EFFECT OF DIFFERENT PLANTING DENSITIES ON SOME PHYSIOLOGICAL PARAMETERS OF MUNGBEAN

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ABSTRACT

An experiment was conducted at Agricultural Research Institute, Dera Ismail Khan during 2003 and 2004 to study the effect of different row spacings and seed rates on some physiological parameters of mungbean. Experimental design used was RCBD with split plot arrangements and the main plot consisted of three row spacings while seed rates were kept in sub-plots. Number of branches plant^{-1}, number of clusters plant^{-1}, pod length, plant height, harvest index % and grain yield were significantly affected by various row spacings, seed rates and their interaction. As for as the row spacing is concerned maximum yield was recorded in 30 cm row spacing which can be attributed to optimum space between rows that resulted in efficient light interception and photosynthetic activity. The maximum numbers of branches were recorded in treatment with 20 cm row spacing and a seed rate of 20 kg ha^{-1}, which can be attributed to greater light interception and increased photosynthetic activity due to the availability of greater space. The highest numbers of clusters were observed in combination of 20 cm row spacing and 20 kg ha^{-1} seed rate. The pods with maximum length were recorded in plots having 20 cm row spacing and 20 kg ha^{-1} which seems due to lesser competition for nutrient. The tallest plants were observed in the plots with 20 cm row spacing and 40 kg ha^{-1} while the smallest plants were recorded in the treatment with 40 cm row spacing and 20 kg ha^{-1}. The smallest plants may be due to less plant to plant distance within row, which may have resulted in retarded growth due to higher competition for nutrients and other assimilates. Maximum harvest index % was recorded in plots with 40 cm row spacing and 20 kg ha^{-1}. Although, optimum row spacing, higher seed rate and their interaction has resulted in increased yield of mungbean per unit area, nonetheless, per plant yield was maximum with lower seed rates. This increase in per plant yield in plots with lower seed rate might be due to the availability of abundant light, water and space to plants. The reason for deviation in grain yield per unit area as compared to per plant yield is due to the fact that the yield does not entirely depend upon the performance of individual plant but also interact with total number of plant per unit area and yield contributing parameters.

INTRODUCTION

One of the main reasons of low yield of Mungbean (*Vigna radiata* L. Wilczek) is inappropriate plant population. Farmers usually grow mungbean by broadcasting method of sowing which requires higher seed rate and tended to maintain inconsistent plant stand establishment,

poor growth and difficulty in managing pests and diseases as well as intercultural operations. It is an established fact as reported by many researchers (Khan *et al.* 2001) that the plant population should be kept optimum to obtain maximum yield. Although spacing of 30 cm and 10 cm between rows and plants respectively have been recommended by the national programme on pulses concerning mungbean crop, yet there is very little information on the relative contribution of these recommended spacing between plants and rows on the yield, other plant characteristics and their relationship with the population per unit area along with their interaction.

The importance of using optimum seed rate and plant spacing has been recognized by the researchers. There has been found a significant difference in the mean seed yield of adopters and non-adopters of mungbean's appropriate seed rate (Dolli and Swamy, 1997). Both over and under plant densities result in significant yield decrease, however, medium plant density is required to harvest maximum seed yield (Ashour *et al.* 1995). Sarkar *et al.* (2004) in an experiment studied the effect of plant density on the yield and yield attributes of mungbean and observed that 30 x10 cm plant density always showed highest yield performance.

Keeping in view these findings, there is a dire need to work out an appropriate seed rate and row spacing to harvest maximum yield of mungbean. Therefore, present experiment was designed to determine proper seed rate and row spacing for standardization of plant population per unit area and the effect of their interaction on mungbean yield.

MATERIALS AND METHODS

The experiment was laid out in Randomized complete block design with split plot arrangement having plot size 2.4X4 m with four replications and test variety was NM 98, a promising and well adopted variety of mungbean.

Three spacings (row to row) were kept as main plots and four seed rates were assigned as subplots. The two factors were as follows:

Main plot (Row spacing)		**Sub plot (Seed rates)**
Row spacing 1 =	20 cm	Seed rate 1= 20 kg ha^{-1}
Row spacing 2 =	30 cm	Seed rate 2= 30 kg ha^{-1}
Row spacing 3 =	40 cm	Seed rate 3= 40 kg ha^{-1}
Seed rate 4=	50 kg ha^{-1}	

RESULTS AND DISCUSSION

Number of branches $plant^{-1}$

Branching is basically a genetic character but environmental conditions

may also influence the number of branches per plant and play an important role in enhancing grain yield. Number of branches plant^{-1}, an important secondary yield component, was affected significantly by different row spacing at P=0.05. Data in Table-1 revealed that means of row spacing regarding number of branches plant^{-1} ranged from 4.35 to 5.23. The highest number of branches (5.23) was recorded with 20 cm row spacing. This can be attributed to greater light interception and increased photosynthetic activity due to the availability of greater space to crop. Lowest number of branches (4.35) was, however, recorded in wider row spacing but with increased seed rate.

Varying seed rates had significantly affected the number of branches plant^{-1}. Maximum branches (5.78) were noted in plots with 20 kg ha^{-1} seed rate. This might be due to the fact that lesser plants per unit area had utilized nutrients like water, light, CO_2 and N in abundance, which ultimately resulted in the formation of more photo-synthates and number of branches. These results are in line with those of Hassan (1997) and Jan *et al.* (2000). However, lowest number of branches (4.20) was recorded in plots having 50 kg ha^{-1} seed rate.

The interaction of row spacing and seed rates was significant at P=0.05 concerning number of branches plant^{-1}, and ranged from 4.01 to 6.15 branches plant^{-1}. The highest number of branches (6.15) was recorded in plots having 20cm of row spacing along with a seed rate of 20 kg ha^{-1}. On the other hand lowest number of branches per plant (4.01) was recorded with the application of treatment having row spacing of 40 cm and seed rate of 50 kg ha^{-1}. This might be due to closer plants within rows, resulting in greater competition for light, space and nutrients.

Table No. 1: Number of branches plant^{-1} as affected by Different Row spacing and seed rates.

Row spacing (cm)	Seed rates kg ha^{-1}				Means
	20	30	40	50	
20	6.15a	5.55b	4.68e	4.55e	5.23a
30	5.94b	4.67e	4.28f	4.05g	4.73b
40	5.24d	4.14fg	4.03g	4.01g	4.35c
Means	5.78a	4.78b	4.33c	4.20d	

Means followed by the same letter (s) in the respective category are non-significant at P≤ 0.05.

Number of clusters plant^{-1}

Number of clusters plant^{-1} was affected significantly by varying row spacing at P=0.05. Data in Table-2 revealed that means of row spacing regarding number of clusters plant^{-1} ranged from 9.83 to

13.41. Number of clusters was greater (13.41) in 20 cm row spacing, which can be attributed to a greater light interception and photosynthetic activity as greater space was availed by the plants. Lowest number of clusters was, however, noted with wider row spacing and higher seed rate due to decreased plant spacing.

Using different seed rates has significantly affected number of clusters plant^{-1}. Means of seed rate concerning number of clusters plant^{-1} ranged from 9.30 to 14.19. Seed rate of 20 kg ha^{-1} has produced highest number of clusters plant^{-1} (14.19). While, the seed rate of 50 kg ha^{-1} resulted in the lowest number of clusters (9.30) per plant.

The interaction of row spacing and seed rates was also found significant at P=0.05 regarding number of clusters plant^{-1}. The combination of 20 cm row spacing and 20 kg ha^{-1} has produced the highest number of clusters (16.73) and the lowest number of clusters (7.40) per plant was recorded in plots with 40 cm row spacing and 50 kg ha^{-1} and this might be due to closer plants within row, which resulted in greater competition for light, space and nutrients.

Table- 2: Number of clusters plant^{-1} as affected by different Row spacing and seed rates.

Row spacing (cm)	Seed rates kg ha^{-1}				Means
	20	30	40	50	
20	16.73 a	14.68 b	11.48 ef	10.77 g	13.41 a
30	13.73 c	12.52 d	10.35 gh	9.71 h	11.58 b
40	12.11 de	10.85 fg	8.95 i	7.40 j	9.83 c
Means	14.19 a	12.68 b	10.26 c	9.30 d	

Means followed by the same letter (s) in the respective category are non-significant at P≤ 0.05.

