational Television and Radio*, Ed. Tony Bates and John Rabinson, Milton Keyens, 1977, pp. 277–280.

Schramm,W., Lyle, J. and Parker, E. (1977)In: Howe, M.J.A. (Ed) *Television and Children.* London, New University Education. pp. 67–73.

Tony Bates, (1983) Piaget's Theories and some possible implications for Educational Television. *Journal of Distance Educational Television*, Vol. 9, No. 1, UK, Oxford shire, p. 33.

Tony Bates, A. W. (1981). Towards a better framework for evaluating the effectiveness of educational media. *British Journal of Educational Technology*, 12, (3), pp. 215–233.

Tony Bates and Margaret Gallagher (1976) The Development of Research at the Open University. *British Journal of Educational Technology*, Vol. 1, No. 1, London. pp. 34–35.

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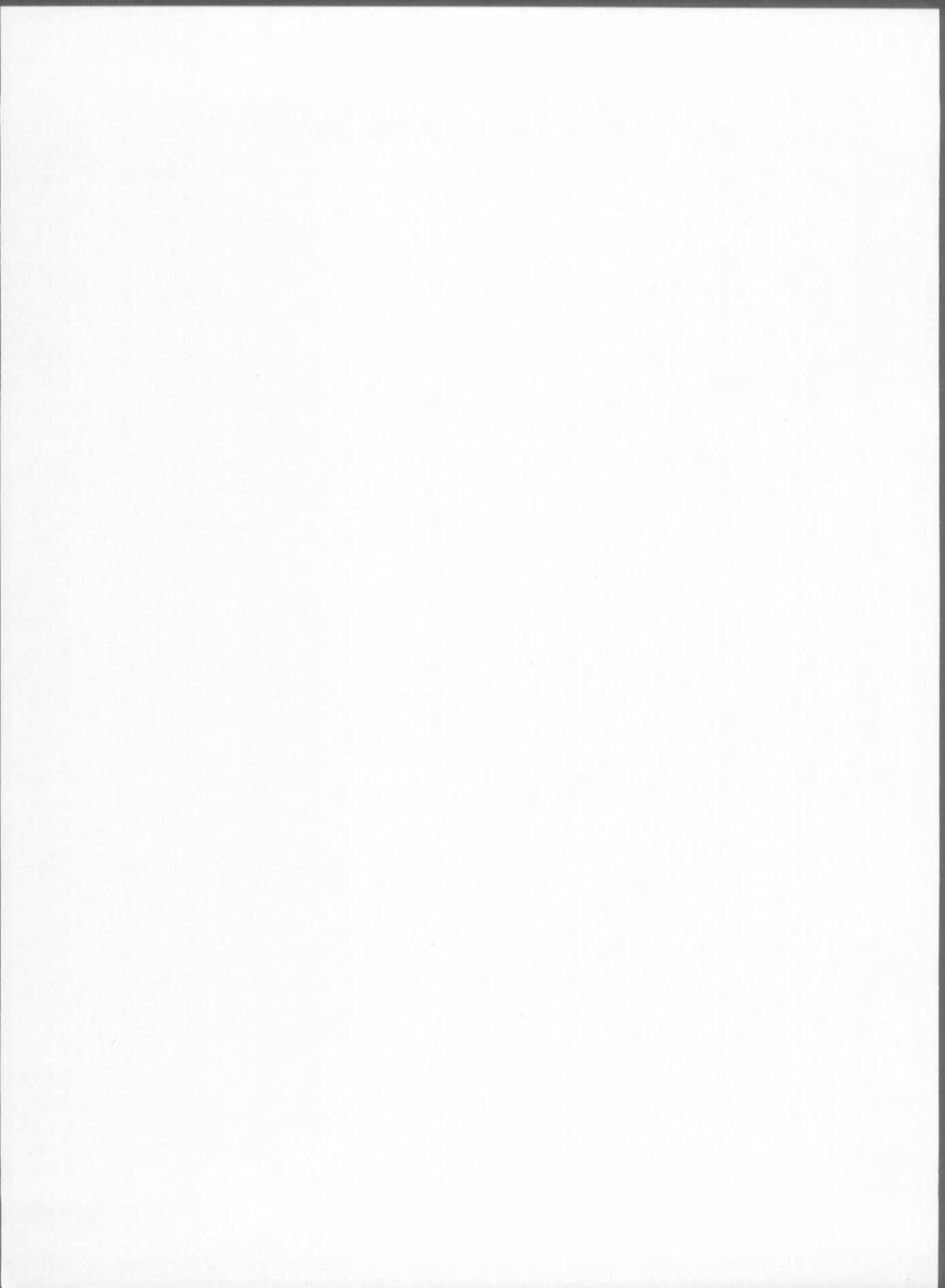
ADULT EDUCATION IN PAKISTAN:
AN ELIXIR FOR DEVELOPMENT

By

Dr. Nabi Bux Jumani*
Nazar Abbas Nazar**
Shahinshah Babar Khan **

Abstract

The investment in education enhances the overall social and economic benefits. The adults are most important stratum of the society, particularly where there is high illiteracy rate. This study focuses on the significance of adult education towards national development. The objectives of the study were: to discuss the concept of adult education and to highlight the role of adult education in national development.

Questionnaire was developed. The population for the study of those M.Ed. students who are mostly serving people either in private or public sector and are contributing to the society directly as well as indirectly. Hence, care was taken to include in the society those who are working people. Each item of questionnaire was checked by using Chi square technique and analysed accordingly. The findings and conclusions have been made accordingly.

Introduction

Education is the major source of human resource development and human capital formation. Without upsurge in education, it is inconceivable to realize the objectives of socio-economic and political development of any nation. Countries are under-developed because most of their people are under-developed, having no opportunity of expanding their potential capacities in the service of society (Adam Curle observed as quoted by Ghafoor (1994). The perspective of adult education is actually a new way of describing the very old process of education. Different terms like non-formal education, out of school education, continuing education,

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community education and life-ling education are being used. All the terms are covered under adult education. Literacy and adult education plays a vital role in the development of civilization of mankind. They impart functionality and social awareness, which generates better understanding, skill formation and civilized manner of society. Adult education opens several channels of communication for the individuals, improve their efficiency and performance in jobs and promote social mobility. Adult education is commonly used in Western nations and has been used even in developing nations. Adult education was used in the title of the government agency in the education ministry in Thailand before the term NFE was adopted. There are problems in using the term because of differing connotations between the West and developing nations in their understanding of an adult.

An adult is typically a person who has completed up to 13, but usually at least 10 years, of schooling – primary or elementary and then secondary and has either progressed to tertiary education or become economically independent as a member of the workforce. Literacy and adult education facilitate wider adoption of new technologies and improvement in the management of production. We know that literacy creates the awareness of the importance of various programmes, for example, health, family planning, and nutrition among them. Literacy and adult education are the bases to the process of social and economic uplifts of the weaker sections of the society. Jarvis (1998) suggested that: Adult education might also be understood as an educational process conducted in an adult manner. Taken to its logical extreme this interpretation would allow for children in schools to be regarded as participating in adult education if the process in which they were engaged was conducted in an adult fashion. However, Wiltshire was aware of this possible interpretation and suggested that an adult also has to be mature, experienced and over twenty years of age. Literacy plays a pivotal role in the development and progress of any nation. Education is an established starting point on the path of progress. Developing and under-developed countries, both are striving hard and making best of their efforts to enhance awareness level of their population.

According to Liveright and Maygood (1989, p.9): .... Adult education is the process whereby persons who no longer (or did not) attend school on a regular and full time basis, undertake sequential and organized activities with a conscious intention of bring about changes in information, knowledge, understanding or skill, appreciating attitudes, or for purpose if identifying and solving personal or community problems.

However, the concept of adult education must be conceived as a potent weapon in making the manpower of the country literate. Almost all the developing countries including Pakistan and various private organizations/ agencies are mostly driven towards spending a lot of money for adult education. Keeping in view the importance of adult education, its scope and potential role in eradicating mass illiteracy, despite the best efforts of the Government and launching a multitude of literacy programmes to enhance adult literacy rate.

Literature

UNESCO (1976, p. 2) has given a comprehensive view of adult education as:

The term adult education denotes the entire body of organized education processes, whatever the content level and method, whether formal or otherwise, whether they prolong or replace initial education in schools, colleges and universities as we; as in apprenticeship, whereby persons regarded as adult by the society to which they belong develop their abilities, enrich their knowledge, improve their technical or professional qualifications and bring about changes in their attitude or behavior in the two fold perspective of full personal development and participation in balanced and independent social, economic and cultural development.

The emphasis of UNESCO is on functional part of adult education which makes an adult to perform his/her role in the society after having some vocational training according to his/her aptitude. Such experiences must be provided to them according to their interest and cultural norms. Knowles (1980, p.19) in his book entitled *The Modern practice of Adult Education* describes adult education as:

It is a process that is used by adults for their self development, both alone with others, and it is used by institutions of all kinds for growth and development of their employees, members and clients. It is an educational process that is often used in combination with production processes, political processes, or service processes.

These definitions, embracing the dual purposes of achieving individual's self- fulfilment and increasing social participation, lay to rest the notion that adult education is purely concerned with what were once regarded as non-vocational activities. The term non-vocational is, in any case meaningless, since a subject if vocational or non-vocational entirely according to the motive of the learner for studying it. However, adult education embraces all forms of education experiences needed by men and women according to their varying interests and

requirements, at their deferring levels of comprehension and ability, and in their changing role and responsibilities throughout the life. The importance of adult education is increasingly recognized by the educational planners in developing countries. Philip Coombs, (1968, p.142) work has been well recognized in the field of non-formal and adult education. He has stated that:

> The poorer countries now face a priority task of non formal (adult) education which years ago confronted today's industrialized countries. It is to bring to the vast number of farmers, workers, small entrepreneur and others who have never seen the inside of a formal classroom, perhaps never will have a spate of useful skills and knowledge which they can properly apply to their own and their nations developments.

The term adult education has been used in literature with three different meanings:

1. A field of operation that encompasses all the organized activities in which mature men and women engage for the purpose of learning, usually under the auspices of an institution.
2. Process of self-directed inquiry through which individuals systematically learn from their daily experience and other resources in their environment.
3. A social movement that encompasses the whole spectrum of mature individuals learning in infinite was under innumerable auspices of many things that make life richer and more civilized and is dedicated to the improvement of the process of adult learning, the extension of opportunities for adults to learn, and the advancement of the general level of our culture.

The primary role of adult education in developing countries is to help each individual man, woman and youth make the best of his/her life. No system of adult education can do all that is needed. Every need cannot be met by adult education alone. However, the role of adult education is broad and global in its implications, and it is essential. Therefore, that each country should enunciate its own set of aims for education as a whole and also specifically for adult and non formal education. Such a pronouncement will provide the setting in which the development of adult education can take place. It will certainly helpfull to establish a positive climate of thought towards this branch of education and it will indicate the significance which government attaches to it. In developing countries, the role of adult education is very significant; it has to provide education and training for those adults who have never had a previous opportunity for schooling.

Little effort was made to launch a viable programme of adult education in Pakistan since its inception. However, the significance of the issue was recorded in different policies and plans of the country. In Pakistan Educational Conference held at Karachi in 1947, the importance of the literacy was acknowledged to overcome the problems of illiteracy. It was recommended that adult education programme "should be launched with the help of different audio visual aids". It was further recommended that "special training of adult teachers may be arranged in training colleges and normal schools". The National Education Policy 1998-2010 pointed out the implementation strategies, i.e., to pay special attention to out-of-school female and male children and youth, including school dropouts, adult literate, particularly women neo-literate among all categories. Like every nation, Pakistan has specified major goals of adult education. Among others, the following would be the major goals of an adult education and literacy programme in Pakistan:

1. To enable the adults to understand and memorize at least the last six suras of the *Holy Quran* and learn to perform prayers (for Muslims only).
2. To enable the adults to read with understanding the matter related to their life interests.
3. To enable the adults to record and communicate that which concerns their day to day needs.
4. To enable the adults to make simple calculation pertaining to their day to day life.
5. To enable the adults to develop self-expression through group discussion.
6. To enable the adults to understand and improve their environments.
7. To enable the adults to understand the problems of personal and community health and to contribute towards a healthy life.
8. To create an urge in the adults for professional competence by educating them in the rudiments of their occupations.
9. To motivate female adults to develop competence in such households arts as sewing, knitting, nursing and nutrition, etc.
10. To enable the adults to become useful and patriotic citizens. (UNESCO, 1978).

The Study

The objectives of this study were: To discuss the concept of adult education and to determine the role of adult education in national development. A total of 50 (male and female) those students of M.Ed. of semester Spring 2007, serving in either public or private sector taken as sample for the study. A

questionnaire was constructed on five-point-scale (Likert scale). Each statement of the questionnaire was tested by Chi square technique.

Data Analysis

Table–1
Role of Educated Individuals

Statement	SA	A	UNC	DA	SDA	X^2
The educated individuals play an important role in the national economic progress.	39	5	6	0	0	89.2

Df=4   Table value of X^2 =9.488

It is observed that the calculated value Chi square is greater than tabulated value. It means the trend of the respondents is towards the agreement that "The educated individuals play an important role in the national economic progress".

Table–2
Adult Education in Personality Grooming

Statement	SA	A	UNC	DA	SDA	X^2
Adult education helps to groom one's personality.	32	12	6	0	0	70.4

Df=4   Table value of X^2 =9.488

It is obvious from the above table that the calculated value of Chi square is greater than tabulated value. It means the trend of the respondents is towards the agreement that "Adult education helps to groom one's personality".

Table–3
Adult Education for Literacy Level

Statement	SA	A	UNC	DA	SDA	X^2
The adult education enhances literacy rate.	45	3	2	0	0	153.8

Df=4   Table value of X^2 =9.488

It becomes clear form the above table that the calculated value Chi square is greater than tabulated value. It means the trend of the respondents is towards the agreement that "The adult education up grows country literacy rate".

Table–4
Adult Education for Leadership Abilities

Statement	SA	A	UNC	DA	SDA	X^2
The adult education creates leadership abilities in an individual.	14	15	5	12	4	10.6

Df=4   Table value of X^2=9.488

The above table shows that the calculated value Chi square is greater than tabulated value. It means the trend of the respondents is towards the agreement that "The adult education creates leadership abilities in an individual"

Table–5
Vocational Training

Statement	SA	A	UNC	DA	SDA	X^2
The adult education is helpful in vocational training.	10	15	5	12	8	5.8

Df=4   Table value of X^2=9.488

The above table shows that the calculated value Chi square is greater than tabulated value. It means the trend of the respondents is towards the agreement that "The adult education is helpful in vocational training".

Table–6
Adult Education for Future Generation

Statement	SA	A	UNC	DA	SDA	X^2
The adult education also pays the next generation.	12	15	3	10	10	6.4

Df=4   Table value of X^2=9.488

The above table shows that the calculated value Chi square is greater than tabulated value. It means the trend of the respondents is towards the agreement that "The adult education also pays the next generation".

Table–7
Looking after children

Statement	SA	A	UNC	DA	SDA	X^2
Only educated parents can look after their youngs better than illiterate people.	31	9	5	3	2	58.0

Df=4   Table value of X^2=9.488

The above table shows that the calculated value Chi square is greater than tabulated value. It means the trend of the respondents is towards the agreement that "Only educated parents can look after their young's better then illiterate people".

Table–8
Positive Attitude Development

Statement	SA	A	UNC	DA	SDA	X^2
Adult education develops a positive attitude in society.	30	12	1	5	2	57.4

Df=4   Table value of X^2 =9.488

The above table shows that the calculated value Chi square is greater than tabulated value. It means the trend of the respondents is towards the agreement that "Adult education develops a positive attitude in society".

Table–9
Community Representation

Statement	SA	A	UNC	DA	SDA	X^2
Adult education gives a sense to select sensible national representatives.	25	10	1	10	4	34.2

Df=4   Table value of X^2 =9.488

The above table shows that the calculated value Chi square is greater than tabulated value. It means the trend of the respondents is towards the agreement that "Adult education gives a sense to elect sensible national representatives".