Pod length (cm)

Perusal through means regarding pod length (Table-3) indicated that row spacing significantly affected pod length at P=0.05. The pod length ranged from 5.76 to 7.09 cm and the lengthiest pods (7.09 cm) were recorded in 20 cm row spacing. This can be attributed to greater space within rows that resulted in efficient light interception and photosynthetic activity. The smallest sized pods (5.76 cm) were recorded in treatments having wider row spacing but with decreased plant to plant distance. Means of pod length (cm) were also significantly affected by seed rate and ranged from 5.54 to 7.34 cm. The lengthiest pods were observed in the treatment using 20 kg ha^{-1} seed rate with value of 7.34 cm. The smallest pods (5.54 cm) were recorded in plots with 50 kg ha^{-1} seed rate.

The interaction of row spacing and seed rates was also significant at P=0.05 for pod length. The pods with maximum length (7.68) were recorded in plots having 20 cm row spacing and 20 kg ha^{-1}. On the other hand smallest pods (4.46 cm) were recorded in the treatment with 40 cm row spacing and 50 kg ha^{-1}. The smallest pods may be due to relatively closer plants within row, which may have resulted in greater competition for light, space and nutrients. The findings are also confirmed by some other researchers too like Singh and Sahu (1998).

Table- 3: Pod length (cm) as affected by different Row spacing and seed rates.

Row spacing (cm)	Seed rates kg ha^{-1}				Means
	20	30	40	50	
20	7.68 a	7.23 ab	7.05 abc	6.43 cd	7.09 a
30	7.25 a	6.58 bcd	7.08 abc	5.74 ef	6.66 b
40	7.10 ab	6.30 de	5.18 f	4.46 g	5.76 c
Means	7.34 a	6.70 b	6.43 c	5.54 d	

Means followed by the same letter (s) in the respective category are non-significant at P≤ 0.05.

Plant Height (cm)

Environmental factors and genetic characteristics of plant play an important role in determining the plant height. The data recorded on plant height (cm) are presented in Table-4. The data indicated that row spacing differed significantly from each other regarding plant height. The data revealed that the 20 cm row spacing produced the tallest plants (72.20 cm), while the smallest plants (67.50 cm) were recorded in 40 cm row spacing.

Means of plant height (cm) were also significantly affected by seed rate. The value of plant height ranged from 66.10 to 71.80 cm. The tallest plants were observed in 50 kg ha^{-1} seed rate with value of 71.80 cm. Plant height was greater at 50 kg ha^{-1} because inter-nodes elongated due to shading affect in an attempt to reach exposed solar energy at upper canopy levels. It was noted that the stems became cylindrical and thin due to plant competition for getting exposed to maximum light. The smallest plants (66.10 cm) were recorded in plots with 20 kg ha^{-1} seed rate. Plant height decreased in 20 cm row spacing was probably associated with limitation of assimilates and perhaps minerals and water competition for growth factors, added with extinct light in the lower canopy which might have inhibited stem growth in closer row spacing.

The interaction of row spacing and seed rates was significant for plant height. The plants with maximum height were recorded in plots with 20cm row spacing and 40 kg ha^{-1}, while the smallest plants

were recorded in the treatment with 40 cm row spacing and 20 kg ha^{-1}. The smallest plants may be due to less plant to plant distance within row, which may have resulted in retarded growth as reported by Singh and Sahu (1998) also reported similar results.

Table- 4: Plant height (cm) as affected by different Row spacing and seed rates.

Row spacing (cm)	Seed rates kg ha^{-1}				Means
	20	30	40	50	
20	68.22 d	72.07 b	73.97 a	74.57 a	72.21 a
30	68.01 d	66.61 e	68.10 d	70.53 c	68.31 b
40	61.91 f	67.72 d	70.15 c	70.35 c	67.53 c
Means	66.05 d	68.80 c	70.74 b	71.82 a	

Means followed by the same letter (s) in the respective category are non-significant at $P \leq 0.05$.

Harvest index %

Harvest index is a measure of physiological productivity potential of a crop variety under favorable environmental conditions. It is the ability of a crop plant to convert the dry matter into economic yield. Data presented in Table-5 shows that harvest index % was significantly affected by row spacing during both the experimentation years. The highest harvest index % was recorded in 30 cm row spacing with the value of 49.9%. The lowest value of harvest index % (46.02) was recorded in 20 cm row spacing.

Means of harvest index % were also significantly affected by seed rate and the maximum value of (51.99 %) harvest index was observed in 20 kg ha^{-1} seed rate. The least value of harvest index (41.72%) was recorded in plots with 50 kg ha^{-1} seed rate. There was an inverse relationship between the seed rate and harvest index % because of more food availability and more partition of photosynthetic products to grain at lower seed rate as compared to higher seed rate. The harvest index is not highly heritable, but varies inconsistently with season, management and environment. However, it is concluded that lower seed rates are the optimum seed rates of mungbean for higher harvest index. As harvest index % value is correlated positively with grain yield and negatively with biological yield, therefore harvest index value was higher in low seed rate and minimum in treatments having higher seed rate. Significant differences in harvest index % value have also been reported by Jan *et al.,* (2000) who reported progressive decrease in harvest index % with increasing seed rate.

The interaction of row spacing and seed rates was also found significant at

P=0.05 for harvest index, which ranged from 37.92 to 53.64 %. Maximum harvest index was recorded in plots with 40 cm row spacing and 20 kg ha^{-1}. On the other hand lowest value of harvest index was recorded in the treatment with 40 cm row spacing and 50 kg ha^{-1}. The least value of harvest index % may be due to relatively closer plants within row, which may have resulted in greater competition for light, space and nutrients.

Table No. 5: Harvest index % as affected by different Row spacing and seed rates.

Row spacing (cm)	Seed rates kg ha^{-1}				Mean
	20	30	40	50	
20	50.35bc	47.31cd	45.17de	41.26f	46.02b
30	51.99ab	51.34ab	50.39bc	45.97de	49.92a
40	53.64a	51.44ab	44.04ef	37.92g	46.76b
Means	51.99a	50.03a	46.54b	41.72c	

Means followed by the same letter (s) in the respective category are non-significant at P≤ 0.05.

Grain yield kg ha^{-1}

Grain yield is the ultimate outcome of various physiological, biochemical, phonological and morphological events occurring in the plant system. Lowest yield in low seed rate treatments might be due substandard plant population. Data given in Table-6 shows that the means of factor A (Row spacing) and B (seed rate) were significantly affected the grain yield kg ha^{-1} and ranged from 1041 to 1111 kg ha^{-1}. The maximum grain yield was recorded in treatments having 30 cm of row spacing by having maximum grain yield of 1111 kg ha^{-1}. Ahmed (2001) and Tayyab (2000) also reported increased grain yield with 30 cm row spacing. The lowest yield 1041 kg ha^{-1} was recorded in 40 cm row spacing treatment, in which plant spacing was less.

Grain yield was significantly affected by seed rate and maximum grain yield (1245.0 kg ha^{-1}) was recorded in the plots with 40 kg ha^{-1} seed rate. The highest grain yield noted with density of 40 kg ha^{-1} might be due to large number of plants per unit area which compensated the effects of decrease in other yield components like grain weight, pod per plant and grain per pod with increasing seed rate. These components though decreased on per se basis, yet yield actually increased on per unit area basis. The plants grown with wider spacing had more area of land around them to draw the nutrition and had more solar radiation to absorb for better photosynthetic process and hence perform better at an individual basis. This study, therefore, reveals that a seed rate of 40 kg ha^{-1} would be the optimum seed rate for maximum mungbean

production. While the lowest grain yield was recorded in plots with 50 kg ha^{-1} seed rate.

The interaction of row spacing and seed rates was significant at P=0.05 for grain yield. The maximum grain yield (1363 kg ha^{-1}) was recorded in plots with 30 cm row spacing and 40 kg ha^{-1}. The lowest grain yield (899.0 kg ha^{-1}) was recorded in the treatment with 40 cm row spacing and 20 kg ha^{-1}.

Table- 6: Grain yield kg ha^{-1} as affected by different Row spacing and seed rates.

Row spacing (cm)	Seed rates kg ha^{-1}				Means
	20	30	40	50	
20	938.8 g	1181.0 c	1212 b	1085 e	1104 a
30	931.6 g	1181.0 c	1363 a	968.1 f	1111 a
40	899.0 h	1143.0 d	1161 cd	963.0 f	1041 b
Means	922.8 d	1168.0 b	1245 a	1005 c	

Means followed by the same letter (s) in the respective category are non-significant at P≤ 0.05.

CONCLUSION

It is concluded from the findings that seed rate of 40 kg ha^{-1} with row spacing of 30 cm, followed by seed rate of 40 kg ha^{-1} with row spacing of 20 cm has resulted in better plant stand establishment and productivity in mungbean.