Table–10
Sense of Loss and Gain

Statement	SA	A	UNC	DA	SDA	X^2
People could be able to know the loss and gain of their country if they are literate.	29	5	5	8	3	46.4

Df=4   Table value of X^2 = 9.488

The above table indicates that the calculated value Chi square is greater than tabulated value. It means the trend of the respondents is towards the agreement that "The people could be able to know the loss and gain of their country if they are literate".

Findings and Conclusion

1.   No doubt, education is very important for the national building, and all of us are aware about its importance. Majority of the respondents confirm that educated persons are more useful for the development of the nation.

2.   Education affects every side of the person by all means. The respondents justify that adult education helps in grooming the personality.

3. Literacy rate depends on every individuals, every educated person who is a young or aged is considered as a unit for literacy. The respondents agreed that adult education play an important role in the literacy rate.

4. Education provides confidence, and also creates many other qualities in the individual's personality. With the help of the respondents it is clear that the adult education creates leadership abilities in an individual.

5. It is an accepted fact that educated persons can do their work more properly as compared to the illiterate. Education provides opportunities to learn more within short time and the respondents are well aware about it and they confirm that education is helpful for training.

6. Educated persons have vision how to make preparation for the future. Educated individuals think about their future generation and plan their life accordingly. It is confirmed by the responses of the respondents that adult education also pays the next generation.

7. Grooming of children depend upon their parents. Parents play an important role in developing the personality of their child. And researches show that educated parents can perform their duties about their children in a better way as compared to the illiterate parents. It is confirmed by the respondents that educated parents can look after their young's better then illiterate people.

8. Education modifies the features of individual's personality. Education provides better chances to improve the characteristics of the personality. The respondents agreed with the statement that adult education develops a positive attitude in society.

9. Progress and image of a country depends on the representatives who represent the country all over the world. Education tells the difference between right and wrong and create sense who is better for the betterment of the country. The trend of the respondents is clear about it that education gives a sense to elect sensible national representatives.

10. Education creates sense about loss or gain. Every one knows that nation survives with the country. In the national progress every individual plays its character. If each individual performs his duties, no doubt, then the country would make progress leaps and bounds. The respondents confirm that educated persons are more able to know the loss or gain of their country.

REFERENCES

Ghafoor, A. (1994) *Quest for Adult Literacy*. Islamabad: National Book Foundation.

Government of Pakistan (1998). *The National Education Policy 199--2010*, Islamabad.

Knowles, Malcolm S. (1980) *The Modern Practice of Adult Education.* New York:

Liveright, A.A and N. Maygood (Eds) (1969) Boston: The Exeter Papers.

Philip. H. Coombs (1968). The World Educational Crises: A System Analysis. London: Oxford University Press.

UNESCO (1976). *Draft Recommendation on the Development of Adult Education.* Paris: UNESCO.

UNESCO (1978) *Literacy Asia: Continuing Challenges.* Bangkok: UNESCO.

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ANALYSIS OF PRODUCT APPROACH AND PROCESS APPROACH IN TEACHING CREATIVE WRITING SKILLS

By
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Tanzeela Akhtar**

Abstract

This research was a comparative study on Product Approach and Process Approach. The objectives of the study were to study the effectiveness of product approach; to find out the effectiveness of process approach; to identify the better approach of Product Approach and Process Approach. For this purpose research was designed on experimental type of study. The sample of the study was 30. The test and the treatment were used as a research tools. The sample was divided into two treatment groups: one group was taught through Product Approach and the second was taught through Process Approach. After 15-day teaching, post test was administered to both groups to see the effects of writing approaches on students of 5th grade. In order to find the difference between the averages of pre and post test of both groups, t-test was computed. From the result it was proved that Process Approach was better than Product Approach in improving student's creative writing skills.

Introduction

Students, learning composition writing in English, struggle with many structural issues including selecting proper words, using correct grammar, generating ideas, and developing ideas about specific topics. Writing is divided into three categories: these are personal writing; professional writing; and creative writing. Creativity is a mental process involving the generation of new ideas or concepts, or new associations between existing ideas or concepts. Creative writing is such an art which expresses the writer's thoughts and feelings in an imaginative, often unique, and poetic way.

Traditional approaches to the teaching of writing focus on the product: in other words, the production of neat, grammatically correct pieces of writing

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(Mahon 1992). According to this approach, the teaching of writing focuses on "one-shot correct writing for the purpose of language practice" (Cheung 1999) and a "one-shot effort by the teacher to evaluate the students' attempts" (Pennington and Cheung 1995). A product approach is a traditional approach in which students are encouraged to copy a model text, which is usually presented and analyzed at an early stage. In this approach, the students copy model text, write one draft down individually and it emphasis on end product. The product approach focuses on writing tasks in which the learner imitates, copies and transforms teacher supplied models. The primary goal of product writing is an error-free coherent text. The emphasis is on grammatical correctness and adherence to given models or guidelines (White 1991). Model texts are read, and then features of the sort are highlighted. For example, if writing a formal letter, students' attention may be drawn to the importance of paragraphing and the language used to make formal requests. If writing a story, the focus may be on the techniques used to make the story interesting, and students focus on where and how the writer employs these techniques. So, if students are writing a formal letter, they may be asked to practice the language used to make formal requests. Those who favour this approach believe that the organization of ideas is more important than the ideas themselves and as important as the control of language. Students choose from a choice of comparable writing tasks. Individually, they use the skills, structures and vocabulary they have been taught to produce the product; to show what they can do as fluent and competent users of the language.

The process approach to writing, an innovation in a product-oriented culture (Cheung 1999), has been seen as an improvement over the traditional methods of writing instruction in recent years. The process approach is an approach to teaching writing that places more emphasis on the stages of the writing process than on the final product.

Writing in process approach is seen as predominantly to do with linguistic skills, such as planning and drafting, and there is much less emphasis on linguistic knowledge, such as knowledge about grammar text structure. In process approach students are taught planning, drafting, revising, editing and publishing strategies at each stage of the writing process to help them to write freely and arrive at a product of good quality. One of the great success of the process approach was the motivation for creative writing that it generated. Motivation is essential if children are to achieve the highest possible standards in their work. In terms of writing this means sometimes being encourage to generate their own ideas and carry them out. It also requires the recognition that in order to learn, people need to make mistakes and to have those mistakes viewed by their teachers in the learning process. The process approach, based on criticism of the product approach, originated in writing instruction in

English-speaking countries. Until the 1980s, it gained great popularity in the ESL (English as Second Language) EFL profession. The concept of this approach sees writing as "a complicated cognitive process" and "involves multiple stages: pre-writing, drafting, revising and editing". It emphasizes the stages of the writing process as well as the writer's individual and independent production. Importantly, it examines how writers create ideas, compose and then revise them in order to generate a text. Teachers in the process writing, plan activities which help students understand that writing help them develop effective writing strategies. The major elements of the process approach are students' awareness and teacher intervention: the former referring to the consciousness of the nature of writing as a process, and the latter the teacher-student and student-student relationships (Susser, 1994). Teachers in the process classroom should leave learners ample free space to express their own personal meanings. To aid this sense of free space, various types of feedback are adopted for revision including peer review and teacher-student conference and revision checklist can be used.

A number of research studies related to the implementation of the process approach in teaching writing have been conducted in different primary school classrooms in different parts of the world. Some studies show positive results. Goldstein and Carr (1996) examined the 1992 National Assessment of Educational Progress (NAEP) writing assessment administered to a representative national sample of approximately 7,000 4th grade students, 11,000 8th grade students and 11,500 12th grate students across the USA. Jacob and Talshir (1998) adopted process writing in the 4th and 6th grade classrooms at the Pigat Ze'ev Bet School in Israel to make English writing real for the students. Results show that the students developed into active, independent writers. Mahon and Yau (1992), after launching a process approach for a primary class with thirty-five students, found that students' writing ability improved by adopting the process approach. Cheung and Chan (1994) carried out a writing programme in a primary school in Hong Kong. They also found that the process writing approach successfully helped the students develop their writing skills. Process approaches to writing tend to focus more on the varied classroom activities which promote the development of language use; brainstorming, group discussion, re-writing. The key factor was that teaching focused on the writing process rather than the final product. But this was in the first instance a teaching approach, not a teaching method. Process approach focused on students' ideas. Discursive activities are suited to brainstorming and discussing ideas in groups, and the collaborative writing and exchanging of texts help the students to direct their writing, therefore, making a more successful text. The discussion is so important in generating and organizing ideas. The process approach treats all writing as a creative act which requires time and positive feedback to be done well. Once students have written

their first draft, model texts can be introduced as texts for comparison. Generating ideas by brainstorming and discussion, students could be discussing qualities needed to do a certain job, or giving reasons as to why people take drugs or gamble. The teacher remains in the background during this phase, only providing language support if required, so as not to inhibit students in the production of ideas. Corrections written on compositions returned to the student after the process has finished and seems to do little to improve student writing.

Objectives

The objectives of the study were to:
- Study the effectiveness of product approach for teaching creative writing skills.
- Find out the effectiveness of process approach for teaching creative writing skills.
- Compare the effectiveness of both the approaches for teaching creative writing skills.

Hypothesis

There will be a significant change in the creative writing skill of students who had been taught through Process Approach than those taught by Product Approach.

Methodology

Participants

The participants of the study were the students of grade 5 of English subject at Model School of Rawalpindi District.

The study was conducted using the experimental type of design of research. After taking due permission from the school administration, the sample was drawn through simple random sampling technique. The average age of the sample was 10 years. The sample was divided into two equal groups randomly. One group was named as 'A' and another as 'B'. Socio-economic status taken as extraneous variable but in general the participants of both the groups belonged to the middle class. Since all the students were female, the gender factor was not considered in both the groups of the research study. Pre-test was administered to the participation of the study before bifurcating it into two groups. Tests were prepared according to the parameters of creative writing skill. The pre-test was designed to assess the writing ability of the students. The students were asked to

write a story on the topic, with the first sentences given. The pre-test was conducted during one class period. No guidance or help was given during the performance and content, organization and language was examined. Pre-test and post-test of each student was also marked independently by two teachers to ensure inter-rater reliability. Checklist was designed to check the students' use of writing strategies. After assessing the pre-test, they were divided into two groups: 'A' and 'B'. Treatment schedule was developed.

Group A was taught through Process Approach and group B through Product Approach keeping the physical environmental conditions same for both the groups. After 15 days treatment, post test was administered to both groups to see the effects of both approaches on creative writing skills of the students. The post-test was evaluated with the help of the parameter of creative writing. The experiment lasted for 15 days. In order to maintain consistency in results lesson for teaching with Product and Process Approach were made from the same paragraphs. The environmental conditions and seating arrangement were same in both the groups. There were 15 students in each group. The tools for this research were the pre-test and post tests. Pre-test was taken to determine the initial level of creative writing skill of the students and Post-test was taken to determine their level after exposing them to the treatments. The research instruments were pilot tested. Checklist for evaluating the performance was derived from the essentials of creative writing skills.

The pre-test and post-test were validated for contents, criterion and construct. The tests were given to different groups of children before the actual treatment started. Moreover, these tests were vetted by the English teachers. Their performance was evaluated on the key prepared by the researcher. The reliability of the tests was checked by taking these tests from different groups.

As the treatment was given by the researcher of the study, the training session were undertaken for both the approaches for one week from the teachers of the English who were teaching writing skills at primary level.

Teaching with Product Approach
The teaching material was made according to the requirement of the approach. The steps used in the product approach are presented here. The average age of the group was 10 years. In the first lesson the story was written on the blackboard so that all the students were able to see it. The text was then read by the teacher and important features of the story were highlighted. In the next step the students wrote the story in their copies. As a second lesson, the students practiced the story. The students did control practice of the highlighted features. They memorized the story. In third lesson they were given some time to revise the

story and then were assigned the task to write this story. The students learned only one story in three days. Above paragraphs were the reflection of a single story teaching and the researcher carried out the lesson for 15 days in the same way.

Teaching with Process Approach

The physical environment and the seating arrangement of the classroom was same as group A. The objective of the approach was to help the students develop writing strategies at each stage of the writing process, so that each of them could write the story individually and independently at the end of the treatment.

The experiment lasted for 15 days, during which the students were led through the five stages of writing: brainstorming, organizing ideas, drafting, revising ad editing. They were taught seven stories during the experiment.

Lesson one started with pre-writing. In pre-writing five steps were used to brainstorming, planning, generating ideas, questioning and discussion. The students were taught how to brainstorm ideas on the writing topic. In the second step, the students were asked to practice using the spider web to brainstorm ideas on the writing topic in groups. Then, they were taught how to use the story planner to organize the ideas that the students had brainstormed and fit them into the structure of a story. After this, the students were asked to use the spider web to brainstorm ideas individually on the third writing topic and use the story planner to organize the ideas into a story in groups. Later, they were taught how to write a draft based on the ideas put onto the story planner. In the second lesson, the students revised the spider web to brainstorm ideas on the writing topic individually, use the story planner to organize the ideas individually and write the draft in groups, then they were given the revision checklist and taught how to use the revision checklist to revise the content and organization of a draft. In the next step, the students used the spider web to brainstorm ideas on the writing topic individually, used the story planner to organize the ideas individually, write the draft individually and use the revision checklist individually. After this they were given the editing checklist and taught how to use the editing checklist to edit the language of a draft.

In the third lesson, students wrote a story on the topic independently and individually using all the strategies that they had learned at each stage of the process of writing. The students were given only task sheet and all other instruments, such as spider web, story planner and the paper for writing drafts. The revision checklist and editing checklist put on the desk for the students to collect if they need.

Post-test

After fifteen days treatment of both groups, post-test was administered to find out the impacts of both approaches. Post-test was taken in same environmental

conditions and same parameters of creative writing skills were used for assessment. Post-test was taken to determine their level after exposing them to treatment.

It was taken to find out that which approach was more effective in teaching creative writing skills. Post-test was conducted after the treatment in the same way as the pre-test to find out if the students had made any improvements in their writing. The marking scheme and the marking procedure were the same as that of the pre-test.

Results

The data was collected, coded and calculated. For analysis of the data t-test was used.

Table–1
Group A: Paired Sample Statistics

Product Approach						
Mean		std. Deviation		df	t	sig. (2-tailed)
Pre-Test	Post-Test	Pre-Test	Post-Test			
5.53	5.73	1.807	2.154	14	.468	.674

The group A was taught through the traditional teaching method of reading comprehension. The data was analyzed by using t-test.

The average score of the Product Approach group in pre-test was 5.53 and their average score in post-test was 5.73. It showed that there was no significance difference in the performance of Product Approach group in pre and post-test. From the statistical analysis in the Product Approach the value of t was interrupted against the level of significance where the significance level was .647 and the level of t was .468. As t value was smaller than the significance value, with 14 degree of freedom. It can be said that Product Approach group was not much improved in post-test. Difference between pre and post-test scores of Product group was not significant. Moreover, giving the calculated value of t, that was .468, being lesser than the table value that was 2.624. Thus, the Product Approach was not effective in improving students' creative writing as compared to Process Approach. The students in Product Approach group obtained lower marks in post-test (appendix A.iv) and the results indicated the lower mean score obtained by the Product Approach in the post-test with the value of 5.73 as compared to the pre-test mean score 5.53. The standard deviation of product Approach group in pre-test was 1.807 and in post-test was 2.154.

<div align="center">

Table–2
Group B: Paired Samples Statistics

</div>

				Product Approach				
Mean			std. Deviation		df	t	sig. (2-tailed)	
Pre-Test		Post-Test	Pre-Test	Post-Test				
5.53		16.60	1.807	2.384	14	12.968	.000	

The Group B was taught by Process Approach. The students in Process Approach group obtained higher marks in post test (appendix A.V). The results indicated the higher mean score obtained by the Process Approach in the post test with the value of 16.60 as compared to pre test mean score 5.53.

The average score of Process Approach in pre-test was 5.53 and their average score in post-test was 16.60. It showed that students' performance improved in post-test.