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CONCENTRATION AND TIME DEPENDENT EFFECT OF ZINC CHLORIDE ON GLUTATHIONE LEVEL IN AQUEOUS MEDIUM

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ABSTRACT

Zinc is important element, essential for supporting all life. Zinc prosthetic group is present in thousand of protein in the human body, that way one of that is so called zinc-finger. Moreover, dozens of kinds of cells in human-body secrete and their role in health and medicine is being studied. It is important to check and study *in-vivo* condition, influence of Zinc on GSH. In aqueous medium, the effect of zinc on the GSH level has been studied by Ellman's method. This effect was concentration and time dependent and decrease was observed in both concentration and time dependent effect. The decrease in GSH level is due to the interaction of Zinc and GSH, and this oxidizes the GSH to their GSSG (Di-Sulphide) form with time and concentration. This study provided the effect of zinc metal on thiol/GSH level *in-vitro*, which may present a model of *in-vivo* reaction.

INTRODUCTION

Several metal like, Zinc, Arsenic, Silver, Mercury, cadmium and copper exist high attraction for thiol groups (Li and Manning, 1995; Jocelyn, 1972; Cooper, 1983). GSH is the low molecular weight thiol and present most abundantly in the cell. GSH plays important role in metabolic regulation and cellular function has been established (Meister and Anderson, 1983, Larsson *et al*., 1987; Meister, 1988). Metals interact with GSH metabolism is clear indication of metal toxicity. GSH and some metals make complexes and provide protection against to the cells against metal toxicity. Reduction in GSH level triggers the metal toxic effect (Singhal *et al*., Kang and Enger, 1988; Cartana et al., 1992). GSH occurs as reduced GSH (electron rich, antioxidant) mainly inside the cells. GSSG (electron-poor) is the oxidized form of GSH and its level never exceeds more then10% to over-all cell Gluta-thione (Kosower and

Kosower, 1979).Glutathione present in cells shows the health status of cells and its ability to prevent the toxic challenges. GSH reduction had shown in experiments increases cause the cell death by mechanism known as apoptosis (D-uke, *et al* 1997., S-later*, et al,* 1996). Zinc is vital element, essential for sustaining life. It is known that thousand of protein present in body containing prosthetic groups of Zinc, one of which is so called Zinc finger. Not less then five trials indicated that Zinc increased the weight gain in anorexia (Neil et al., 2000). It is having important function and role in membrane of cell and structure of many proteins.

Finger-motif which is finger like, alleviate the several proteins structures. Cu-Zn-SOD is an anti-oxidant enzyme, imparts the catalytic activity, while zinc provide role in its structure (King and Ken, 1999). Zinc has also role in the cell function as well as in cell structure. Detachment of it from membrane of cells makes it prone to oxidatvie-demage and destroys their function. It is important element and present in many proteins of human body and one of which may be called as zinc-finger. It also increases weight attainment in loss of appetite (Neil *et al.,* 2000). It is also known that it has role in cell and protein structures. It also influences the release of hormones and transmission of impulses. It has some activity in apoptosis, which are cell regulating mechanisms in chronic disorders. The present study presents the effect of Zinc chloride, based on the concentrations and time dependence in the aqueous-medium.

MATERIALS AND METHODS

Materials

5, 5-Dithiobis, 2-Nitrobenzoic Acid (Sigma), L.glutathione (GSH) (Fluka), Zinc chloride (Merck, Germany), PH-meter model-nov-210 (Korea), Oven (Germany), Magnetic stirrer, Hot-plate (England), 1601-Spectrophptometer (Shimazdu), Disposable gloves, Micropipettes of 2oo, 500,100 µl of socrorex (Finland).

METHODS

Standard curve of GSH (Ellman, 1959)

200µml from each 0.2, 0.4, .6, .8 and 1mM solutions of Glutathione was added 2.3ml parts of 7.6 pH phosphate buffer, and followed by mixing of 0.5ml parts of 1mM DTNB stock-solution. Mixed these mixtures by thorough shaking then placed in incubator for 5

minutes. The blank solution was not having Glutathione. The absorbances were taken at 412nm. GSH standard-curve having correlation co-efficient of 0.9984 was constructed and the standard curve is shown in the Fig.1.

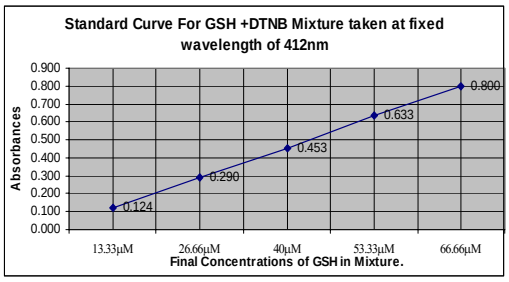

Figure 1- Standard Curve for Glutathione + DTNB Mixture taken at fixed wavelength of 412nm

Zinc-Chloride, Different concentrations Effect on Glutathione in Aqueous Medium

In each five separate test tubes, 0.8ml of 1mM GSH solution was taken, 1ml of different concentrations of 0.2, 0.4, 0.6, 0.8 of 1mM solution of zinc chloride were added to each test tube and were shaken thoroughly separately and also mixed 2.3ml of 7.6pH phosphate buffer in each test tube. Each test tube now having 0.4mM of GSH. Five more test tubes were taken each having the same amount of GSH and phosphate buffer (7.6pH), as mentioned above with addition of 2ml of Zinc-chloride solution and 0.5ml of DTNB stock-solution. The final concentration of GSH in each of these five tubes was 0.02666 mM. The influence of different concentrations of Zinc-Chloride was on GSH level determined. The results are shown in the table 1. A control for GSH was also prepared by taking 0.8ml of 1mM GSH stock solution in a test tube and diluted with 1.2ml of phosphate buffer (pH 7.6) with final concentration of 0.4 mM of GSH. The concentrations of GSH were determined from the GSH standard curve.

Time Dependent Effect of Zinc-Chloride on Glutathione (GSH) level in Aqueous Medium

In test tube 800µl or 0.8ml of 1mM Glutathione solution was taken and to it 1ml of 0.1mM Zinc-chloride and 2ml of Phosphate buffer (pH 7.6) solutions was also mixed. Now the concentrations of GSH and zinc-chloride became 0.4mM and 0.05mM respectively. Five more solutions were prepared having 0.8ml of 1mM GSH and 0.2ml of Zinc-chloride solution and added 2.3ml of phosphate buffer (pH7.6). Each test tube is having .02666mM of GSH. Control solution was prepared by taking 0.8ml of 1mM of GSH and 2ml of phosphate buffer. Concentration dependent effect was studied given above. Solutions containing 0.8ml GSH, 1ml of Zinc-chloride, and 2ml of phosphate buffer

(7.6pH), absorbances were taken at time intervals of 0, 30, 60, 90, 120, 150,180 minutes. By using standard calibration curve, GSH concentration was determined given in the Fig.2 and 3. The observations are given in table 2. Decrease in GSH level was noted with time dependent effect of Zinc-chloride.

Statistical Analysis

The results of the study are showed as a mean ±SD. The statistical significance and difference was calculated by Student's T-test between control (GSH in aqueous medium) and test values (zinc chloride + GSH in aqueous medium). Pearson's Correlation test was used for correlation co-efficient which described the effect of one variable on the other. $P<0.05$ was taken as level of significance. The statistical calculation is shown in the table 5 and 6.

RESULTS AND DISCUSSION

Zinc-Chloride Effect on Glutathione Level in Aqueous Medium: In aqueous medium the effect of Zinc-Chloride was determined in term of GSH concentration in the aqueous medium. Glutathione level was decreased by Zinc chloride in the aqueous medium. With increase the concentration of Zinc chloride, there was gradual decrease in GSH level as the concentration of the metal increased as given the Fig. 2and table 3. The time-dependent of Zinc-chloride on Glutathione was also determined and observed the decrease in the GSH level as the time passed from 0mintes to 150minutes as given in table 4 and fig. 3. Zinc Chloride shows affinity for GSH due to its sulphydryl group, that way it causes decrease Glutathione level in aqueous medium. This attraction decreases the reduced form of GSH in aqueous medium. This results confirms the findings of Quig, 1998; Hultberg et al., Stohs and Bagchi, 1993), that long term exposure to such as zinc depletes level of Glutathione due to high affinity of zinc chloride for sulfhydryl group of GSH.