The standard deviation in pre-test was 1.807 and the standard deviation in post-test was 2.384.

In the above table the value of t was interpreted against the level of significance, where the significance level was .000 and the level of t was 12.968. As the t value was greater than significance value, with 14 degree of freedom, it was proved that Process Approach was more effective as compared to Product Approach in teaching creative writing skills.

Moreover, given the calculated value of t, that was 12.968, being greater than the table value, which was 2.624. Thus it was proved that Process Approach was more effective in improving students writing achievements.

<div align="center">

Table–3
Paired Sample Statistics
Comparison of Post Tests of Both Groups

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	Mean	N	t	df	sig. (2-tailed)
Post test of Process Approach	16.60	15			
Post-test of Product Approach	5.73	15	13.720	14	.000

The mean of Process Approach was greater than Product Approach. It indicated that Process Approach was more helpful in improving students' creative writing skills than Product Approach. From the above table of statistical analysis in the post-test of Process Approach and Product Approach, the value of t was interpreted against the level of significance, where the significance level was .000 and the value of t was 13.720. As the above of t value was greater than significance value, with 14 degree of freedom, it approved that Process Approach is more effective as compared to Product Approach. Moreover, given the calculated value of t that was 13.720, being greater than the table value that was 2.624. Thus the researcher accepted the research hypothesis.

Results indicated that there was significant difference between students performance in pre and post test of Process Approach and there was no significant difference between students performance in pre and post test of Product Approach. The main finding, therefore, suggested that Process Approach has been more effective in improving student's creative writing skills.

Conclusion

On the basis of the finding of the study, it has been found out that Process Approach is more helpful in improving students' creative writing skill as compared to Product Approach. There was a significant improvement in student's writing skills who were taught through Process Approach.

Discussion

This study provides evidence about the effectiveness of Process Approach for students to teach creative writing skill. The Product Approach is the traditional approach to teach creative writing skill. The process approach was originally developed in USA and extensively used in developed countries, but no experimental work had been done in Pakistan. Students in Pakistan learn English as a second language and they face more problems than the students abroad. Different innovative approaches need to be experimented. Therefore, the present study was conducted to identify the better approach for teaching creative writing skill.

Post-test results of the students taught by Process Approach group were higher than the students taught by Product Approach. The statistical procedure paired sample t-test was used to find out the difference of the approaches. The result indicated that Process Approach was more effective in improving student's creative writing skill as compared to the Product Approach.

The students of control group had improvement in their creative writing skill. Their better result than the average could be a reflection of their own inborn skill or aptitude for creative writing and making stories. Hence, the aptitude and the students own cognitive skills make a lot of difference in teaching learning process. Moreover, every individual has his/her own learning styles and these styles remain as entity at the individual level which can be a potential cause of developing creative writing skills whatever approach is being used by teachers.

The research provided evidence about the effectiveness of Process Approach. Process Approach is more effective as it helped bring about positive changes in student's attitudes towards writing and improvements in their creative writing skill. The Process Approach also helped the students to improve their writing performance and they learnt how to use different strategies at each stage of the process of creative writing.

This study has opened more avenues for further researches in this field. It would be very interesting to find out the impacts of two approaches at secondary, higher secondary levels as well as gender based. However, this study had highlighted some of the loop holes in our teaching learning English writing skills.

REFERENCES

Cheung, M. (1999) *The Process of Innovation Adoption and Teacher Development*. Hong Kong: Education Department.

Cheung, M. and Chan, A. (1994) *Teaching Writing as a Process*. Hong Kong: Education Department.

Goldstein, A.A. and Carr, P.G. (1996) *Can students benefit from process writing*, NCES Report (Vol.3). New York: Longman.

Jacob, G. and Talshir, P. (1998) *Creative writing English Teacher's Journal*. New York: Longman.

Mahon, T. and Yau, R. (1992) *Introducing a process approach in the teaching of writing in a lower primary classroom*. Hong Kong: Education Department.

Pennington, M.C. and Cheung, M. (1993) Managing contextual factors in educational Innovation. Process writing in Hong Kong. Journal of English and Foreign Language.

SuSser, B. (1994) 'Process approaches an ESL/EFL writing instruction'. *Journal of Second Language Writing*, 3, pp. 31–47.

White R., and Arndt, (1991) *Process Writing*. London: Longman.

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DOES SOCIAL SUPPORT INFLUENCE TRANSFER OF TRAINING? EVIDENCE FROM THE BANKING INDUSTRY IN PAKISTAN

By

*Ikramullah Shad**

Abstract

Research on Transfer of Training (TOT) vividly highlights the importance of factors, such as Trainees' Characteristics, Training Design and Work Environment (Baldwin and Ford, 1988). This paper investigates the direction and magnitude of relationship between Social Support (SS) available to the bank officers and its influence on TOT. Looking at SS, the study established that SS has a joint and individual influence on the elements of Management Support and Peer Support, on TOT and the results indicate a mutual relationship. The measurements also lead to finding that relative weight of each of the two elements vary, or one may be more efficient than the other one. Placing SS as an integral part of environment, the research necessitates upgrading of work environment for greater transfer of skills to the workplace. The investigation used a cross-sectional data of 237 bank officers in various banks of two cities of Pakistan. The paper also offers insight in the disciplines of Management and Human Resource Development, providing useful suggestions for banks engaged in the training activities for bank employees.

Introduction

Training and development is crucial for both organizations and individuals citations. In today's competitive economic scenario, it is now an established fact that investment in training is extremely important as it consumes resources and expected outcome, forms part of future planning (Rouiller and Goldstein, 1993). In addition, the concern for transfer of training as the practical application of knowledge learnt to the actual workplace is a key managerial focus (Baldwin and Ford, 1988). For both academics and practitioners, it is interesting to know as to

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why only 10 to 30% of training received is successfully used in workplace despite huge yearly investment incurred on this activity (Tracey et al., 1995).

Traditional approach of restricting evaluation of training impact to pre- and post-training evaluation is unable to explain several aspects of training evaluation and ignores some important avenues of research. It not only provides incomplete answers but may also obscure important information required by the managers (Kirkpatrick, 1979). Therefore, to break away from the traditional approach, it would be interesting to focus on raising a more meaningful and relevant question from a manager's perspective. In other words, to investigate the extent of transfer of learning to the workplace, it is imperative for research activity to study the dominant role played by the workplace environment. What lends depth and intensity to this process and what lengthens the duration of transfer have also been the subject of investigation (long-and short-term transfer).

As there is no statistical evidence on the level of transfer of training to the workplace in the banking sector with the exception of a few internal surveys on trainee feedback, this study attempts to analyze the influence of the third and often difficult level, i.e., the transfer and application of training at the workplace. It is a subject typically approached only at the first two levels of training evaluation, the levels of reaction and learning of trainees during the training programme.

Theoretical Perspective

Theoretical model of transfer of training as conceived by Baldwin and Ford (1988) included three inputs of training which could directly or indirectly contribute to transfer of knowledge or skills. According to the researchers, much work was not done on environment factors, though literature contained some research on individual characteristics of trainees. However, research work on training design was aplenty. While discussing influence of work environment on transfer of training, Noe (2002) referred "climate for transfer" which included managerial and peer support, opportunity to use skills, technological support, etc. Review of literature suggested the need to identify and operationalize additional factors of work environment which could possibly facilitate or inhibit implementation of skills learned at the workplace.

Although this study received inspiration from Baldwin and Ford's (1988) model of transfer of training, yet it focused the work environment aspect of transfer which hitherto remained less researched. The broader framework of this study identified key elements related to the banking work environment. It was

predicted that each of these elements of the Organizational Work Environment (OWE) would be correlated to the dependent variable, which in this case was the level of Transfer of Training. This paper focuses on Social Support, one among the dimensions of OWE, that includes Management and Peer Support as its sub-elements.

For this study, the concept of work environment refers to both the material and human factors that may influence the transfer of training at workplace. The main task at hand was to study whether level of TOT was explainable in terms of SS in OWE and examine the extent of relationship between the social support and transfer of training. The influence of workplace, social support cannot be directly measured or observed given the available state of technology and research techniques mainly due to moderating and intervening variables (Jolley and Mitchell, 2006). In the study, fortunately the construct "influence" was easy to understand and measure as it involved the measurement of such influence. Our theoretical model measuring the extent of influence of work environment on transfer of training in this study is illustrated by Figure 1.

Figure–1
Theoretical model showing influence of Organizational Work Environment (Social Support) on Transfer of Training
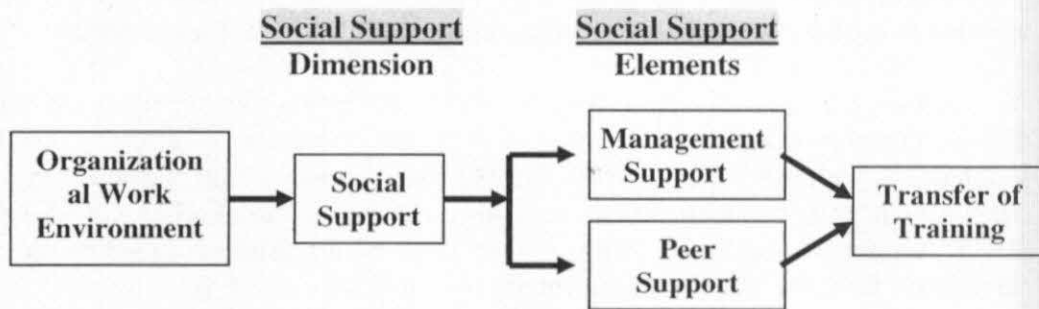
Figure 1 above takes into account the aspect of Social Support as a dimension of the OWE while the lines connecting elements of social support them to the TOT box indicate direction of relationship and their perceived influence that was studied with the help of responses obtained from the bank officers.

Purpose of the Study

The research objectives of this study were to measure with the help of a conceptual model the relationship between the elements of Social Support

including Management Support and Peer Support with transfer of training. The objectives include: a) exploring the extent of availability of management support in the workplace and its influence on TOT; and b) gauging the extent of availability of peer support in the organization and its influence on TOT.

Literature Review

The common notion of 'training' implies an organized attempt to assist learning supported by observation, instruction or practice. In particular, training delivers a systematic process of nurturing knowledge, practical skills, and attitudes necessary for application in a real-life setting. For this reason, in the corporate environment, the term 'training' is often interchanged with 'professional development.' As any training is guided by objectives, an evaluation must help to gauge whether the goals set forth were duly attained. One of the key criteria for evaluating the effectiveness of any formal training programme is the extent of transfer of training to the job (Kirkpatrick, 1967). Conventionally speaking, "transfer of training" is the application of knowledge, skills and attitudes learned from training on the job and subsequent maintenance of learning over a period of time (Baldwin and Ford, 1988). Positive transfer is indicated by acquiring knowledge and skills in an off-the-job context, application of that learning on the job, and its maintenance over a reasonable period of time (Newstrom, 1986). In other words, training-transfer provides evidence that learning is actually being applied to the job-setting for which it was intended.

A high level of disappointing estimates concerning transfer retention rates, despite enormous industrial training expenditure, reflects a serious "transfer problem" (Anthony and Norton, 1991; Newstrom, 1986), where annual development and training costs run in billions (Burke, 1997). Earlier, Georgensen (1982) estimated that only about 10 per cent of all training experiences are transferred from the training environment to that of job. These findings were later cited by Detterman and Sternberg (1993) as 10% rate of workplace utilization of what has been learned in a training programme. To explain this phenomenon, the authors believe that only technical skills and not the training based on general principles' are normally transferable. In a different study, Robinson and Robinson (1995) observed that less than 30 per cent of training is truly transferred on to the job. Later, Latham and Wexley (2002) suggested that although 40 per cent of content gets transferred immediately after training, this figure falls down to 25 per cent after 6 months and 15 per cent after one year.

Baldwin and Ford (1988) observed that research on work environment as a transfer factor has been quite limited. They along with other contemporary

researchers' noted that empirical studies in the past focused only on training part whereas the individual (ability, personality and motivation) and work environment factors were ignored. They believed that the outcome of study on organizational work environment and transfer of training would be helpful in developing intervening strategies to be used for improving organizational performance. Elangovan and Karakowsley (1999) rightly point out that "environmental effects on the transfer of training have been least investigated of the various relevant factors. Furthermore, the lack of a theoretical framework to guide research has resulted in a narrow examination of environmental characteristics, focusing primarily on transfer climate".

Prior and proceeding research confirms the importance of factors identified by Baldwin and Ford (1988). For example, the empirical work on training effectiveness finds trainee's ability to account for 16 per cent variance (Robertson and Downs, 1979). Another study by Noe and Schmitt (1986) observed 15-20 per cent variance attributed to trainee's motivation and work environment. Two significant studies on the variance in transfer attributed to ability, motivation and work environment were already conducted by Robertson and Downs (1979) and Noe and Schmitt (1986). The former considers 16 per cent variance attributable to trainees' ability while the latter concluded 15-20 per cent variance based on motivation and environment factors.

Resources constitute a factor in the organizational environment to enable its members for contribution towards training transfer. Holton (1996) supports assertion on resource provisioning for training transfer by proposing a comprehensive model to avoid transfer-inhibiting factors. One of the key concerns implied by his study is resource provisioning to ensure individual learning, individual performance, and organizational results. Resources, if not provided adequately constrain the usage of learning and skills acquired during the training. Similarly, the work by Mathieu, Tannenbaum, and Salas (1992) finds situational constraints, such as inadequate time and/or resources to inhibit the transfer of learning to work environment with a debilitating cyclical effect.

Recent literature refers to other environment-related variables, such as support-in-organization, task constraints and learning culture (e.g. Tracey et al., 1995; Facteau et al., 1995). In earlier studies, Noe (1986) asserted support-in-organization variable to originate from the concept of social support and considered to be influential when employees believe that other client systems in the organization (supervisors, peers) provide them with opportunities for practicing new skills and knowledge in the job settings. The idea of opportunity to practice skills learnt proposes when trainees have plenty of chances to apply new

learning to their jobs, a larger amount of training content can be transferred (Ford et al., 1992). Some researchers have used the term "transfer climate" to represent the OWE from the organization. For example, Tracey et al., 1995 investigated 505 supermarket managers from 52 stores in studying transfer of training climate and continuous learning culture. From the series of LISREL analyses, their results found both climate and culture to be directly related to the post-training behaviors, in particular the social support system. Within the organizational context, the element of social support plays a key role in facilitating training transfer. In their study, Tracey, Tannenbaum and Kavanagh (1995) observed that climate and culture showed a direct relation to post-training behaviors, considering pre-training behaviors and knowledge gained in training. Particularly, social support system within a firm environment, seems to exert significant influence in transfer of training. Four major sources of social support reported by Facteau et al (1995) include levels of subordinate, peer, supervisor and top management. Thus, the earlier Baldwin and Ford (1988) framework triggered a lot of studies explaining transfer of training (TOT) process. Most researchers expanded their work to include more and more variables under the three groups of Trainee Characteristics, Training Design and the Work Environment put forward by these two researchers.

The transfer phenomenon explained by Laker (1990) viewed two dimensions rather than generally believed notion of uni-dimensionality. The two are: 'time dimension' and 'generalizability'. Laker (1990) proposed that the temporal dimension further includes 'transfer initiation' and 'transfer maintenance' whereas generalizability takes into account 'near' and 'far' transfer. According to him, transfer as a concept related with time dimension is sequential in nature where initiation precedes maintenance. This suggests transfer maintenance to occur only once it is initiated, but mere initiation is not good enough. Therefore, training programmes along with work environment initiatives need to factor in measures that are critical for both initiation and maintenance of transfer of training. Opportunities for initiation are generally available but those for maintenance largely depend upon support related with work environment. This aspect is the focus of our study wherein the trainee bank officers have been asked to respond about the availability and level of perceived support (social) from their work environment (in our case, the banks). Available literature confirms that the role played by workplace environment in maintenance of learned behavior is significant (Laker, 1990).

Perception of trainees related with supervisory support is a strong determinant of the transfer process, since it could potentially be influenced by their age, education, supervisory/non-supervisory role, tenure duration, and

current job turnover rate of the organization in question. Foxon (1993) drew attention towards low-motivation and unfavorable perception of supervisor support to negatively contribute in transfer process. In a study by Velada et al., (2007) involving 182 employees in a large grocery store, supervisory support was not found significantly related to transfer where the training covered areas of customer service, environment issues, security, prevention, and hygiene. This study involved trainees' self-reported survey data of their perceptions. Data was collected in two different times: one at the end of training programme, and the other three months after the training session.

The element of peer support has its significance in the training environment for performance results. Peer support is the extent to which employee members of an organization reinforce and support the application of learning on the job, such as goal-setting, assistance, positive feedback. Bates et al., (1998) investigated various factors that impact transfer of computer-based training in industrial work setting and found, among other factors in the transfer climate, peer support to account for a considerable portion of variance in outcome for performance. This underscores organizational learning enhanced by the factor of co-operating peers that may involve all ranks from the top level to the subordinate level. The influence of learning from peers is strong especially when peers operate on the same task, project or department. The impact may be reflected in terms of mutual interaction and concurrent learning. In terms of transfer of training, the peer support shapes into higher comprehension, retention, and application of knowledge and skills learned. Clark et al., (1993) and Ruona, Leimbach, Holton and Bates (2002) find that many studies demonstrate a positive effect of peer support on motivation to transfer. Seyler et al., (1998) understands transfer climate in the light of organizational climate including supervisor support, supervisor sanctions and peer support.

Research Questions

The overall research attempted to investigate and answer the following questions: a) What is the level of availability of social support in organization and its influence on transfer of training? b) What is the level of contribution of management support and its influence on transfer of training? c) What is the level of contribution of peer support and its influence on transfer of training? This research is based on the hypothesis that organizational work environment (SS) has significant influence on transfer of training. To further elaborate, the null-hypotheses state that: a) There is no relationship between social support and transfer of training b) There is no relationship between management support and

transfer of training and c) There is no relationship between peer support and transfer of training.

Data and Methodology

The study covered all the branches of banks located in Rawalpindi and Islamabad and all persons working in the category of officers from OG-I to SVPs. Banks included private sector scheduled commercial banks, public sector scheduled commercial banks, foreign banks except specialized services banks.

Table–1
Number of Bank Branches in Islamabad and Rawalpindi

Sr. No.	Bank Type	No of Banks	No of branches in Islamabad	No of branches in Rawalpindi	Total Branches
1.	Public Sector banks	4	39	44	83
2.	Local Private Scheduled Banks	19	118	147	265
3.	Foreign Banks	6	6	3	9
	Total	29	163	194	357

The reporting unit in our sample was a bank officer who is the main recipient of training. Size of our sample included 237 bank officers from 357 bank branches. At 95% confidence level (5% margin of error) the sample was selected. We selected the sample proportionately from all the banks except specialized services banks. The data gathered about the key aspects of social support enabled us to provide information which was subsequently analyzed to explore the influence of OWE on TOT, and which was expected to show a fair picture in the subsequent part of the paper. The study was based on a primary data collected in the most original form and nature with the help of a self-reporting questionnaire. Keeping in view the time constraint, the researcher deemed it appropriate to adopt the questionnaire method. The questionnaire, consisting of two elements of independent variable, and twelve aspects of dependent variable, was designed on five point rating scale. The respondents mainly included bank officers of various categories from Officers of Group I to Senior Vice Presidents. This made it a representative sample as these officers worked in various positions/capacities. All aspects of training (and hence TOT) were thus covered. An open ended comment space followed each section to elicit views of respondents on any aspects not covered in questions, which is helpful for the inferential part of the study.

To address our research questions and our hypotheses, with the help of data collected, the following statistical tools were applied: 1) Descriptive Statistical analyses with the help of indexed mean scores and frequency distributions. 2) Pearson's Correlations: to determine the degree of association across Management Support, Peer Support, Social Support and Transfer of Training. 3) Linear regression: with SS on TOT, Management Support on TOT and Peer Support on TOT.

To further elaborate, from the main research hypothesis linking organizational work environment (Social Support) with significant influence on transfer of training, following sub-hypotheses were developed:

1.   There is no significant relationship between management support and transfer of training.
2.   There is no significant relationship between peer support and transfer of training.

Results

Two elements of social support (IVs) were investigated by the help of respondents' perception about availability of level of support. Additionally, for creating clear understanding through use of different scenarios, mean scores were analyzed from two angles i.e., mean scores of individual respondents for all 71 questions of the entire instrument and those of each questions across all 237 respondents.

Table–2
Descriptive Statistics with Respect to
Each Question as Responded by All Participants

Elements of OWE	Averages	Min	Max	SD
Social Support	3.41	3.07	3.64	0.17
Management Support	3.42	2.93	3.75	0.236
Peer Support	3.40	3.22	3.53	0.10
Transfer of Training	2.76	2.43	3.22	0.26

The lowest value of mean was for social support and the highest for management support. Measure of dispersion indicates that peer support was the lowest (Table 2).

Table–3
Frequency Distribution of Responses

Elements		No of Respondents		
Independent Variables	Averages of Index	Below Averages	Above Averages	% Above Averages
Social Support	3.41	92	145	61.18
Management Support	3.42	90	147	62.03
Peer Support	3.40	95	142	59.92
Transfer of Training (TOT)	2.76	102	·135	56.96

One important fact was observed wherein mean responses of all questions by respondents as well as questions of both elements of SS was above 3. This leads us to believe about an overall positive trend of respondents. For example, the average of all respondents' estimation of management support is 3.42; Out of 237 respondents, 90 respondents were below the average score of the management support, while number of respondents above average were 147. This means that the respondents who felt that management support was lacking were less in number (38%) and the number of people who appreciated the availability of management support were more (62%). Similarly, average of respondents estimation for the peer support was found to be 3.40 (95 below and 42 above average). For dependent variable (TOT) 2.76 was the mean with 102 respondents were below and 135 responses were above average.

Inferential Statistical Analysis

Correlation Coefficient

The data was also tested on Pearson Coefficient of Correlation to estimate the strength of linear relationship between SS and TOT and each element of SS and TOT. Correlation Coefficient is an important measure of determination of usefulness of the model. Table 4 provides cross correlation values obtained using SPSS software.

Table–4
Inter Correlation Matrix of Elements of SS and TOT and Elements of TOT

		1	2	3	4
		TOT	SS	MANGS	PEERS
1	TOT	1**			
2	SS	0.97**	1**		
3	MANGS	0.97**	0.99**	1**	
4	PEERS	0.97**	0.99**	0.99**	1**

** Correlation is significant at 0.01 level. (2-tailed).

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Regression Analysis

Social Support has been divided by various researchers in different ways. Noe (2002) described Social Support in terms of management support and peer support. The researcher in this study used these two constituent elements to explain the overall structure of SS. In order to estimate influence of each element, separately, and that of the overall SS on Transfer of Training, use of a robust statistical tool was considered imperative. Therefore, simple linear regression was applied to determine the extent (level) of influence exerted by the predictive variables (elements of SS) on the dependent variable (TOT). It may be noted that regression analysis was applied to the scores obtained for different elements and the scores of the TOT.

Linear Regression Analysis

Results of the simple linear regression analysis conducted cumulatively for Social Support and both the elements (Management Support and Peer Support) on TOT are given below:

OLS Regression Analysis (Social Support on TOT)

Table–5
Linear Regression: Social Support on TOT

	Coefficients			
	β	Std. Error	T	Sig.
(Constant)	-1.419	.068	-20.840	.000
SS	1.225	.019	62.911	.000
R Square	.944		Sum of Squares	Df
Adjusted R Square	.944	Reg SS	208.339	1
Std. Error of the Estimate	.229	Resid SS	11.981	235
Dependent Variable: Transfer of Training				

The table 4 shows that the correlation of SS with TOT was 0.97. The value of beta was 1.23 significant at 1% which indicates that increase in input in overall social support is expected to increase per unit change in TOT (Table 5). The regression result follows:

$$TOT = -1.419 + 1.225(SS)$$

Based on the regression result, it is concluded that there is a positive relationship between social support and transfer of training, and, therefore, if social support is provided to bank officers after training, they will better transfer their training.

OLS Regression Analysis (Management Support on TOT)

Table–6
Linear Regression: Management Support on TOT

	Coefficients			
	β	Std. Error	T	Sig.
(Constant)	-1.436	.067	-21.345	.000
MANGS	1.226	.019	63.925	.000
R Square	0.946		Sum of Squares	Df
Adjusted R Square	0.945	Reg SS	208.339	1
Std. Error of the Estimate	0.225	Resid SS	11.981	235
Dependent Variable: Transfer of Training				

To measure the influence of Management Support on TOT, simple linear regression was estimated between TOT and Management Support. The β coefficient (1.226) was found positive and significant. Unexplained variation in the model was quite low as the coefficient of determination (R-Square) is about 0.95 (Table 6). The estimated equation can be written as: TOT = -1.436 + 1.226 (MANGS)

Regression Analysis (Peer Support on TOT)

Table–7
Linear Regression: Peer Support on TOT

	Coefficients			
	β	Std. Error	T	Sig.
(Constant)	-1.385	.071	-19.493	.000
PEERS	1.219	.020	59.817	.000
R Square	.938		Sum of Squares	Df
Adjusted R Square	.938	Reg SS	206.742	1
Std. Error of the Estimate	.24037	Resid SS	13.578	235
Dependent Variable: Transfer of Training				

To measure the influence of Peer Support on TOT, simple linear regression was run between TOT and Peer Support. The β-coefficient (1.219) was positive and significant. Unexplained variation as measured by R-Square = 0.938, were quite low (Table 7). The estimated equation can be written as: TOT = -1.385 + 1.219(PEERS).

Discussion

The purpose of the study was to explore the influence of various aspects of workplace environment on transfer of training in the banking sector and to express this influence in quantitative terms. The topic was selected in view of the critical importance of outcome of resources allocated for training. Empirical evidence on transfer of training is not very encouraging, as it is reported that only 10% to 30% of training is actually transferred at workplace which indicates great scope for improving the environment for greater transfer.

Social Support

The problem area selected for research was Social Support in organizational work environment in which transfer takes place. The probe was directed towards finding out whether SS has influence on the level of TOT.

The main research question was: What is the level of social support available in the Organizational Work Environment and its influence on Transfer of Training? Two secondary questions emerged from the main question, such as, "Do these independent variables significantly explain the transfer of training in banking sector?"

The hypotheses were formulated in the same way. There was one main hypothesis:

H_0: *There is no relationship between social support in work environment and transfer of training?*

H_1: *There is a relationship between social support in work environment and transfer of training.*

Theories suggest that social support is a very important element that effects TOT. Our sample also proved the same; as it was found that beta coefficient was positive and significant at 1%, which indicates that increase in social support aspect will positively affect TOT. Therefore, it is highly expected that if social support is offered to bank officers, they will transfer their training in more intensive manners.

Other sub-hypotheses, one each for the two of social support, are on the same lines. For example: There is no significant relationship between management support and transfer of training *and* there is a significant relationship between management support and transfer of training. Likewise separate hypotheses were formulated for peer support.

Management Support

H_0:   *There is no relationship between management support and transfer of training.*

H_2:   *There is a relationship between management support and transfer of training.*

There is no denying the fact that management support holds top position in the hierarchy of supports for transfer of training. It was evidenced in numerous ways, (e.g. study by Elangovan (1999) about support provided by supervisor), yet the results of analysis may not be one-dimensional. Management support extends from before-training phase to during-training and after-training phase. As in this research, a below average response in questions related to pre-training and post training briefings showed lukewarm perception of management support by the bank officers on this account. That may, in turn, reflect upon the poverty of culture of that organization. Actually, while looking at the contents of the support carefully, the whole transfer climate is a product of management interest in training, the interest that has to materialize in the form of concrete inputs. Since transfer climate cannot be divorced from corporate culture, it cannot be separated from whatever goes before i.e. the pre-training and actual training phases.

Evidently, the enthusiasm with which the quality trainers are hired and training materials prepared and handed out, hints at the importance of training. Further, management not only provides training staff and chalks out the programme but also provides information support and protocols for how staff is to provide the support.

To put respondent perceptions quantitatively, the respondents were asked about provision of support facilities by the supervisors (Q 1) and how encouraging they were (Q 2). Did they ask the respondent to apprise other employees about training? (Q 3) There were questions about incentives and applauding the efforts of those bank officers who applied their training in practice (Q No.6). Redesigning the job and setting training-oriented goals seem a bit too demanding for administration (Q No.7, 8). Sharing newly-learned skills is like mentoring (Q No.9). There was a question (Q No.10) about participation in decision-making after training. The transfer of training was also related to performance evaluation (Q 13). The respondents were asked about pre- and post-training briefings and utility of training and whether they were asked to provide feedback (Q No.18).

Correlation coefficient of relationship of Management Support (Table 4) with TOT was 0.972. The value of slope was 1.226 significant at 1 % indicating

that increase in input in management support is estimated to increase per unit change in transfer of training for each unit increase in management support (Table 6). The result of regression analysis follows: TOT = -436 + 1.23 (Management Support). Based on the regression result we are justified in concluding that: *There is positive relationship between management support and transfer of training and, therefore, if management support is provided to bank officers after completion of their training, they will better transfer their training.*

Peer Support

H_0:   *There is no relationship between peer support and transfer of training.*

H_3:   *There is a relationship between peer support and transfer of training.*

Peer support was measured through eight questions. Evidently they asked for the perception of respondent on co-worker support on initiative to implement new skills: (Q 1); support in using new skills. (Q 2); appreciation of sharing. (Q 3); keenness in knowing about training. (Q 4); interest in learning. (Q 5); adopting new style. (Q 6); not criticizing new skills. (Q 7); and sharing of work load in implementing new techniques. (Q 8). Correlation coefficient of peer support and transfer of training being 0.969 (Table 4) showed strong positive relationship. The results were further supported by outputs of regression $\beta=1.22$ significant at 1 % (Table 4.79). This implies that per unit increase in peer support will cause increase in TOT. Based on the statistical evidence H_3 is supported and we can say that there is a positive relationship between Peer Support and TOT and, therefore, increased support from peers will result in a corresponding increase in TOT.

Conclusion

The main findings presented in this research support the hypothesis that social support in organizational work environment has a positive and significant influence on transfer of training. Although this influence comes jointly through two individual factors that comprise social support, it also influences transfer of training cumulatively through a unified effect of both the components together. We conclude that the work environment refers primarily to the change brought to by enhanced or reduced management support that describes the right work environment and climate for transfer of learning and knowledge acquired during training. Our main finding suggests that management support is critical in transfer of training to enhance capabilities both personal and institutional. It is argued that TOT cannot itself take effect unless supported by the immediate supervisor and

possibly the higher management. Skills and knowledge gained during training need to be reinforced on the job and that is achieved when staffs are trained with support from the management. Ideally supportive management positively contributes towards application and transfer of training. It is the management that creates the required positive environment and provides the necessary inputs both before and after the training programmes. Majority of the respondents were of the view that their supervisors facilitate training endeavors. They also believe that there is a lack of interest on the part of management in discussing the training programme before and after the training and also the application of training as soon as the training is over. It reveals that training and skills development as a tool of HR intervention in the banking sector in particular is recognized at the induction level. In view of the challenges ahead and the importance of Human Resource in developing and emerging economies, such HRD measures are needed to be further strengthened. The work environment in the banking sector at present could be categorized as either neutral or positive. It may vary from bank to bank. That it needs improvement but needs no overemphasis. One way to create a positive and conducive environment is to involve the management itself in the development of the training programmes. This may increase the motivation level of the trainees and the desire to apply and transfer learning on the job.

The second main conclusion based on our data analysis is that the influence of peers' participation has a linear correlation with TOT. The transfer continues to increase to the extent that peer support is helpful and welcome. The data does not say anything about any resistance. Some of their peers may resist as a result of not wanting to try new skills and give up their comfort zone in the way of making changes to a new set of attitudes and behavior which could be a corollary.