CONCLUSION

GSH is a tripeptide has simplistic electron-donating capacity, due to presence of (-SH) group. Glutathione is significant anti-oxidant and co-factor for enzyme. GSH imparts protection to mitochondria against endogenous radicals. Glutathione provides electron and this along with its high molecular concentration increase its e its reducing

power used to complicated exchange-system. GSH level is gradually decreased by Zinc chloride in aqueous medium. The time dependent effect of zinc-chloride on Glutathione level was noted in aqueous medium and decrease was observed in concentration of GSH from 0 minutes to 180minutes. Zinc decreases the GSH level in aqueous medium

Table No1- Effect of different concentrations of Zinc Chloride on the chemical Status of Glutathione (GSH)

Absorbance of 5,5-Dithiobis,2-Nitrobenzoic Acid (DTNB) blank solution was 0.060 ABS at 412nm

Final Concentration of GSH in Mixture in final Mixture is 26.66µM

S.No	Conc. Used of $ZnCl_2$	Final Conc. of $ZnCl_2$ in Mixture	1st ABS	2nd ABS	3rd ABS	Average of 3 Readings	Real absorbance*	Real Absorbance for GSH Blank
1	**0.2mM**	**6.67µM**	0.352	0.324	0.335	0.337	**0.277**	**0.289**
2	**0.4mM**	**13.33µM**	0.345	0.321	0.332	0.333	**0.273**	**0.287**
3	**0.6mM**	**20.00µM**	0.338	0.318	0.329	0.328	**0.268**	**0.288**
4	**0.8mM**	**26.67µM**	0.322	0.320	0.331	0.325	**0.265**	**0.290**
5	**1mM**	**33.33µM**	0.318	0.314	0.325	0.319	**0.259**	**0.287**

Real Absorbance = Absorbance of Mixture - Absorbance of DTNB blank Solution.

Figure 2- ***Curves for $ZnCl_2$ affected Thiol Level & Control Levels of Thiol***

Table No3- Calculation for Concentration of GSH after reaction with Zinc Chloride by Ellman's Method

S/No.	Real Absorbance(ABS)	Concentration of GSH (µM) Remained
1	**0.277**	24.598
2	**0.273**	24.270
3	**0.268**	23.861
4	**0.265**	23.615
5	**0.259**	23.123

.Table No 2- Effect of Zinc Chloride on the Chemical Status of Glutathione (GSH) with time

Absorbance of 5,5-Dithiobis,2-Nitrobenzoic Acid (DTNB) blank solution was 0.060 ABS at 412nm

Final Concentration of Glutathione (GSH) was 26.66µM, and of Zinc Chloride was 33.33µM in Final Mixture

S/No	Time Interval	1st ABS	2nd ABS	3rd ABS	Average of 3 Readings	Real absorbance*	GSH Blank ABS	Real Absorbance for GSH Blank
1	**0 min**	0.350	0.362	0.345	0.352	**0.284**	0.371	**0.311**
2	**30 min**	0.345	0.357	0.340	0.347	**0.279**	0.376	**0.316**
3	**60 min**	0.339	0.351	0.334	0.341	**0.273**	0.373	**0.313**
4	**90 min**	0.333	0.345	0.328	0.335	**0.267**	0.371	**0.311**
5	**120 min**	0.331	0.343	0.326	0.333	**0.265**	0.374	**0.314**
6	**150 min**	0.331	0.343	0.326	0.333	**0.265**	0.370	**0.310**

***** *Real Absorbance = Absorbance of Mixture - Absorbance of DTNB blank Solution*

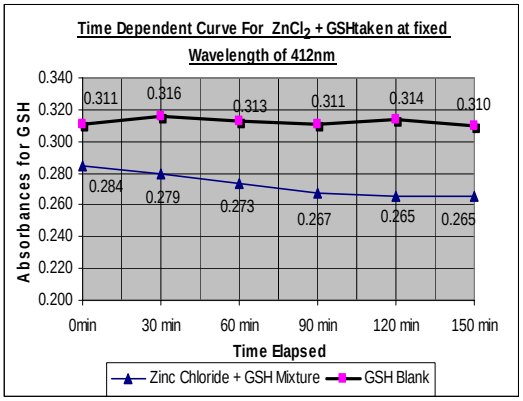

Figure 3 ***Time Dependent Curves for $ZnCl_2$ affected Thiol Level & Control Levels of Thiol.***

Table No 4- Calculation for Concentration of GSH after reaction with Zinc Chloride with time by Ellman's Method

S/No.	Real Absorbance(ABS)	Concentration of GSH (µM) Remained
1	**0.284**	25.172
2	**0.279**	24.762
3	**0.273**	24.270
4	**0.267**	23.779
5	**0.265**	23.615
6	**0.265**	23.615

Table 5. Paired comparison t-test for concentration dependent effect of $Zncl_2$

	Affect of concentrations Of $Zncl_2$ on aqueous medium of Glutathione	GSH(Blank)
Mean	0.268	0.288
Variance	4.8E-05	1.7E-06
Observations	5	5
Pearson Correlation	0.181	
Hypothesized Mean Difference	0	
df	4	
t Stat	-6.44	
P(T<=t) one-tail	0.001	
t Critical one-tail	2.131	
P(T<=t) two-tail	0.0029	
t Critical two-tail	2.776	

Table 6 Paired comparison t-test for time dependent effect of $Zncl_2$

	Affect of concentrations Of $Zncl_2$ on aqueous medium of Glutathione with time	GSH (Blank)
Mean	0.272	0.312
Variance	6.33E-05	5.1E-06
Observations	6	6
Pearson Correlation	0.239	
Hypothesized Mean Difference	0	
df	5	
t Stat	-12.76	
P(T<=t) one-tail	2.62E-05	
t Critical one-tail	2.015	
P(T<=t) two-tail	5.24E-05	
t Critical two-tail	2.57	

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CHANGES IN BLOOD GLUCOSE LEVEL, GLYCOCYLATED HEMOGLOBIN LEVEL AND LIPID PROFILE AS A RESULT OF MONO-HYPOGLYCEMIC THERAPY (GLIMEPIRIDE) IN TYPE II DIABETES MELLITUS

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ABSTRACT

The aim of the present study is to work out the best possible monotherapy therapy to achieve desired glycemic status and energy metabolism in our population as assessed by the level of fasting blood glucose, HbAIc and lipid profile of Type 2 diabetes mellitus. Participants include 24 female control subjects and 48 female diabetic patients aging between 31-70 years. Blood samples were collected from the patients on two occasions spaced by three months interval. The first blood samples were collected before the start of monotherapy of Glimepiride and the second blood sample was done after three months therapy of Glimepiride from each patient. Although no direct relation of better HbAIc level with comparatively better lipid profile has not been possible to established in our selected patients, who were well controlled diabetics, yet it can be well realized that better picture of cholesterolemia is seen in diabetic patients with comparatively lower HbA1c level. The monotherapy with Glimepiride showed good and reasonable hypoglycemic effects in the diabetic patients.

INTRODUCTION

The more complex problem than type 1, but is sometimes easier to treat, since insulin is still produced, especially in the initial years. As compared with patients without type 2 diabetes patients with type 2 diabetes the majority of who are obese and have hypertension and dyslipidemia have two to five times the risk of cardiovascular disease (Kannel and McGee, 1979). Type 2 Diabetes is characterized by insulin resistance in peripheral tissue and an insulin secretary defect of the beta cell (Diabetes care, 1997). Seventy percent of patients with type 2 diabetes die of cardiovascular disease (Panzram, 1987). In the United States, the estimated cost of providing care for diabetes and its complication is $100 billion per year, with half the cost attributable to direct care (Rubin RJ *et al.,* 1994). The development of cardiovascular disease appears to precede the development of diabetes itself, in association with subdiabetic levels of hyperglycemia (Coutinho M *et*

al., 1999). Two studies have established the role of intensive therapy in reducing long-term complications in patients with type 2 diabetes (Ohkubo Y *et al.,* 1995) (Lancet., 1998).These studies have helped to establish the metabolic goals in patients with type 2 diabetes as a glycosylated hemoglobin value of less than 7 percent, an average fasting plasma glucose level of 90 to 130 mg per deciliter (5.0 to 7.2 mmol per liter), and a postprandial plasma glucose level of less than 180 mg per deciliter (10.0 mmol per liter) (Diabetes Care, 2002). The guidelines of the National Cholesterol Education Program (JAMA, 2001) and the American Diabetes Association (Diabetes Care, 2002) acknowledge that the presence of diabetes is a risk factor equivalent to having preexisting coronary artery disease (Haffner SM *et al.,* 1998) and have therefore adjusted treatment goals accordingly. Reducing low-density lipoprotein cholesterol levels (Pyorala K *et al.,* 1997) and reducing triglyceride levels while raising high-density lipoprotein cholesterol levels (Rubins HB *et al.,* 1999) can decrease the risk of cardiovascular disease. For patients who are unable to change their lifestyle through weight loss and increased activity level and for those who make these changes but continue to have glycemia above the target range, a variety of oral agents are now available. The sulfonylurea and the biguanide Metformin are the oldest and most commonly used classes of oral hypoglycemic drugs (Bailey, 1992) (Groop, 1992).They have different mechanisms of action (sulfonylureas stimulate insulin secretion and biguanides predominantly decrease hepatic glucose output), but have a similar hypoglycemic effect. They both lower the glycosylated hemoglobin value by approximately 1.5 percentage points (Groop, 1992). Sulfonylureas and Metformin appear to have a limited duration of effectiveness, with most patients requiring a change or additional edications after five years of therapy (Wright *et al.,* 2002).Where sulfonylureas and Metformin diverge is in their respective adverse effects. In appropriately selected patients, Metformin may be the oral hypoglycemic agent of first choice, since it achieves a level of glucose control similar to that of the sulfonylureas without the same risk of weight gain or

hypoglycemia (David and Nathan, 2002).