Recommendations

On the basis of the results of our study, the following recommendations are made:

Management Support
Top management must commit them to providing the best environment for bank officers to transfer their training. For this purpose, following steps need to be taken. First, the management should take a strategic policy decision on this score by creating an account head and providing allocation on permanent basis for creating environment helpful to TOT. Second, training transfer process should be monitored at all levels. Third, mid-level management should be instructed to encourage the use of the skill learned during training. Fourth, senior managers

must provide feedback to the newly trained officers about the result of cost-benefit analysis of past transfer experience, not only in their bank, but also in the banking world in general. Fifth, senior executives must talk to officers about importance of transfer of training. This will help create a positive transfer climate. This could take the form of briefing about transfer after every individual training, big or small, short or long, local or foreign. These have been adjudged weak areas. Sixth, regular programmes dealing with transfer of training for up dating the knowledge of bank officers, in their respective fields, may be conducted. Seventh, the top management must announce financial incentive for bank officers for using the knowledge and skills learned in the training class. This will be of great help in raising the level of transfer. Eight, higher management must assign tasks by which the newly acquired knowledge can be utilized.

Peer (co-worker) Support

The management staff of the bank must consider the significance of transfer of training with special focus on the role of co-workers (peers) and their support. Following the training session, bank officers who have attended it, can form an informal network to draw support and encouragement from their peers.

REFERENCES

Anthony, P., and Norton, L. (1991) Link HR to corporate strategy. *Personnel Journal*, 7(4), pp. 75–86.

Baldwin, T., and Ford, J. (1988) Transfer of training: A review and direction for future research. *Personal Psychology*, 41, pp. 63–105.

Bates, R., Holton, E., and Seyler, D. (1998) *The Cutting Edge in HRD â€" 1997*. Baton Rouge: International Society for Performance Improvement and the Academy of Human Resource Development.

Burke, L. (1997) "Improving positive transfer: A test of relapse prevention training on transfer outcomes. *Human Resource Development Quarterly*, 8(2), pp. 115–136.

Clark, C., Dobbins, G., and Ladd, R. (1993) Exploratory field study of training motivation. Influence of involvement, credibility and transfer climate. *Group and Organization*.

Detterman, D., and Sternberg, R. (1993) *Transfer on Trial: Intelligence, Cognition and Instruction*. Norwood: Ablex Publishing.

Elangovan, A., and Karakowsky, L. (1999) The role of trainee and environmental factors in transfer of training: An Exploratory Framework. *Leadership and Organizational Development Journal*, 20(5), pp. 268–275.

Facteau, J., Dobbins, G., Russell, J., Ladd, R., and Kudisch, J. (1995) The influence of general perceptions of the training environment on pre-training motivation and perceived training transfer. *Journal of Management*, 21, pp. 1–25.

Ford, J., Quinones, M., Sego, D., and Sorra, J. (1992) Factors affecting the opportunity to perform trained tasks on the job. *Personnel Psychology*, 45, pp. 511–527.

Foxon, M. (1993) A process approach to the transfer of training. *Australian Journal of Educational Technology*, 9(2), pp. 130–143.

Georgensen, D. (1982) Training and Development Journal. *The Problems of transfer calls for partnership*, 36, pp. 75–85.

Holton, E. (1996) The flawed four-level evaluation model. *Human Resource Development Quarterly*, 7, pp. 5–21.

Jolley, J., and Mitchell, M. (2006) *Research Design Explained*. Belmont, CA: Wadsworth Publishing.

Kirkpatrick, D. (1967) *Training and Development Handbook*. New York: McGraw-Hill.

Kirkpatrick, D. (1979) *Classic Writings on Instructional Technology*. Englewood: Libraries Unlimited, Inc.

Laker, D. (1990) Dual Dimensionality of Training Transfer. *Human Resource Development Quarterly*, 1(3), pp. 209–223.

Latham, G., and Wexley, K. (2002) *Developing and Training Human Resources in Organizations (3rd Edition)*. Alexandria, VA: Prentice Hall.

Mathieu, J., Tannenbaum, S., and Salas, E. (1992) Influences of individual and situational characteristics on measures of training effectiveness. *Academy of Management Journal*, 35, pp. 828–847.

Newstrom, J. (1986) Leveraging management development through the management of transfer. *Journal of Management Development*, 5(5), pp. 33–45.

Noe, R., and Schmitt, N. (1986) The Influence of Trainee Attitude on Training Effectiveness: Test of A model. *Personnel Psychology*, 39(3), pp. 497–523.

Noe, R. (1986) Trainees' attributes and attitudes: Neglected influences of training effectiveness. *Academy of Management Review, 11*, pp. 736–749.

Noe, R. (2002) *Employee Training and Development*. New York: McGraw-Hill.

Robertson, I., and Downs, S. (1979) Learning and the prediction of performance: development of trainability testing in the United Kingdom. *Journal of Applied Psychology, 64*, pp. 42–50.

Robinson, J., and Robinson, D. (1995) Performance takes training to new heights. *Training and development, 49(9)*, pp. 21–24.

Rouiller, J., and Goldstein, I. (1993) The relationship between organizational transfer climate and positive transfer of training. *Human Resource Development Quarterly, 4(4)*, pp. 377–390.

Ruona, W., Leimbach, M., Holton, E., and Bates, R. (2002) The relationship between learner utility reactions and predicted learning transfer among trainees. *International Journal of Training and Development, 6(4)*, pp. 218–228.

Seyler, D., Holton, E., Bates, R., Burnett, M., and Carvalho, M. (1998) "Factors affecting motivation to transfer training. *International Journal of Training and Development, 2(1)*, pp. 2–16.

State Bank of Pakistan. (2007) *Annual Performance Review, Various issues.*

Tracey, J., Tannenbaum, S., and Kavanagh, M. (1995) Applying trained skills on the job: The importance of work environment. *Journal of Applied Psychology, 80(5)*, pp. 239–252.

Velada, R., Caetano, A., Michel, J., Lyons, B., and Kavanagh, M. (2007) The effects of training design, individual characteristics and work environment on transfer of training. *International Journal of Training and Development, 11(4)*, pp. 282–294.

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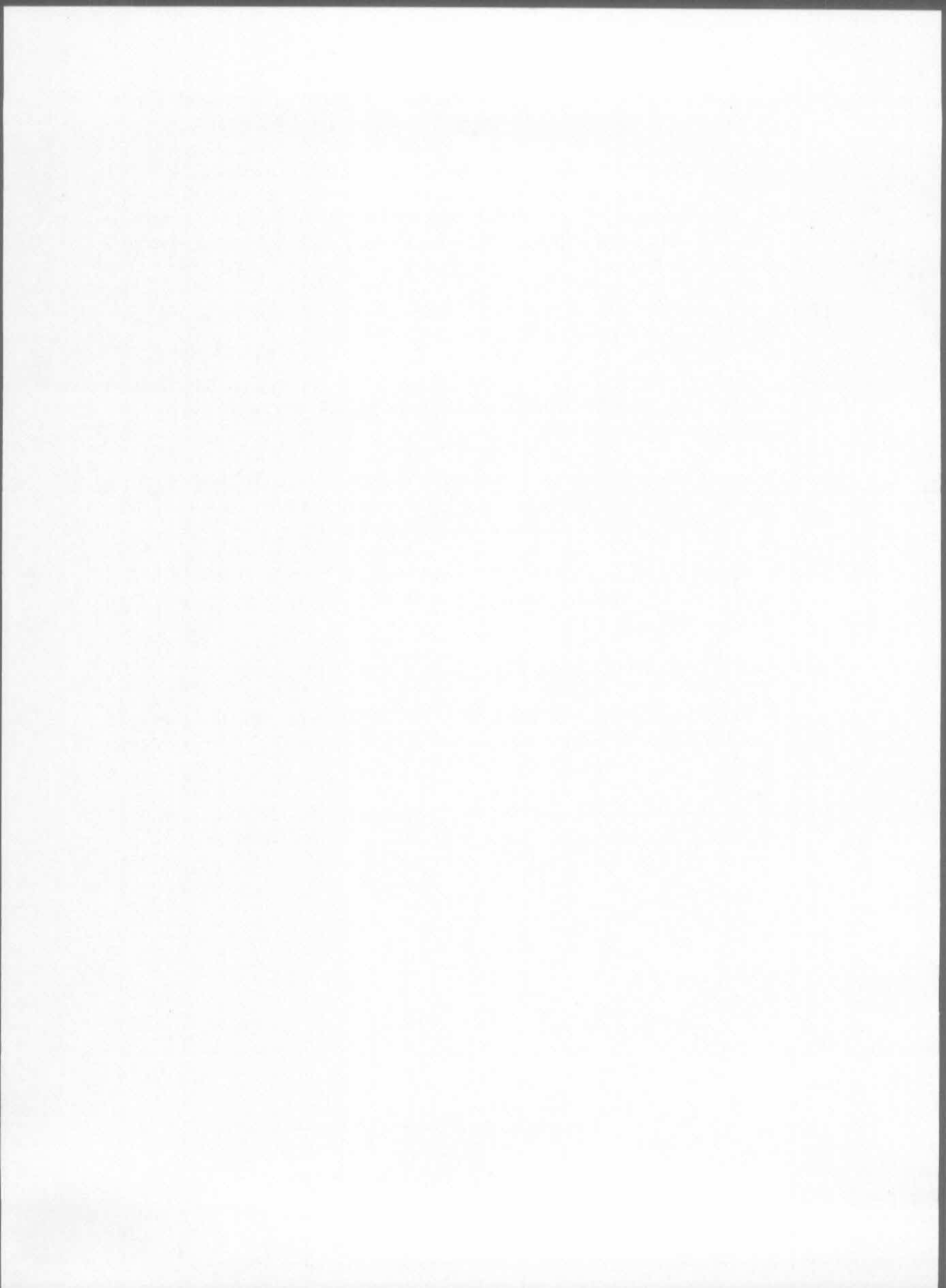
QUALITATIVE DATA COLLECTION STRATEGIES IN SOCIAL SCIENCES: PROBLEMS AND ISSUES

By
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Abstract

This conceptual paper explains the qualitative data collection strategies and highlighting some issues and challenges in conducting qualitative research. Qualitative research methods are important in presenting rich descriptions of complex phenomena; tracking exclusive or unexpected measures, enlightening the experience and explanation of actions extensively differing stakes and roles; providing voice to those whose views are occasionally heard; conducting initial explorations to develop theories; and to generate and test hypotheses; and moving toward clarification. This paper addresses the issues of instrumentation, data collection for qualitative research. In addition, attention must be given to differentiating between collecting subjective and objective data, information on the formal versus informal organizational structures and processes and the differences between collecting facts versus opinions and interpretations. Planned, organized, and comprehensive data collection needs variable definitions and measures, document coding and administrative database specifications. These challenges and problems may be minimized through pilot testing and pre-testing, triangulation and training of all data collection staff conducting immediate post-collection coding, tape recording interviews, performing real time data entry and editing, using paired interviewers, and implementing quality assurance measures.

Keywords

Qualitative research, Qualitative research methods, Data collection, Data analysis, Problems and issues.

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Introduction

Research is a critical and systematic process of inquiry in order to investigate the phenomena of the world. Educational research is the systematic process to investigate the educational phenomena in schools and other educational institutions. The process of research involves five major steps: Selection of problem, review of literature, data collection, data analysis, and report writing. Literature generally divides research from two dimensions: by purpose and by method (Gay, 2002). Research by method can be further classified into three types: Historical, descriptive and experimental. The descriptive research may be survey, correlational, causal comparative, case study, documentary study, content analysis, ethnography, etc. In the broader framework, all these categories of research come under the domain of qualitative or quantitative research. Historical research is qualitative in nature; descriptive and experimental research may be qualitative and/or quantitative depending upon the nature of research problem and data collected for that particular study.

Qualitative research is characterized by an emphasis on describing, understanding, and explaining complex phenomena on studying the relationships, patterns and configurations among factors; or the context in which activities occur. It involves in-depth understanding of human behaviour and the reasons that govern human behaviour. It shares the theoretical assumptions of the interpretative paradigm, which is based on the notion that social reality is created and sustained through the subjective experience of people involved in communication (Morgan, 1980). Shank (2002) defines qualitative research as "a form of systematic empirical inquiry into meaning" (p. 5). Denzin and Lincoln (2000) claim that qualitative research involves an *interpretive and naturalistic* approach: "This means that qualitative researchers study things in their natural settings, attempting to make sense of, or to interpret, phenomena in terms of the meanings people bring to them" (p. 3).

Qualitative researchers are concerned in their research with attempting to accurately describe, decode, and interpret the meanings of phenomena occurring in their normal social contexts (Fryer, 1991). The researchers operating within the framework of the interpretative paradigm are focused on investigating the complexity, authenticity, contextualization, shared subjectivity of the researcher and the researched, and minimization of illusion (Fryer, 1991).

Qualitative research methods involve the systematic collection, organisation, and interpretation of textual material derived from talk or observation. It is used in the exploration of meanings of social phenomena as experienced by individuals themselves, in their natural context (Lincoln and

Guba, 1985; Miles and Huberman, 1994; Britten, et al., 1995; Kvale, 1996). Qualitative research in general is more likely to take place in a natural setting (Denzin, 1971; Lincoln and Guba, 1985; Marshall and Rossman, 1989). It is less driven by very specific hypotheses and categorical frameworks and more concerned with emergent themes and idiographic descriptions (Cassell and Symon, 1994). It obtains a more realistic feel of the world that cannot be experienced in the numerical data and statistical analysis used in quantitative research. It has flexible ways to perform data collection, data analysis, and interpretation of collected information. It also provides a holistic view of the phenomena under investigation (Bogdan and Taylor, 1975; Patton, 1980). It provides a chance to interact with the research subjects in their own language and on their own terms (Kirk and Miller, 1986).

Qualitative methods create openness between all parties and participating subjects can discuss issues that are important to them, rather than responding to closed questions, and they can also clarify ambiguities or confusion over concepts. 'It certainly seems reasonable to suggest that one may have a better understanding of a community members situation by reading a descriptive passage than just looking at demographic statistics' (Kruger, 2003). Qualitative methods are useful, not only in providing rich descriptions of complex phenomena, but in constructing or developing theories or conceptual frameworks, and in generating hypotheses to explain those phenomena.

Although qualitative research methods have their own strengths and advantages, but there are also some issues and problems associated with qualitative research methods and data collection strategies. This theoretical and conceptual paper aims to explore these issues and problems and suggest proper measures to make best uses of qualitative research methods.

Method and Procedure

In order to explore the problems and issues associated with qualitative data collection strategies, it is necessary to consider relevant concepts of qualitative research design. Therefore, researchers developed following research questions, which are addressed in this paper.

- What are the key qualitative data collection strategies used in social sciences?
- What are the issues and problems associated with qualitative data collection strategies?
- How can these issues and problems of qualitative data collection strategies be controled?

Qualitative research involves collecting, analyzing and interpreting data by observing what people do and say, whereas, quantitative research refers to counts and measures of things. Qualitative research is much more subjective than quantitative research and uses very different methods of collecting information. The nature of this type of research is always exploratory and open-ended. Small numbers of people are interviewed in-depth and/or a relatively small number of focus groups are conducted. Participants are asked to respond to general questions and the interviewer or group moderator probes and explores their responses to identify and define people's perceptions, opinions and feelings about the topic or idea being discussed and to determine the degree of agreement that exists in the group. The quality of the finding from qualitative research is directly dependent upon the skills, experience and ability of the interviewer or group moderator.

Qualitative research does not generate statistical information and most of the concepts of statistically valid data do not apply, therefore, quantitative sampling issues do not apply to qualitative research. Hence, the need is for smaller but focused sample rather than large random samples. From which, qualitative research categorizes data into patterns as the primary basis for organizing and reporting results. Detailed data is gathered through open-ended questions using techniques such as historical analysis, focus groups, interviews, surveys, questionnaires, and diaries. Data come in the form of words, images, impressions, gestures or tones, which represent real events or reality as it is seen symbolically or sociologically.