MATERIAL AND METHOD

Glimepiride is marketed by Aventis under trade name Amaryl. It was obtained from the local market. Kits (Randox Laboratories) was purchased from Ireland. All other chemicals used were of analytical reagent grade with no further purification.

Drugs Included

Glimepiride is secretagogues belong to third generation sulphonylureas oral hypoglycemic drug. . It is marketed by Aventis under trade name Amaryl. It was obtained from the local market.

Participants

Participants include 24 female control subjects and 48 female diabetic patients (type 2 diabetes mellitus) aging between 31-70 years, appearing as an outdoor patient at different hospitals/ health care clinics of Dera Ismail Khan. They were selected after preliminary medical examinations for participation in the study program. All the participants were remained on usual Pakistani diet which could be regarded as high fiber diet. Pregnant and those having a history of hypersensitivity to sulphonyureas or having hepatic or renal impairments were excluded from the study. Patients on any concomitant medication which may interact with hypoglycemic action of the study drug were also excluded.

Study Protocol

All the participants after their consent were screened for inclusion in the study program. Blood samples were collected from the patients on two occasions spaced by three months interval to assess the changes in the fasting blood glucose level, glycosylated hemoglobin and lipid profile as a result of changed hypoglycemic therapy. Thus patients were given Glimepiride for at least three months and the blood samples were collected before and after the therapy. The subjects of this group were having ages between 31 to70.

Analytical Procedure

The blood samples were analyzed for the estimation of fasting blood glucose level, glycosylated hemoglobin, cholesterol, triglycerides, HDL-c, and LDL-c using spectrophotometer methods at the laboratory of National Diagnostic Center and Rauf medical center Dera Ismail Khan. Kits (Randox Laboratories Ltd, Crumlin Co, Artim, Ireland) for the estimation of all analytes except HbA1c were obtained from the local market or

main suppliers outside Dera Ismail Khan. HbA1c was determined by DCA 2000 HbA1c analyzer.

RESULTS

The details of blood glucose level and lipid profile of 24 control subjects is given in Tables (1-4) and 48 diabetic Patients on single drug therapy are given in a Tables (5-9) and the details are also shown in Figure 1-3. Tables (5-9) shows the effect of Glimepiride alone, in maintain blood glucose level, HbAlc and lipid profile within normal limits in diabetic patients of the age group 31-70. The Glimepiride alone kept the glucose level within normal fasting range and the values were significantly higher in diabetics as compared with the control Subjects of corresponding age group (88.2 ± 1.7mg/dl). The blood glucose levels as a result of Glimepiride therapy was 111.8 ± 4.2mg/dl. Almost similar trend was noted for the mean values of HbA1C being significantly lower (5.6 ± 0.1mg/dl) in the control group. The mean values of HbA1C with Glimepiride were (8.1± 0.25 %) in all age groups. As all the patients were controlled diabetics regarding the value of serum glucose and HbAlc level, their lipid profile was not drastically altered as compared with the controlled subjects (cholesterol 147.8 ± 9.8, triglycerides 107.3 ± 9.4, HDL-c 36.7 ± 0.9 and LDL-c 93.0 ± 7.9). Mean values of serum cholesterol, and triglycerides were 158.0 ± 4.4 and 118.3 ± 2.8 respectively, when the diabetic patients were on Glimepiride.

Control Subjects of Ages between 31-40

Table No. 1 Level of blood glucose, HbA1c, Cholesterol, Triglycerides, HDL-c & LDL-c, of the control subjects with an age range of 31-40 shown in 6 observations.

S.No.	Blood Glucose Fasting (mg/dl)	HbA1c (%)	Cholesterol (mg/dl)	Triglycerides (mg/dl)	HDL-c (mg/dl)	LDL-c (mg/dl)
1	86.0	5.3	178.0	120.0	35.0	119.0
2	92.0	6.0	139.0	119.0	39.0	86.0
3	86.0	5.4	145.0	142.0	37.0	80.0
4	94.0	5.8	148.0	87.0	37.0	93.0
5	88.0	5.8	109.0	90.0	33.0	68.0
6	83.0	5.4	168.0	86.0	39.0	112.0
Mean	88.2	5.6	147.8	107.3	36.7	93.0
± s.e.m	1.7	0.1	9.9	9.4	1.0	7.9

Control Subjects of Ages between 41-50

Table No. 2 Level of blood glucose, HbA1c, Cholesterol, Triglycerides, HDL-c & DL-c, of the control subjects with an age range of 41-50 shown in 6 observations

S.No.	Blood Glucose Fasting (mg/dl)	HbA1c (%)	Cholesterol (mg/dl)	Triglycerides (mg/dl)	HDL-c (mg/dl)	LDL-c (mg/dl)
1	112.0	5.4	140.0	276.0	36.0	56.0
2	105.0	6.2	164.0	110.0	37.0	105.0
3	106.0	5.8	196.0	266.0	37.0	106.0
4	104.0	5.7	169.0	116.0	38.0	108.0
5	97.0	5.8	164.0	130.0	37.0	101.0
6	100.0	5.9	193.0	112.0	40.0	131.0
Mean	104.0	5.8	171.0	168.3	37.5	101.2
± s.e.m	2.1	0.1	8.5	32.6	0.6	10.0

Control Subjects of Ages Between 51-60

Table No. 3 Level of blood glucose, HbA1c, Cholesterol, Triglycerides, HDL-c & LDL-c, of the control subjects with an age range of 51-60 shown in 6 observations.

S.No.	Blood Glucose Fasting (mg/dl)	HbA1c (%)	Cholesterol (mg/dl)	Triglycerides (mg/dl)	HDL-c (mg/dl)	LDL-c (mg/dl)
1	118.0	6.9	198.0	251.0	37.0	111.0
2	116.0	6.5	157.0	115.0	34.0	102.0
3	106.0	6.1	184.0	190.0	36.0	110.0
4	114.0	7.0	126.0	173.0	36.0	65.0
5	102.0	6.1	149.0	104.0	40.0	89.0
6	116.0	6.4	160.0	80.0	34.0	110.0
Mean	112.0	6.5	162.3	152.2	36.2	97.8
± s.e.m	**2.6**	**0.2**	**10.4**	**26.2**	**0.9**	**7.4**

Control Subjects of Ages Between 61-70

Table No. 4 Level of blood glucose, HbA1c, Cholesterol, Triglycerides, HDL-c & LDL-c, of the control subjects with an age range of 61-70 shown in 6 observations

S.No.	Blood Glucose Fasting mg/dl)	HbA1c %)	Cholesterol mg/dl)	Triglycerides mg/dl)	HDL-c mg/dl)	LDL-c mg/dl)
1	118.0	6.4	242.0	168.0	30.0	183.0
2	86.0	5.7	139.0	142.0	33.0	80.0
3	114.0	6.5	196.0	266.0	37.0	106.0
4	106.0	6.3	179.0	210.0	36.0	101.0
5	116.0	6.1	124.0	126.0	35.0	64.0
6	114.0	6.2	158.0	110.0	34.0	102.0
Mean	109.0	6.2	173.0	170.3	34.2	106.0
± s.e.m	**4.9**	**0.1**	**17.4**	**23.9**	**1.0**	**16.7**

Table No. 5 Level of blood glucose, HbA1C, Cholesterol, Triglycerides, HDL-c, LDL-c, in the control subjects and the diabetic Patients with in the age range of 31-40 years .Each value is the mean ± s.e.m. of six observations.

S.NO	SUBJECTS	Blood Glucose Level Fasting {mg/dl}	HbA1c {%}	Cholesterol {mg/dl}	Triglycerides {mg/dl}	HDL -c {mg/dl}	LDL-c {mg/dl}
1	Controls subjects	88.2 ± 1.7	5.6 ±0.1	147.8 ±9.8	107.3 ±9.4	36.7 ±0.9	93.0 ± 7.9
2	Diabetic patients on Glimepiride	111.8* ±4.2	7.5* ±0.1	158.0 ±4.4	118.3 ±2.8	37.0 ±0.7	97.3 ±4.4
T-test		4.046	7.640	0.712	0.904	0.209	0.351

P< 0.05 as compared with the control subjects

Table No. 6 Level of blood glucose, HbA1C, Cholesterol, Triglycerides, HDL-c, LDL-c, in the control subjects and the diabetic patients with in the age range of 41-50 years. Each value is the mean ± s.e.m. of six observations.

S.NO	SUBJECTS	Blood Glucose Level Fasting {mg/dl}	HbA1C {%}	Cholesterol {mg/dl}	Triglycerides {mg/dl}	HDL -C {mg/dl}	LDL -C {mg/dl}
1	Controls subjects	98.0 ±2.1	5.8 ±0.1	171.0 ±8.5	168.3 ±32.6	37.5 ±0.6	101.2 ±10.0
2	Diabetic patients on Glimepiride	110.3 ±5.2	8.0* ±0.3	161.3 ±5.6	108.8 ±6.1	35.8 ±1.6	103.7 ±7.5
T-test		1.675	5.946	-0.685	-1.538	-0.788	0.143

P< 0.05 as compared with the control subjects

Table No. 7 Level of blood glucose, HbA1c, Cholesterol, Triglycerides, HDL-c, LDL-c, in the control subjects and the diabetic patient with in the age range of 51-60 years. Each value is the mean ± s.e.m. of six observations.

S.NO	SUBJECTS	Blood Glucose Level Fasting {mg/dl}	HbA1c {%}	Cholesterol {mg/dl}	Triglyceride {mg/dl}	HDL -c {mg/dl}	LDL -c {mg/dl}
1	Controls subjects	101.0 ±1.2	6.5 ±0.2	162.3 ±10.4	152.2 ±26.2	36.2 ±0.9	97.8 ±7.4
2	Diabetic patients on Glimepiride	116.5 ±6.2	8.2* ±0.3	169.2 ±7.6	133.7 ±27.3	35.5 ±1.2	106.7 ±6.5
T-test		2.081	3.822	0.380	-0.346	-0.311	0.636

P< 0.05 as compared with the control subjects

Table No. 8 Level of blood glucose, HbA1c, Cholesterol, Triglycerides, HDL-c, LDL-c,in the control subjects and the diabetic patients with in the age range of 61-70 years .Each value is the mean ± s.e.m of six observations.

S.NO	SUBJECTS	Blood Glucose Level Fasting {mg/dl}	HbA1c {%}	Cholesterol {mg/dl}	Triglycerides {mg/dl}	HDL -c {mg/dl}	LDL -c {mg/dl}
1	Controls subjects	98.0 ±1.5	6.2 ±0.1	173.0 ±17.4	170.3 ±23.9	34.2 ±1.0	106.0 ±16.7
2	Diabetic patients on drug Glimepiride	123.3 ±8.9	8.7* ±0.3	182.3 ±7.3	200.2 ±63.5	36.7 ±1.6	105.8 ±10.3
T-test		2.426	6.000	0.378	0.341	0.958	-0.006

P< 0.05 as compared with the control subjects

Table No. 9 The effect of age on the efficacy of mono therapy with Glimepiride alone and combination therapy with Glimepiride and Metformin in relation to the changes in the level of blood glucose, HbA1C and lipid profile in diabetic patients. Each value is the mean ± s.e.m of six observations

Age limit in years	Therapy	Blood Glucose Level Fasting (mg/dl)	HbA1C (%)	Cholesterol (mg/dl)	Triglycerides (mg/dl)	HDL-c (mg/dl)	LDL-c (mg/dl)
31-40	Glimepiride	111.8 ±4.2	7.5 ±0.1	158.0 ±4.4	118.3 ±2.7	37.0±0.7	97.3 ±4.4
41-50	Glimepiride	110.3 ±5.2	8 ±0.3	161.3±5.6	108.8 ±6.1	35.8 ±1.6	103.7 ±7.5
51-60	Glimepiride	116.5 ±6.2	8.2±0.3	169.2±7.6	133.7 ±27.3	35.5 ±1.2	106.7 ±6.5
61-70	Glimepiride	123.3 ±8.9	8.7 ±0.3	182.3±7.3	200.2 ±63.5	36.7 ±1.6	105.8 ±10.3

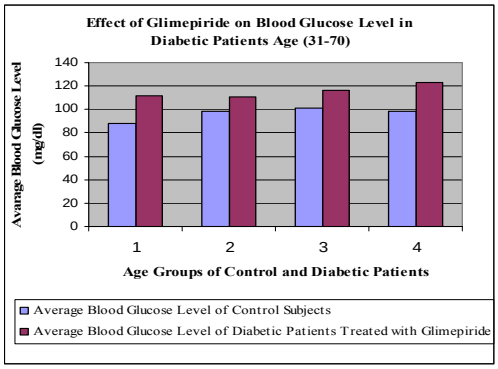

Fig. 1 Shows Effect of Glimepiride on Blood Glucose Level in Diabetic Patients Age (31-70). On X-axis 1 shows age group 31-40, 2 shows age group 41-50, 3 shows age group 51-60, 4 shows age group 61-70. On Y-axis Average blood glucose level is shown

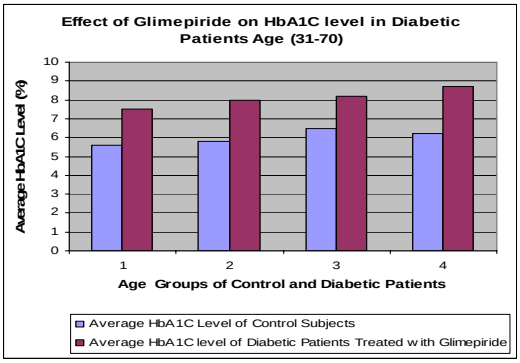

Fig. 2 Shows Effect of Glimepiride on HbA1C in Diabetic Patients Age (31-70). On X-axis 1 shows age group 31-40, 2 shows age group 41-50, 3 shows age group 51-60, 4 shows age group 61-70.On Y-axis Average HbA1C is shown.

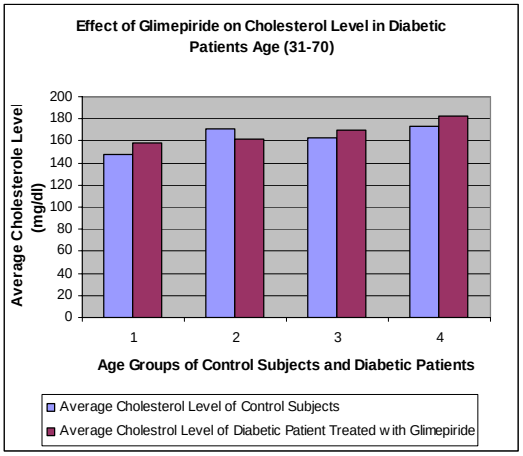

Fig. 3 Shows Effect of Glimepiride on Cholesterol Level in Diabetic Patients Age (31-70). On X-axis 1 shows age group 31-40, 2 shows age group 41-50, 3 shows age group 51-60, 4 shows age group 61-70.On Y-axis Average Cholesterol level is shown.