Qualitative Data Collection Strategies

Qualitative data is extremely varied in nature. It includes any information that is not numerical in nature. Some of the major qualitative data collection strategies used in social sciences are as under:
- Observation
- Interviews
- Content analysis
- Document studies
- Historiography
- Secondary analysis etc

Observations

Observational techniques are methods by which an individual or individuals gather firsthand data on programmes, processes, or behaviours being

studied. The purpose of observations is to learn what is going on and witness the group dynamic in process. Observational approaches allow the researcher to learn about things the participants may be unaware of or that they are unwilling or unable to discuss in an interview or focus group. They provide direct information about behaviour of individuals and groups and permit researcher to enter into and understand situation/context. They also provide good opportunities for identifying unanticipated outcomes. Two types of observation are mainly used in qualitative research: participant observation and direct observation.

Participant Observation

One of the most common methods for qualitative data collection is participant observation. It is the process of immersing yourself in the study of people you are not too different from. It requires that the researcher become a participant in the culture or context being observed. It is almost always done covertly. Participant observation often requires months or years of intensive work because the researcher needs to become accepted as a natural part of the culture in order to assure that the observations are of the natural phenomenon. The participant observer is fully engaged in experiencing the project setting while at the same time trying to understand that setting through personal experience, observations, interactions and discussions with other participants.

Direct Observation

Direct observation is distinguished from participant observation in a number of ways such as:
1. A direct observer doesn't typically try to become a participant in the context. However, the direct observer attempts to be as honest as possible.
2. Direct observation suggests a more detached perspective. The researcher is watching rather than taking part. Consequently, technology can be a useful part of direct observation. For instance, one can videotape the phenomenon or observe from behind one-way mirrors.
3. Direct observation tends to be more focused than participant observation. The researcher is observing certain sampled situations or people rather than trying to become immersed in the entire context.
4. Direct observation tends not to take as long as participant observation.

Interviews

Interview is a very important strategy for data collection in qualitative research. Cannell and Kahn (1968) defined research interview as "a two-person conversation initiated by the interviewer for the specific purpose of obtaining research-relevant information, and focused by him or her on content specified by research objectives of systematic description, prediction, or explanation." Kerlinger (1970) noted that although the research purposes govern the questions asked, their content, sequence and wording are entirely in the hands of the interviewer.

An interview, rather than a paper and pencil survey, is selected when interpersonal contact is important and when opportunities for follow-up of interesting comments are desired. The purpose of the interview is to probe the ideas of the interviewees about the phenomenon of interest. Some of the key interviewing strategies used in qualitative research are:

     (a)   Unstructured Interviewing
     (b)   In-Depth Interviewing
     (c)   Focus Groups Interviewing

(a)   Unstructured Interviewing

Unstructured interview involves direct interaction between the researcher and a respondent or group. It differs from structured interview in many important ways.

1. Although the researcher may have some initial guiding questions or core concepts to ask about, there is no formal structured instrument or protocol.
2. The interviewer is free to move the conversation in any direction of interest that may come up. Consequently, unstructured interview is particularly useful for exploring a topic broadly.

(b)   In-Depth Interviewing

In-depth Interview is a very desirable strategy in qualitative data collection. This type of interviews is conducted with individuals or with a small group of individuals (including focus groups). In-depth interviews are characterized by extensive probing and open-ended questions. The interviewers seek to encourage free and open responses, and there may be a tradeoff between comprehensive coverage of topics and in-depth exploration of a more limited set of questions. In-depth interviews try to capture the respondents' perceptions in their own words. The data can be

recorded in a wide variety of ways including stenography, audio recording, video recording or written notes.

(c) **Focus Groups Interviewing**
Focus groups combine elements of both interviewing and participant observation. The focus group session is, indeed, an interview (Patton, 1990) not a discussion group, problem-solving session, or decision-making group. The hallmark of focus groups is the explicit use of the group interaction to generate data and insights that would be unlikely to emerge without the interaction found in a group. The technique inherently allows observation of group dynamics, discussion, and firsthand insights into the respondents' behaviors, attitudes, language, etc.

Focus group participants are typically asked to reflect on the questions asked by the moderator. Participants are permitted to hear each other's responses and to make additional comments beyond their own original responses as they hear what other people have to say. It is not necessary for the group to reach any kind of consensus, nor it is necessary for people to disagree. The objective is to get high-quality data in a social context where people can consider their own views in the context of the views of others, and where new ideas and perspectives can be introduced. One of the distinct features of focus-group interviews is its group dynamics; hence the type and range of data generated through the social interaction of the group are often deeper and richer than those obtained from one-to-one interviews (Thomas et al., 1995). They can also generate large amounts of data in a relatively short time span.

(d) **E-Mail Interviewing**
Researchers also use three main types of Internet-based qualitative research methods:
1. Online synchronous interviews
2. Online asynchronous interviews
3. Virtual focus groups

The most considerable online interviewing strategy is online asynchronous interviewing, which is usually conducted via e-mail. It is semi-structured in nature and involves multiple e-mail exchanges between the interviewer and interviewee over an extended period of time. Online, asynchronous, in-depth interviewing is also different from virtual focus groups in that the information volunteered by individual participants is not shared with, viewed, or influenced by other participants (Schneider et al., 2002).

Content Analysis

This is a non-intrusive form of research. It involves reviewing documents, memos or other pieces of written information for content and themes. By examining written word, the researcher is studying one type of communication that occurs in the selected sample. The content can be words, phrases, sentences, paragraphs, pictures, symbols, or ideas. It can be done quantitatively as well as qualitatively. The initial step involves sorting the content into themes, which depends on the content. Then, a coding scheme is devised, usually in basic terms like frequency (amount of content), direction (who the content is directed to), intensity (power of content), and space (size of content). The coding system is used to reorganize the themed content in what is called manifest coding. Manifest coding is highly reliable because you can train assistants to do it, ensuring inter-coder reliability, and all you are doing is using an objective method to count the number of times a theme occurs in your coding scheme. At the next level, the researcher engages in what is called latent coding. This requires some knowledge, usually gained from fieldwork or observation, about the language rules of your subjects.

Document Studies

Existing records often provide insights into a setting and/or group of people that cannot be observed or noted in another way. This information can be found in document form. Lincoln and Guba (1985) defined a document as "any written or recorded material" not prepared for the purposes of the evaluation or at the request of the inquirer. Documents can be divided into two major categories: public records and personal documents (Guba and Lincoln, 1981).

Public records are materials created and kept for the purpose of "attesting to an event or providing an accounting" (Lincoln and Guba, 1985). Public records can be collected from outside (*external*) or within (*internal*) the setting in which the research is taking place. *External* records include census and vital statistics reports, newspaper archives etc. While internal records include documents such as student transcripts and records, historical accounts, institutional mission statements, annual reports, budgets, grade and standardized test reports, minutes of meetings, internal memoranda, policy manuals, institutional histories, college/university catalogs, faculty and student handbooks, official correspondence, demographic material, mass media reports and presentations, and descriptions of programme development and evaluation.

Personal documents are first-person accounts of events and experiences. These "documents of life" include diaries, portfolios, photographs, artwork, schedules, scrapbooks, poetry, letters to the paper, etc. Personal documents can help the researcher to understand how the participant sees the world and what she or he wants to communicate to an audience. And unlike other sources of qualitative data, collecting data from documents is relatively invisible to, and requires minimal cooperation from, persons within the setting being studied (Fetterman, 1989).

Historiography

It is the method of doing historical research or gathering and analyzing historical evidence. There are four types of historical evidence: primary sources, secondary sources, running records, and recollections. Historians rely mostly on primary sources, which are also called *archival data* because they are kept in museums, archives, libraries, or private collections. Emphasis is given to the written word on paper, although modern historiography can involve any medium. Secondary sources are the work of other historians writing history. Running records are documentaries maintained by private or non-profit organizations. Recollections are autobiographies, memoirs, or oral histories. Archival research, which is the most common, involves long hours of sifting through dusty old papers, yet inspection of untouched documents can yield surprising new facts, connections, or ideas. Historiographers are careful to check and double-check their sources of information, and this lends a good deal of validity and reliability to their conclusions. Inferences about intent, motive, and character are common, with the understanding of appropriateness to the context of the time period.

Secondary Analysis

It is the reanalysis of data that was originally compiled by another researcher for other purposes than the one the present researcher intends to use it for. Often, secondary analysis involves adding an additional variable to an existing dataset. This variable will be something that the researcher collects on their own, from another dataset, or from a common source of information. Secondary data analysis is only limited by the researcher's imagination. While the technique is mostly quantitative, limitations exist that often force such researchers to have some qualitative means of garnering information also. In such cases, the qualitative part of the study is used as a validity check on the quantitative part.

A related technique, called *meta-analysis*, is the combining the results of several different studies dealing with the same research question. It is decidedly

quantitative, but involves some of the same sorting and coding techniques found in qualitative research. Meta-analysis is no substitute for a good literature review.

Problems and Issues in Qualitative Research

Despite the importance and advantages of qualitative research methods, some methodological and epistemological issues and problems are also associated with this research approach. Firstly, conducting qualitative research is not easy. It takes time and resources to collect and analyze qualitative data. Some times it can be difficult for a single researcher to carry out qualitative research, especially if two or more data collection strategies are expected to be used concurrently; it may require a research team. On the other hand it is difficult to analyse, compare or to draw concise conclusions from qualitative data i.e. using inferential statistics, testing significance or presenting graphically. There may be a risk of bias in the way the researcher interprets qualitative data. It is also difficult to ensure the validity and reliability in qualitative methods because most of the data in qualitative research are gathered through open-ended questionnaire, semi-structured or unstructured interviews and observation that treat each participant as potentially unique respondent. It is also difficult to generalize the results of qualitative research because its sample size is too small that is not true representative for generalization of the results. Qualitative results are more difficult to aggregate and therefore make systematic comparisons. It can also be extremely difficult to replicate research due to the lack of structured design or standardized procedures.

Some other methodological issues and challenges arise in terms of sampling, instrument development, data generation and organization, analytical strategies and interpretations. In general, following core issues are important in regard to conducting qualitative research.

Methodological Issues and Problems

The following four methodological issues and challenges arise while conducting qualitative research: sampling issues: instrument development issues; data collection and management issues; data analysis and interpretation issues.

(a)   Sampling Issues
Key sampling issues include choosing an appropriate sample size, the tradeoff between the representativeness and accessibility of the chosen sample, the extent to which the sample would be "randomly" selected, and whether to over sample from groups of special interest. Qualitative

research is time-intensive: As a rule of thumb, researchers assume that for every hour spent in the field, two to three hours will be spent writing notes and transcribing interviews, so every visit to an individual in the ethnographic sample translates into many hours of work producing the data. Large ethnographic samples, in turn, mean large research teams, which present budgetary and logistical problems. The small samples that are standard in intensive qualitative research appear to quantitative researchers to leave this method vulnerable to sampling bias, making them doubt whether anything reliable can be learned from studying a group of, say, 35 participants — an issue of genuine concern in qualitative research. The population from which to sample is another consideration. Finally, once qualitative researchers have determined the method by which and population from which to draw a sample, getting access to respondents can be a problem. In some cases, programme group members are reluctant to participate.

(b) **Instrument/Protocol Development Issues**

Data collection instruments and protocols in qualitative research are often informal, flexible and subject to large variations in application. While flexibility represents a strength in traditional qualitative research, it produces unfocused data collection and variable data quality when qualitative methods are applied in deductive research. For example, interview guides specifying general topics of interest, using broad, open-ended questions can be very effective in assessing interview subjects' assessment of important concept and issues and their beliefs and values, but ineffective in ensuring that comparable measures of identified variables are collected from a range of subjects. In part, the distinction here is between data collection approaches designed to develop frameworks for understanding and describing the phenomena of interest, versus applying *a priori* frameworks to collect pre-defined data and test aspects of these frameworks. Similar problems result from the use of observation guides or protocols lacking adequate specificity and a firm foundation in *a priori* hypotheses and clearly-identified variables: such protocols often produce inconsistent data by (1) encouraging the observer to record events as they unfold and to record a wide range of attributes of the situation under study, (2) limiting the likelihood that the observer will note the significance of events that do not occur, and (3) limiting the likelihood that the observer will collect complete, consistent data required for direct comparisons across observation samples.

Considerations of validity, intrusiveness or subject reactivity (Hawthorne effects) and triangulation (to minimize bias) are also too-often neglected in deductive applications of qualitative methods. Distinctions between subjective and objective data and between formal and informal organizational structures and processes are also frequently neglected, threatening the validity of study conclusions.

(c)   **Data Collection and Data Management Issues**
Use of qualitative methods, including interviews and observation, is subject to wide variations and interviewer/observer bias and interpretation. Qualitative research tends to generate a large volume of data. This can present problems even for projects with one ethnographer, but when research is carried out in a team, the group faces challenges recording and documenting information, ensuring data consistency, and providing a simple method for members of the team to access data from the whole team.

Other Issues and Problems

Issues of sensitivity and conceptualisation cut across the work of the qualitative researcher in many different ways. These are: relationships with research participants and ethical dilemmas

(a)   **Relationships with Research Participants**
Most methods of gathering qualitative data in research depend on the quality of the relationship between researcher and informant. Qualitative methods, such as in-depth interviewing and participant observation, are aiming to collect personal 'stories'. The frankness and honesty with which an informant discloses aspects of his or her story will depend, in part, on the extent to which .the researcher is perceived as trustworthy and safe. In addition, qualitative research may require a substantial investment of time and effort by the informants, and they will need encouragement and support to see them through to the end. Because of the demands of the role of research informant, recruitment of participants to qualitative research can often be problematic.

(b)   **Ethical Dilemmas**
The central principles of research ethics are informed consent, confidentiality and avoidance of harm. All three of these principles create acute dilemmas for qualitative researchers. If qualitative inquiry is to be an intrinsically 'discovery-oriented' and open-ended process through which

the researcher achieves new illuminative understandings of aspects of social life, then it is clear that the researcher will not be in a position to anticipate, at the start of the research, just what will emerge? In this situation it is not easy to construct an informed consent form or leaflet that offers potential research participants a comprehensive account of what their experience will be. The requirement to respect the confidentiality of informants can represent a major challenge for qualitative researchers. In quantitative research, the transformation of personal experience into numbers, and the merging of individual 'scores' into group-based data, means that it is relatively easy to guarantee the anonymity of individual subjects in a research study. In qualitative research, by contrast, the stories told by informants are necessarily unique, saturated with identifying markers. The third ethical principle that of 'avoiding harm, is a factor in much qualitative research.

What to Do?

- **Ensure the representativeness and accessibility of sample members:** Researchers must make a tradeoff between the representativeness and accessibility of prospective sample members that can ultimately affect the quality of the data gathered. Researchers must have a strong interest in selecting an unbiased sample in order to avoid generalizing from data that are not representative of the population of interest.

- **Ensure the confidentiality:** Emphasize the anonymity of the participants (e.g., by assuring them that all implicit and explicit links between their names and the data they provide will be removed). In addition, follow and communicate the standard procedures for the protection of human subjects to the participants, such as asking them to read an approved informed consent form before the interview takes place. Avoid overly elaborate assurances of anonymity and confidentiality because it may actually heighten rather than diminish respondents' concern, causing participants to be less willing to provide sensitive information (Singer and Levine, 2003).

- **Ensure A trusting Environment:** Researchers should be trained individuals who are sensitive, empathetic, and able to establish a non-threatening environment in which participants feel comfortable. Thorough training, including familiarization with the project and its goals, is important. Poor interviewing skills, poor phrasing of questions, or inadequate knowledge of the subject's culture or frame of reference may result in a collection that obtains little useful data.

- **Pilot Testing:** In the data collection phase, problems can be minimized through pilot-testing and pre-testing, validity/quality checks, triangulation and monitored flexibility. Sole reliance on subjective data, self-reports, etc. can reduce validity. Some tips to insure rigor in data collection management include training of all data collection staff and conducting immediate post-collection coding for time/memory sensitive data. Other methods to ensure the validity of data include tape recording interviews, performing real time data entry and editing, using paired interviewers, and implementing quality assurance for each instrument. And, to avoid further problems, incomplete, missing or unusable data should be corrected immediately.

- **Ensure the Quality of Instrument:** Rigor and validity are also enhanced through development and use of data collection instrument specifications and training protocols, including variable and measure definitions and instructions in instrument use. Such protocols should include plans and instructions for approaching sites, making contacts, arranging interviews/visits, identifying and obtaining documents, following-up (to obtain documents and other post-visit/call information), managing informed consent and confidentiality, etc. Adequate pilot testing helps ensure the appropriateness of the data sources and measures, although data collection protocols must be flexible and allow for changes in data collection plans and strategies, when pilot testing fails to reveal valuable new data sources or validity problems with the sources in use.

REFERENCES

Bogdan, R., and Taylor, S. J. (1975). *Introduction to qualitative research methods*. New York: John Wiley.

Britten, N., Jones, R., Murphy, E. and Stacy, R. (1995). Qualitative research methods in general practice and primary care. *Fam Pract, 12,* pp. 104–114.

Cassell, C., and Symon, G. (1994). Qualitative research in work contexts. In C. Cassell and G. Symon (Eds.), *Qualitative methods in organizational research* (pp. 1–13). Thousand Oaks, CA: Sage Publications.

Denzin, N. K., and Lincoln, Y. S. (2005). *The sage handbook of qualitative research (3rd ed.)*. London: Sage Publications.

Fetterman, D. M. (1989). *Ethnography: Step by Step.* Applied Social Research Methods Series, Vol. 17. Newbury Park, CA: Sage.

Fidel, R. (1993). Qualitative Methods in Information Retrieval Research. *Library and Information Science Research, 15(3)*, pp. 219–247.

Fryer, D. (1991). Qualitative methods in occupational psychology: Reflections upon why they are so useful but so little used. *The Occupational Psychologist, 14,* pp. 3–6.

Gay, L. R. (2002). *Educational research: Competencies for analysis and application* (5th ed.). Columbus, OH: Merrill.

Guba, E.G., and Lincoln, Y. S. (1981). *Effective Evaluation.* San Francisco: Jossey-Bass.

Gubrium, J. F., and Holstein, J. A. (2002). *Handbook of Interview Research*: Context and method. Thousand Oaks, CA: Sage Publications.

Kirk, J., and Miller, M. L. (1986). *Reliability and Validity in Qualitative Research.* Qualitative Research Methods Series, 1. Beverly Hills, CA: Sage Publications.

Kruger, D. J. (2003). Integrating quantitative and qualitative methods in community Research. *The Community Psychologist, 36*, pp. 18–19.

Kvale, S. (1996). *Interviews: an introduction to qualitative research writing.* Thousand Oaks: Sage Publications.

Lincoln, Y. S. and Guba, E. G. (1985). *Naturalistic inquiry.* Newbury Park: Sage Publications.

Miles, M. B. and Huberman, A. M. (1994). *Qualitative data analysis: an expanded sourcebook* (2nd ed.).Thousand Oaks: Sage Publications.

Morgan, G. (1980). Paradigms, metaphors, and puzzle solving in organization communication. *Administrative Science Quarterly, 25*, pp. 608–621.

Morgan, G., and Smircich, L. (1980). The case for qualitative research. *Academy of Management Review, 5,* pp. 491–500.

Patton, M. Q. (1980). *Qualitative evaluation methods.* Newbury Park, CA: Sage Publications.

Patton, M. Q. (1990). *Qualitative evaluation and research methods (2nd ed.).* Newbury Park, CA: Sage.

Patton, M. Q. (2002). *Qualitative research and evaluation methods (3rd ed.)*. Thousand Oaks, CA: Sage Publications.

Pettigrew K. E., Fidel, R., and Bruce, H. (2001). Conceptual frameworks in information behaviour. *Annual Review of Information Science and Technology, 35*, pp. 43–78.

Schneider, S. J., Kerwin, J., Frechtling, J., and Vivari, B. A. (2002). Characteristics of the discussion in online and face-to-face focus groups. *Social Science Computer Review, 20(1)*, pp. 31–42.

Smith, M. J. (1988). *Contemporary communication research methods*. Belmont, CA: Wadsworth, Inc.

Wang, P. (1999). Methodologies and methods for user behavioural research. *Annual Review of Information Science and Technology, 34*, pp. 53–99.

Wolcott, H. F. (1990). *Writing up qualitative research*. London: Sage Publications.

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AN EVALUATION OF COURSE
"PREVENTION OF DRUG ABUSE"

By

*Dr. Muhammad Tayyab Alam**

Abstract

The focus of this study is on the evaluation of "Prevention of Drug Abuse", a course of Allama Iqbal Open University. In Pakistan, drug abuse has had increased rapidly and it is now attaining epidemic dimensions. The most alarming facet of this menace is its spread to young children and teenagers. The educationalists have started discussion in various committees that, on the pattern of "population Education" and" Environment Education", another emerging area of studies is the "Prevention of Drug Abuse" which needs to be included in the scheme of studies of the teacher training programmes, so that the teachers are aware of the symptoms of the addicts and they may be able to take in time preventive measures and save the youngsters from the danger of drug abuse. Allama Iqbal Open University took a lead in this aspect and developed a course at B.Ed. level. This course was offered in autumn 1992, autumn 1993 and spring 1995. This study was conducted to evaluate the course "Prevention of Drug Abuse" Code No. 662 offered to B.Ed students of Allama Iqbal Open University in spring 1995 semester with respect to its content, presentation, language, television programme, assignments and tutorials and to investigate the weaknesses of the course so that strategic recommendations for the re-planning of the course are made. This course had been offered to 1900 B.Ed students during the spring 1995 semester. It was decided to take the whole population as a sample. The questionnaire was sent by post to all the students in June 1995 and the total return upto October 1995 was 460, which was considered to be significant for the study. It was concluded that the planned efforts to make the teachers and public aware of the danger of drug abuse had been very limited and insignificant. The respondents were of the view that this course was useful in Pakistani situation, but it had certain deficiencies, which needed to be kept in view while re-planning the course for the future launching.

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Introduction

One of the emerging trends in education is to update the curricula according to the needs of the society. It was in this context that Allama Iqbal Open University took up the job of developing a post graduate level course titled "Prevention of Drug Abuse", and offered it to the B.Ed students in autumn 1992. It happened for first time in the history of the teacher education in Pakistan. It is a half credit course consisting of the following units:

1. Health: Basic Concepts
2. Drug and Drug Use
3. What is Drug Abuse?
4. Drug Situation in Pakistan
5. Classification and Effects of Commonly Abused Drugs.
6. Drug Prevention.
7. School Curricula Intervention.
8. Teaching Strategies.
9. Instructional Model Lesson Planning and Model Lessons.

Unlike other professional courses, this course was in English and was offered as an optional course to 1883 B.Ed students of autumn 1992 semester in the districts of Karachi, Hyderabad, Quetta, Peshawar, Islamabad, Rawalpindi, Lahore, Faisalabad, Gujaranwala and Multan. The course was supported with a T.V. programme. Even tutor briefing sessions were conducted. The second offering of this course was made in autumn 1993 to 1967 B.Ed students in the same regions. The third offering of this course was made to 1900 B.Ed students in spring 1995 semester.

Statement of the Problem

The study was to evaluate the course "Prevention of Drug Abuse" code no.662 offered to B.Ed students of Allama Iqbal open University in spring 1995 semester with respect to its content, presentation, language ,assignments and tutorials and to investigate the strengths and weaknesses of the course so that strategic recommendations for the replanning of the course be developed.

Objectives of the Research Study

Following were the main objectives of the study:
1. To evaluate the course "prevention of drug abuse" offered at B.Ed. level by Allama Iqbal Open University in the semester spring 1995.
2. To find out the strengths and weaknesses of the course.
3. To make recommendations for the future planning of this course.

Significance of the Study

The findings of this study were likely to be of great use in providing guidelines for the improvement of this course and were likely to assist the curriculum developers of teacher education in Pakistan. The course had a T.V. programme and fortnightly tutorials. The feedback from the students was expected to go a long way in improving the media and tutorial support, and it was likely to improve the effectiveness of this course. In brief, this study was likely to be of use for the following:

- Curriculum developers in the field of the prevention of drug abuse.
- Planners of such programmes at national level.
- Planners of the tutorials and media services to such courses.

Delimitations of the Study

Only the districts of Lahore, Faisalabad, Gujranwala, Rawalpindi, Quetta, Multan, Peshawar, D. I. Khan, Karachi and Haiderabad were included in the study as this course was offered to the B.Ed. students of Allama Iqbal Open University in these districts in spring 1995.

Methodology

A questionnaire was prepared for data collection. It was framed to collect data on different aspects of the course like, content of the course, medium of the text-book, assignments and T.V. programmes. Opinions of the respondents about the course-content and other components of the course were collected. The population of the study consisted of 1900 B.Ed. students of spring 95 semester. All these students were taken as sample and the questionnaires were sent by post to these 1900 respondents. The total return was 460. Item wise analysis of the data was made in order to arrive at the findings of the study.

Presentation and Analysis of Data

Table–1
Showing the Profession of Respondents

Profession	Total No.	Percentage
Teaching Jobs	361	78.5
Non-Teaching Jobs	30	6.5
Un-employed	69	15.0
Total	460	100

It is evident that 78.5% of the respondents were in teaching profession and 6.5% of the students belonged to other professions, whereas 15% of the respondents were unemployed.

Table–2
Showing Teaching Experience of Respondents

Experience (in years)	No. of the Respondents	Percentage
0 – 5	197	54.6
6 – 10	112	31.0
11 – 15	24	6.6
16 – 20	14	3.9
21 – 25	09	2.5
26 – 30	05	1.4
Total	361	100

It is clear from the data that the teaching experience of the students of this course varied between **zero** to **thirty** years, but a high percentage of the respondents (i.e. about 55%) had the teaching experience below five years. From the data it was concluded that the students of this course have less experience of teaching and they belonged to comparatively younger age group.

Table–3
Showing Experience and Knowledge of Respondents about the Drugs and their Abuse

Sub. Item	Yes	Percentage	No	Percentage
a. Did you attend any course about drugs?	30	6.5	430	93.5
b. Did you study any articles/ books/literature about Drugs?	202	43.9	258	56.1
c. Did you get any information about drugs from any friends or relatives?	259	56.3	201	43.7
d. Did you observe any of your friends or relatives, who were addicts?	182	39.6	278	60.4
e. Do you have any relation with any Institution of Drug Abuse.?	16	3.5	444	96.5

been condemned whereas smoking is the base of addiction in the area of drug abuse.

3.   The course should also teach students, the strategies of avoiding the company of addicts and methods of refusing to take drugs on the motivation of the peer group.

4.   The course also needed to describe the symptoms of the beginners in the use of drugs so that the teachers and the parents may be able to detect them in time.

5.   The course is not in detail. There is a need to give more illustrations for the description of the concepts particularly the prevention strategies.

6.   Medical terms used in the course needed to be described in more detail and in simple language.

Item No.10 of the questionnaire was about the expectations of the respondents regarding the course, at the time it was received by them. Following is the brief of the expectations of the respondents, at the time they received the book:

1.   The course will give information about the drugs and their abuse.

2.   The course will provide them information regarding prevention measures which can be used to save the students from the drug abuse.

3.   The course will provide them information regarding the strategies to help the addicts.

4.   The course will tell the methods which can be used by the teachers for teaching the skills to save them from the drug abuse.

Table–5
Showing Data on Evaluation of Tutorials Provided as a Support for this Course

Item No	Item	Yes	%	No	%
1.	Are you satisfied with the tutorial service?	342	74.3	118	25.7
2.	Have you attended all the tutorials?	310	67.4	150	32.6
3.	Was the tutorial time suitable for you?	318	69.1	142	30.9
4.	Did the tutor provide you guidance to remove your difficulties?	295	64.1	165	35.9

It is clear from the data presented in table 5 that:

1.   74 percent of the respondents were satisfied with the service provided to the students of this course.

2.   69 percent respondents were satisfied with the timings of the tutorial.

3.   67 percent of the respondents attended all the tutorials for this course and

4.	64 percent of the respondents were of the opinion that the tutors provided them proper guidance with respect to the course and that the tutors were helpful in removing the difficulties of the students.

From these findings, the following conclusions can be safely drawn:
1.	The tutorial services provided were up to the satisfaction of the students and that most of the tutors provided guidance for the solution of the problems of the students.
2.	The timings of the tutors were suitable for most of the students.

Table–6
Showing Data Collected on Evaluation of Assignments

Sr.No.	Item	Yes	%	No	%
1.	Did the assignments help you in understanding the course contents?	442	96.1	18	3.9
2.	Were these assignments difficult for you?	180	39.1	280	60.9
3.	Were the marked assignments received back to you in time?	365	79.3	115	20.7
4.	Did the tutor provide you guidance on your first assignment?	297	64.6	163	35.4

The data presented in table 6 shows that:
1.	The assignments were helpful for 96 percent of the respondents in understanding the contents of the course.
2.	79 percent of the respondents received back the marked assignments in due course of time.
3.	64 percent of the respondents reported that their tutors provided them guidance for the solution of their second assignments when they received back their first assignment by the tutors. Only 39 percents respondents found that these assignments were difficult for them and they faced problems in the solution of their assignments.

From these findings, it can be concluded that the assignment component provided a learning situation for the students and the tutorial service provided them proper guidance. It was, therefore, recommended that the tutorial service must be retained and the tutors needed to be provided briefing so that they provide better guidance to the students and the students do not face academic problems.

Main Findings of the Study

1. **Objectives:** All respondents showed their satisfaction with objectives of all the units.
2. **Content:** All respondents were satisfied with the contents of all the units.
3. **Presentation:** All respondents were satisfied with presentation in all units except Unit No. 4 which was on the "Drug situation in Pakistan".
4. **Self Assessment Questions (SAQs):** All respondents were satisfied with the SAQs.
5. **Activities:** All respondents showed their dissatisfaction with Units No.2, 3, 4 and 5 wherein the activities had not been given.
6. **Language:** The respondents were satisfied with the language of all units except Unit No.1 "Health Basic Concepts" and Unit No.3 which was entitled "What is Drug Abuse"? The language was technical and difficult in these units.
7. **Tutorials:** The tutorial services provided were up to the satisfaction of the students and that most of the tutors provided guidance for the solution of the problems of the student and the timings of the tutorials were suitable for most of the students.
8. **Assignments:** The assignment component provided a learning situation for the students and the tutorial service provided them proper guidance .It was, therefore, recommended that the tutorial service must be retained, that the tutors needed to be provided briefing so that they provide better guidance to the students and the students do not face academic problems.
9. **Television Programmes:** The respondents were of the opinion that
    - The duration of the T.V programmes needed to be increased.
    - More T.V programmes needed to be developed and presented as one.
    - T.V programme was considered to be insufficient for the students.
    - The script of the T.V programme should also be reflected in the text to help students in comprehension of the concepts.
10. The main weaknesses of the course as identified by the respondents were as under:
    i)   The language of the book was English.
    ii)   The language of the course was dry.
    iii) Use of the medical terms in the content was pointed out as a weakness.
    iv)   Some units were too short.
    v)   One T.V programme was insufficient.
    vi)   Tutorials were less in number.
    vii) The course lacked practical components in identifying the addicts.
    viii) The language of some of the units was difficult.

ix)   The data of some of the units needed to be updated, specially while describing the drug situation in Pakistan.

x)   Less number of SAQs, exercises and activities were there in the course.

Conclusion

It is concluded that the course "Prevention of Drug Abuse" is a good example of course production by Allama Iqbal University. This research study provided a feedback for the improvement of the courses and suggested to include practical activities, specially for the purpose of the recognition of the addicts. The exercises for recognising the symptoms of addicts, can be a special feature of the course. Similarly, there is a need to add such courses in the other teacher training programmes so that the teachers get an awareness about a national problem. This type of research studies and feedback in the case of other courses of A.I.O.U. may go a long way in the improvement of the courses.