DISCUSSION

A number of drugs either alone or in combination are being used to maintain normoglycemia in patients with type 2 diabetes mellitus, which is a chronic illness that requires continuous medical care, patient's self management and education to prevent acute complications and to reduce long term complications (Renders *et al* 2001). Long term complications include retinopathy, nephropathy, neuropathy, stroke, ischemic heart disease and diabetic foot (Irene MS *et al* 2000). Individual variation to drug response, pharmacokinetics and drug compliance often lead to changes in therapeutic management (Garber AJ *et al* 2002). Monitoring of glycemic status is considered as corner stone of care in diabetes (Guerci B *et al* 2003). Estimation of glycosylated hemoglobin (HbA1c) could be regarded as a better indicator of glycemic status (Nathan DM *et al* 1984). In order to reduce the risk of cardiovascular diseases, often blood lipid profile is monitored along with blood glucose besides creatinine or urea to assess renal function (Irene MS *et al* 2000). In the present study we have tried to assess the efficacy of Glimepiride alone. The main objective of present study was to work out the mono therapeutic agent for optimal glycemic control in our population. Since diabetes mellitus is associated with metabolic derangements of variable degrees, there is always possibility of changes in lipid profile that may lead to increased levels of risk factor e.g. LDL-C (Lamarche B *et al* 1997), we have also studied the lipid profile patients with view to explore the relation of blood glucose level with lipid profile i.e., if the HbA1c is slightly higher in our diabetic patients than in our control subjects, what would be the pattern of lipid profile (Irene MS *et al* 2000). Almost all of our patients were controlled diabetics (Table 5-9) as seen from there fasting blood glucose level and HbA1c. Their lipid profile was

also comparable to the control subjects of corresponding age group. In age group of 31-70 years, Glimepiride had not brought down the HbA1c level to that seen in control subjects (6.02 %). In all the diabetic patients HbA1c was more than 7.3 % (7.5-8.7 %) and was significantly higher like fasting blood glucose level as compared to the control subjects. In all age groups, the lipid profile was not very much different from that of the control subjects, although most of the parameters in lipid profile showed slightly higher values in age group 31-40 (Table 5) and slightly lower values in age group 41-50 (Table 6) as compare with the control subjects. Such type of irregular pattern in the lipid profile was also seen in other two age groups i-e,.51-60 (Table 7) and 61-70 (Table 8) but, the values in all the age groups were not different statistically because of high individual variation ($p>0.05$) how ever, in the age group 51-60 (Table 7) and 61-70 (Table 8) the values of fasting blood glucose and HbA1c were higher in diabetic patient on either hypoglycemic regime, but here again the difference was not statistically significant. Due to limited number of participants (control subjects and the diabetic patients) and short duration of study no far reaching conclusions can be drawn, however, our data is supported well by a previous study in which little effect of hypoglycemic therapy is seen on lipid profile of the diabetic patients(Collins R *et al* 2003). In a study conducted by Collins R, et al the effect of Simvastatin on lipid profile in diabetic patients on hypoglycemic agents was compared with placebo just to asses the effect of hypoglycemic therapy on lipid profile and it was found that patients responded well to Simvastatin for its hypolipidemic effects but, almost no response was seen in patients on hypoglycemic therapy while taking placebo indicating little effect of hypoglycemic therapy on lipid profile. Our patients were mostly controlled diabetics, and being educated, they were well cautious about their dietary intake. This is reflected by their blood lipid profile and HbA1c which was not far disturbed from the normal values. Hypercholesterolemia is often seen in uncontrolled diabetes mellitus arising as result of disturbed intermediary metabolism due to insulin insufficiency (Lawes CM *et al* 2004). Data in Table 9 reveals age related rise in HbA1c in

patients who were on Glimepiride alone, however, there was negligible decrease in HbA1c when these patients were given Glimepiride for better hypoglycemic response, which was indeed observed in all the age groups. Glimepiride acts by stimulating receptor on the surface of β cells, closing a potassium channel and opening calcium channel with subsequent insulin release. A doubling of glucose stimulated insulin secretion can be expected with both first and second phase insulin secretion. Age wise rise in cholesterol and triglycerides almost paralleled the rise of HbA1c when the patients were on Glimepiride with the exception of age group 41-50 (Table 6) when the triglycerides level did not show age related rise. Almost similar fall in HDL-c and rise in LDL-c was observed when the patients were on Glimepiride with exception of age group 61-70 (Table 8) where HDL-c did not show any fall and LDL-c did not show a rise. During this study, the diabetic patients were not allowed to take any hypolipidemic drug as we wanted to relate the glycemic status of the patients with lipid profile which is often disturbed in uncontrolled diabetes mellitus.

CONCLUSION

Although no direct relation of better HbAIc level with comparatively better lipid profile has not been possible to established in our selected patients, who were well controlled diabetics, yet it can be well realized that better picture of cholesterolemia is seen in diabetic patients with comparatively lower HbA1c level, furthermore the mono hypoglycemic agent (Glimepiride) studied showed good therapeutic effect. Although the changes were not statistically significant because of very limited number of participants (48) in the age groups (31-70 years).

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INNOVATIVE TRANSDERMAL DRUG DELIVERY SYSTEMS & TECHNOLOGIES: A Review of Current Trends with Futuristic Prospective

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ABSTRACT

Transdermal drug delivery represents one of the most rapidly advancing areas of novel drug delivery. It has attracted researchers due to many biomedical advantages associated with it. However, excellent impervious nature of skin is the greatest challenge that has to be overcome for successfully delivering drug molecules to the systemic circulation by this route. Various formulation approaches and technological innovations used in designing delivery systems for maximizing percutaneous drug permeation have played important role in improving functionality of transdermal drug delivery systems and many more are expected to be seen in future. In this review, we would focus on the latest trends and developments, with futuristic perspective, over the transdermal drug delivery techniques, with special emphasis on the 2nd & *third generation* delivery systems. We would analyses the current status of the transdermal drug delivery, evaluating its therapeutic uses, its market share and the positioning of leading technologies. The pipeline of transdermal drugs is assessed by therapeutic indication and innovative delivery technologies are discussed at length and benchmarked against one another. The review also provides an in-depth analysis of the potential market for transdermal and transmucosal drug delivery.

INTRODUCTION

Transdermal drug delivery is defined as the non-invasive delivery of medications through the skin surface (Bajaj, 2011). Transdermal delivery represents an attractive alternative to oral delivery of drugs. For thousands of years, people have placed substances on the skin for therapeutic effects and, in the modern era, a variety of topical formulations have been developed to treat local indications. Transdermal drug delivery may be foreshadowed in earlier eras by the use of different plasters and ointments. The most remarkable fore-runner of contemporary transdermal drug delivery could be the Stronger Mercurial Ointment, used as a treatment for syphilis (Wood and Lawall, 1926). The first transdermal system for systemic delivery—a 3-day patch that delivers scopolamine—was approved for use in the United States in 1979 (Williams, 2003; Prausnitz et al., 2004; Bronaugh & Maibach, 2005).

Since the inception of transdermal patch, some 3-decades back (Chong and Fung, 1989), the transdermal drug delivery Systems, with their advanced techno-logies and intelligent dosage forms, have now entered successfully into the main stream of modern, safe, affective and innovative pharmaceuticals. Throughout this period, the trans-dermal drug delivery, initially considered as not more than a myth, has gradually emerged as a proven reality capable of offering a great deal of significant clinical benefits over other dosage forms. Transdermal delivery has a variety of advantages compared with other routes. In parti-cular, it is used when there is a significant first-pass effect of the liver that can prematurely metabolize drugs. Transdermal delivery also has advan-tages over hypodermic injections, which are painful, generate dangerous medical waste and pose the risk of disease transmission by needle re-use, especially in developing countries. In addition, transdermal systems are non-invasive

and can be self-administered. They can provide release for long periods of time. Moreover, it is user-friendly, convenient, painless, inexpensive and offers improved patient compliance. Since the approval of the first transdermal patch, many trans-dermal products, spanning over several molecules have been developped, approved and marketed (Brown, 2002).

According to Prausenitz and Langer (2008) the advances in transdermal delivery systems can be categorized into three generations of development. The *first generation* of transdermal drug delivery systems covers many of today's patches marketed for clinical use. Such systems are produced through judicious selection of several drugs that can penetrate stratum corneum with significant therapeutic concentrations without the use of enhancing techniques. The modifications of first-generation transdermal delivery systems include the systems which apply a metered liquid spray, gel or other topical formulation to the skin that, upon evaporation or absorption, can drive small lipophilic drugs into the stratum corneum, which in turn serves as the drug reservoir for extended release into the viable epidermis over hours. For example, testosterone gels and transdermal sprays have been in use for estradiol delivery.

The *second generation* of transdermal drug delivery consists of advances enabling the delivery of small molecules through enhanced skin permeability by exploiting some driving forces for better transport across the skin. The enhancement techniques exploited in this generation may achieve increased drug delivery across stratum corneum and include, but are not limited to, the conventional chemical enhancers, iontophoresis and non-cavitational ultrasound. Notwithstanding, the second generation of delivery systems has been capable of finding a valuable place in the advanced clinical practice by facilitating the delivery of small molecules in some systemic applications as well as in topical, localized, dermatological and cosmetic applications, however, it could make little impact on delivery of macromolecules (Prausnitz et al., 2004).

The *third generation* transdermal delivery systems could be capable of materializing transdermal delivery of small molecule drugs, macromolecules (including proteins and DNA) and virus-based/other vaccines using targeted transportation strategies through the skin's stratum corneum by stronger disruption of the stratum corneum barrier, and thereby more effective transdermal delivery, while still protectting deeper tissues. In this connection, the concepts of enhancers combination, electroporation, cavitational ultrasound and more recently the novel microneedles, thermal ablation and microderm abrasion (Prausnitz et al., 2004) have shown promising results in order to facilitate the transdermal delivery of several macromolecules, including therapeutic proteins and vaccines, across the stratum corneum in human clinical trials.