Recommendations

Following were the major recommendations of the study:

1.   The textbook of this course needs to be written in Urdu on the pattern of other courses of B.Ed. at AIOU. However, Sindhi version of the text may also be prepared at a later stage.

2.   Revision of the textbook is recommended on the lines that some concepts needed to be to described in detail and some terms, especially medical terms should be defined and emphasis be laid given on the prevention of smoking.

3.   The chapter on the drug situation in Pakistan needs to be updated and the last chapter on the model lessons needs to be re-written by adding more examplary lesson plans in detail.

4.   In order to make the content more interesting, it is proposed to add pictures, diagrams, illustrations and such other aids to the text. The addition of more exercises and SAQs is also recommended so that the text becomes more of self-learning type.

5.   Addition of one more TV programme for the course is recommended. Adding of audio and videocassettes to the student's package might also be of great worth in the clarification of students' concepts on drug education.

6.   Need for adding more tutorials is justified. It is, therefore, recommended to arrange more tutorials. It is also recommended to

provide willing and devoted tutors, who are ready to provide all possible assistance to the students.

7.   Keeping in view the significance of the course, it is recommended to include in the course some practical exercises like the observation of addicts and diagnosis of the symptoms of addicts.

8.   It is recommended that, in future, research may be conducted to evaluate this course on the basis of the opinions of the

-    Authors of this course
-    Tutors of this course
-    Experts in the field of Drug education

REFERENCES

Abbasi, M. Hasim *School Curricula Intervention, Prevention of Drug Abuse*, A.I.O.U, Islamabad, 1995.

Bukhari.M.M.A, *Teaching Strategies, Prevention of Drug Abuse, A.I.O.U,* Islamabad, 1995.

Hussain, Abdullah Khadim, *Drug Situation in Pakistan, Prevention of Drug Abuse, A.I.O.U.* Islamabad, 1995.

Nadim-ur-Rehman, *Health and Basic Concepts, Prevention of Drug Abuse, A.I.O.U,* Islamabad, 1995.

Niaz, Kamran, *Drug and Drug use, Prevention of Drug Abuse, A.I.O.U,* Islamabad, 1995.

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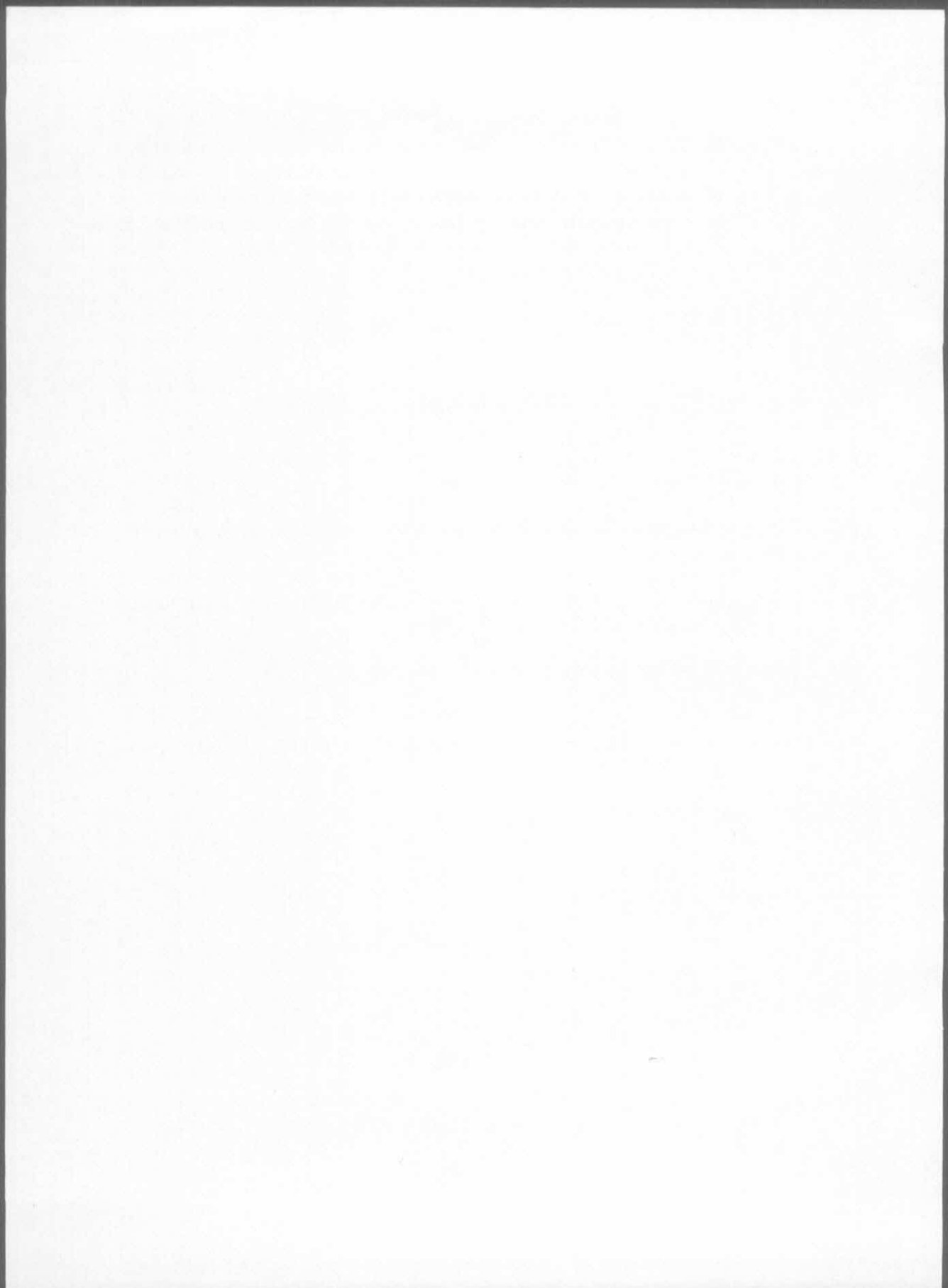
PERSONALITIES

SHAIKH AYAZ
Revolutionary poet of Sindh

By
Dr. Mahmudur Rahman

Being a graduate of the University of Sindh, I wished to obtain Ph.D. from my *alma mater*. But it seemed this was not to be. I had not submitted my thesis in the specified period. I was served a notice to comply with the university order within a fortnight or have my registration treated as cancelled. The topic I had selected had proved to be too comprehensive. When writing about the role of poets in the freedom movement one had to look into voluminous anthologies of Urdu poetry. I had done a lot of work, yet I needed more time. Besides the process of typing, photocopying and binding of not less than a 500 – page treatise also would be time-consuming. I was totally confounded.

At this critical juncture, someone advised me to see the Vice Chancellor of the Sindh University. He had recently joined the institution as its head and happened to be a poet. He would be more sympathetic. I made up my mind to do so. It was a burning day of June 1976. I drove straight to the V.C's office at Jamshoro. That day he had not come to the campus and was working from home. But I could see him there, I was told.

At the V.C. House I handed over a piece of paper to the peon, bearing my name and the city from where I had come i.e., Sukkur. Hardly a few minutes had passed when the Vice Chancellor called me in. It was a modest room with shelves full of books on the wall. The man I had come to see was working on a round table. As he looked at me, he left the chair, moved towards me and embraced me affectionately. Then, a gentle voice echoed in the air:

"Ap kaisey hain"? He asked in chaste Urdu.

"Quite well, Sir", I replied respectfully.

As soon as he learnt of my problem, he immediately picked up the telephone receiver and directed the controller of examination to extend the time limit. "The thesis requires some time to complete. It's a very important topic,

which ought to be studied in depth. I allow the candidate a time space of six months," the VC said.

It was much amazing. I had met this gentleman after 25 years. I used to meet him frequently at Mehran Centre, Sukkur in the fifties. Then, he was a practicing lawyer. And now, as a world-renown poet and at a prestigious academic post, he had not changed at all. He was the same person who used to roam on the bank of the Indus, within the precincts of *Ghanta Ghar* and in the garden close to the Lloyd barrage with Prof. Afaq Siddiqi, Shaikh Abdul Razzaq Raz, Molai Shaidai, and myself.

Shaikh Mubarak Ali was born in Shikarpur (Sindh) on March 23, 1923. He belonged to a highly respectable family. His grandfather, Shaikh Bangal, was a physician. He spent a great part of his life in Delhi amidst the noted *hakims* of the age. Shaikh Bangal was married to a Urdu-speaking lady of Meerut (UP) and thus two different cultures and languages were blended in the late 1800s.

Ayaz's father, Shaikh Ghulam Hussain, had a good command over Urdu and Persian. By profession, he was a law agent. As he was not fluent in English, he used to consult legal books in Urdu. To acquire such material he had to go to Hyderabad (Deccan). Thus, he had a good collection of books. He had a literary taste as well. Hafiz Shirazi was his favourite poet. The Shaikh was very fond of reading *Diwan-i-Hafiz* early in the morning at 5 o'clock. He even subscribed to all noted journals of Urdu, such as *Humayun* (Lahore), Nigar (Lucknow), *Adabi dunya* (Lahore) and *Nairang-i-Khayal* (Lahore).

Ayaz was born in this literary environment. He obtained his elementary education in Shikarpur (Sindh). After passing his matriculation, he came to Karachi and was enrolled in S.M. College. After graduating from Bombay University, he took admission in Law College, Karachi. After obtaining an LLB degree, he was inclined to study for his masters, but the sad demise of his father compelled him to come back. He started his career as a lawyer in Sukkur. Very soon he earned fame as a distinguished advocate of the city. It was on January 23, 1976 that Ayaz was appointed as Vice Chancellor of Sindh University.

In the literary circles, Shaikh Mubarak Ali of Shikarpur came to be known as Shaikh Ayaz. His twin name earned him wide recognition not just in his own province, but outside Pakistan as well. Undoubtedly Ayaz was one of the greatest poets of the modern age whose poetry has been rendered into Bangla, Marathi, Hindi, German, Greek, English, Russian, Urdu, Punjabi and Gujarati. His poetry

has established for him his claim to fame and people of all caste and creed acknowledge his greatness.

Ayaz was a poet by birth. At the age of eleven, he started composing poems. It was under the patronage of his teacher Kheyal Das Fani that Ayaz developed his poetic style and talent. During this period, his poems were published in Sindhi magazines *Sudarshan* and *Sindho*.

Then, an astonishing event occurred one evening. Rajpal, the noted editor of *Sindho*, came from Mian Goth to meet his distinguished contributor. A lad of twelve came out of a modest house and introduced himself as Ayaz. Rajpal blatantly refused to accept him as Shaikh Ayaz – the poet. When the people of the neighbourhood confirmed his identity, the editor turned back, proclaiming loudly:

"How can this young lad be the creator of such excellent poems!"

But, it was this very lad who grew up to become the most prominent poet, dramatist, short story writer, novelist, essayist and orator of Sindhi language. In 1942, the Progressive Writers' Association was established in the province. Its secretary Gobind Mali promoted the progressive trend among young writers. The association also started publication of its journal. During this period, Shaikh Ayaz was a law student in Karachi. He was much inspired by the progressives' ideas and anti-colonial stance. He wrote revolutionary poems. One of his poem, *I am a rebel – I am a rebel* earned him much fame amidst Sindhi speaking people.

After Partition, he used his poetry to fight for the cause of the disadvantaged and the deprived people. During the mass movement against One Unit, he wrote a poignant poem, which became the unofficial anthem of the people of Sindh. A line goes as follow:

Is anybody there who,
Wouldn't sacrifice his head,
For Sindh and then,
Be ashamed for it.

The government of the day had to ban its broadcast from Radio Pakistan. Shaikh Ayaz suffered a great deal for his belief and faith in human values. Many times, this poet of the people was externed from cities where he was specially invited to attend literary gatherings. His anthologies were proscribed and Ayaz was put behind the bars. In jail he wrote a number of poems and harshly criticized

the regime. His diary, written in Sahiwal jail, is a pathetic account of the torture he suffered during confinement.

Poet Ayaz played a significant role in revolutionizing the thought, content and style of Sindhi poetry. The urge for creation was strong in him. He chose his own form, pattern and diction to express his ideas and deliver a message to the masses. As such, the Shaikh is considered to be the greatest Sindhi poet after Shah Latif.

It is interesting to note that Shaikh Ayaz had also inherited a love for Urdu. While a primary student, he had already acquired proficiency in reading books in this language. Moreover, his father used to send him Urdu books and magazines from Delhi in the early 1930s. This inspired him to compose Urdu verses with equal ease. His anthologies of Urdu poetry *Boo-i-gul* and *Nala-dil* have already been published, which are liked and loved by Urdu-speaking people.

The most venerable work of Shaikh Ayaz is Urdu translation of *Shah jo Resalo,* the compilation of Shah Abdul Latif Bhitai's poetical work. The Shaikh had also translated into Sindhi the selected pieces of Allama Iqbal. All such rendition is in verse. Besides poetry, Shaikh Ayaz had also written sort stories, novel, eassays, criticism, travelogue, diaries and an autobiography.

In his writings, Ayaz has portrayed the miseries of the deprived, the anguish of the downtrodden and the deteriorating condition of the Haris who had been sufferings at the hands of an unjust system since long.

This doyen of the modern Sindhi writers and poets expired on December 28, 1997, leaving behind a number of collections of his works. He was laid to rest near the tomb of Shah Latif Bhitai. In his remarkable poem *To my death*, Ayaz had vehemently declared:

> *I have transformed my life into flame,*
> *From my breath more songs have emerged,*
> *The death may not know what I'm leaving for it.*
> *Only, ash, and ash, and ash!*
> *Oh death! Thou could get nothing, but handful of my bones,*
> *While going on the track,*
> *I would be picked up by my lovers just like eagles!*
> *Ha, ha, handful of bones for death,*
> *Lo, how it's going back desperately,*
> *I'm laughing at it ... behind the clouds.*
> *Oh death! Look what lesson I've given to thee at the end,*
> *I've transformed my body into voice.*

BOOK REVIEW

A COMPREHENSIVE ENGLISH TRANSLATION OF
THE HOLY QURAN

Title: The Last Message
    (A translation of the Great Quran)
Translator: Prof. Muhammad Yaseen
Publishers: Walayatsons
    14–Abbot Road, Lahore – 54000
    Pakistan
Pages: 1168

The Holy Quran is the most marvellous act of Almighty Allah. It is a composite Book of miracle comprising a variety of aspects, each of which is a standing and challenging miracle in itself. Its language, its authenticity, the comprehensiveness of its guidance to humanity for all times and in all aspects of life, the encompassing legality of its contents, and its effects upon its listeners of whatever mental caliber – are all standing miracle.

The Holy Quran is the last and the most complete guide for the human being to attain spiritual elevation and to acquint himself with the sole aim of life, i.e., to be a truly faithful servant of Allah. In order that the man may lead his life so as to be reckoned among Allah's faithful servants, the Holy Quran contains the necessary rules of guidance, following which the intended status can be attained and eternal salvation gained.

From the very day of its revelation, not only the Faithfuls, but the people of all other religions have had tried to get themselves benefited with the text of this sacred book. For those persons who have been unaware of Arabic language in which it has been revealed, scholars of all the ages have tried to render the text into many other languages of the world.

English, being the most noted language of the world, has since long been picked up for the renderation of Quranic text. Through this way the Divine Message of Allah has spread all over the world and thus enabling the masses to get themselves adorned with the shining rays of Faith.

Keeping this very fact in view, the noted scholar, Prof. Muhammad Yaseen has come forward. He has done the rendering job of the Holy Book most

successfully. His splendid work seems to be a translation of the Great Quran into idiomatic English with the thematic sequence of the *Surahs* (Chapters). Moreover, a detailed description of each *Surah* has been inserted at the outset, which fully enables the readers to know the background of the revelation of this particular chapter.

This translated work also carries the Arabic text of the Holy Quran. Thus, the readers, who are well aware of Arabic reading, may grasp the meaning of this Heavenly Book in appropriable way. The undertaken job has been accomplished as it ought to be.

Reviewed by
Dr. Mahmudur Rahman
Editor

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