In this review, we would focus on the latest trends and developments, with futuristic perspective, over the transdermal drug delivery techniques, with special emphasis on the 2nd & *third generation* delivery systems. We would analyses the current status of the transdermal drug delivery, evaluating its therapeutic uses, its market share and the positioning of leading technologies. The

pipeline of transdermal drugs is assessed by therapeutic indication and innovative delivery technologies are discussed at length and benchmarked against one another. The review also provides an in-depth analysis of the potential market for transdermal and transmucosal drug delivery.

INNOVATIONS IN TRANSDERMAL DRUG DELIVERY: FORMULATIONS STRATEGIES

The concept of exploiting various types of permeation enhancer(s) to overcome the barrier status of the stratum corneum of the skin and to increase the rate of transfer of drug(s) across the skin has emerged as an innovative formulation strategy. While designing such formulations, the choice and selection of suitable adhesive(s), enhancer(s) and rate controlling membrane and/or their combination is critical.

To administer 17-deacetyl norgestimate alone or in combination with an estrogen to women, the combination of different adhesive resins polyacrylate, polydimethylsiloxane or a combination of Vistanex L100, Vistanex LM-MS-LC and polybutene and permeation enhancers (thioglycerol, oleic acid, methyl laurate, propylene glycol monolaurate, transcutanol, lauramide diethanolamine, propylene glycoisostearate) have been patented (Jona et al., 2000).

Horstmann et al. (2000) patented a transdermal therapeutic system having a layered structure for systemic delivery of 17-b-estradiol. The system provided enhanced delivery because it contained oversaturated solution of 17-b-estradiol, which did not crystallize on storage.

Braun (2000) patented transdermal formulations comprising copolymers made from isooctylacrylate, N-vinyl-2-pyrolidone and/or 2-hydroxy ethyl acrylate with isopropylmyristate, propylene glycol, oleic acid or lauric acid as permeation enhancers. The delivery device was tested invitro for delivering required amount of lerisetron for the treatment of nausea, emesis, anxiety etc.

Hence, aluminized polyester and polybutene nonwoven polyester is preferred for use as backing layer. A combination of porous material capable of absorbing tetrahydrocannabinol along with a solution, which is non-solvent for tetrahydrocannabinol, was found to be suitable for controlling its rate of diffusion from transdermal patch.

Formulations containing N-vinyl-2-pyrrolidone exhibited greater drug permeation across epidermis as compared to those without it. Further, the permeation of drugs from transdermal devices containing combination of permeation enhancer and N-vinyl-2-pyrrolidone was synergistically higher than that from patches containing only permeation enhancer.

A transdermal patch containing needle-shaped indomethacin in carboxyvinyl-polymer gel along with polyoxyethylene sorbitan monooleate, tocopherol acetate and ethyl p- hydroxy benzoate was found to be stable and provided better in vitro release as compared to cataplasm containing platy form of crystals.

While developing a transdermal drug delivery system, the formulators face the challenge related to the failure of adhesive systems while incorporating drugs possessing plasticizing effect.

However, the results obtained so far indicate that no generalization is possible while selecting an adhesive for plasticizing drugs. Garbe et al. (2006) evaluated a series of combinations of pressure sensitive adhesive components for their suitability as transdermal drug delivery devices for oily excipients.

I. TYPE OF FORMULATION

Submicron Oil Spheres/Emulsions:
Chen *et al*. (2004) described the preparation of o/w emulsions for delivering various drugs from transdermal formulations using different concentrations of Captex 810 D structured triglyceride and polarity modifiers like safflower oil; monoglycerides or acetylated monoglycerides were used along with different concentrations of egg phospholipids. The resulting emulsions had a mean particle size diameter less than 300 nm, 200 nm and 300 nm, respectively.

Sub Saturated Reservoir System:
Osborne *et al*. (2000) designed a system where the initial equilibrated concentration of nicotine in reservoir and adhesive was below saturation. In addition, the rate-controlling element of the device was substantially impermeable to nicotine. This nicotine transdermal delivery device exhibited good adhesive properties and the *in vitro* release rates were found to be 60 µg/cm2/hr, 70 µg/cm2/hr and 72 µg/cm2/hr, respectively.

True Solution and Solution Based Transdermal Delivery System:
Formulations were modified to form a true solution in a complex mixture formed from solvents and solute modifiers in combination with skin stabilizers. This composition was found to be effective for transdermal delivery of high molecular weight solute (>350 Da) and exhibited delivery rates greater than 0.25 mg/cm2/24hr.
Simialarly, various Gels and Prodrugs have also been developed and formulated with successful results.

II. ADVANCED DEVICES

In order to achieve the goal of the goal of reducing skin's barrier properties and enhancing transdermal permeation of drugs, various modification to the conventional device have been attempted with reasonably better results.

Microblades: Godshall (2002) designed a bed of microprotrusions attached to a drug reservoir from where the drug can move to adjacent disruptions. An area between microprotrusions acted as a penetration 'stop' that prevented the permeation of skin by microprotrusions to a depth greater than the height of microprotrusions. As advancement to the basic technique, a microblade device along with negative pressure was patented for the percutaneous sampling of an agent. Another device comprising of a piercing member having plurality of microblades with 25-400µm length and provision for applying partial vacuum in the range of 0.1-0.8 atm over a period of about 2-30 sec was designed for piercing the stratum corneum for body fluid withdrawal. A similar device consisting of a sheet member having plurality of microprotrusions and a rigid support contacting and extending across the sheet member for transmitting an applied force evenly across the length and width of the sheet. The microprotrusions were found to penetrate up to a depth of about 500 µm. The use of electrotransport, osmosis or pressure along with protrusions for withdrawing body fluids

via a hydrogel medium increased the permeation of decapeptide over the transport period as compared to an ordinary electrotransport device.

Microneedles: A gel filled compartment fitted with micro needles was found to be capable of opening the skin permeation pathways up to a depth of 150 μ when applied with pressure. Similarly, the microneedle drug delivery device fabricated by Prausnitz *et al*. (2003) included plunger/syringe/pump for compressing the reservoir to drive the drug from reservoir through the microneedles. Such systems further included a rate control mechanism to regulate rate and extent of drug delivery and an adhesive thus, immobilizing the microneedles during its insertion into the skin. A device for enhancing the delivery of drug through abraded skin utilized iontophoresis where the microneedles had a blunt, flat tip and a length sufficient to penetrate the stratum corneum without piercing the stratum corneum (Sage, 2004).

Needleless Syringe: This device features an elongate, tubular duct having a lumen for delivering the particles towards the target tissue. The device has a membrane which is ruptured by gas pressure to generate a supersonic gas flow in which therapeutic agent is injected. Bellhouse *et al*. (2001) injected insulin particles (10 μ diameter) which could penetrate to the depth of 200 μm. Topical lidocaine anaesthesia produced by this method increased till 5 min and then decreased gradually over next 25 min (Nat et al., 2006).

In addition to these, techniques like the i*ncrease in local temperature*, *mechanical vibrations, ultrasound, electroporation, and iontophoresis* have been successfully exploited for enhancement in the transdermal drug delivery (Anderson, 2006).

Thermal ablation technology: This technology is designed to selectively enhance skin permeation to allow delivery of therapeutic drugs of high molecular weight, including peptides and proteins, through the skin, eliminating the need to inject or infuse such drugs with hypodermic needles. The microdevice fabrication technology provides a novel method to manufacture microstructures for drug delivery using mild conditions that do not harm encapsulated drugs.

RF-Micro-Channel technology: The RF-MicroChannel expands the range of molecular types that can cross the stratum corneum barrier. This technology uses radio frequency (RF) electrical current to create passages through the skin. The micro-channels are created by placing a closely spaced array of tiny electrodes against the skin. An alternating current at a particular radio frequency is then transferred through each of the microelectrodes, which forms microscopic passages in the stratum corneum and outer epidermis via a process called ‘cell ablation’. These micro-channels penetrate only the outermost layer of skin, where there are no blood vessels or nerve endings, minimising skin trauma and unpleasant sensations. The passages created can be used for either drug delivery or analyte extraction. The whole process is performed rapidly, taking approximately a second to complete. The diameter of a typical channel is less than 50 microns, which is wide enough for even the largest drug molecules. This means that

a wide range of different-sized molecules, both small and large, can be delivered with this method. The RF-MicroChannels remain open in the skin up to 24 hours or more. This prolonged channel recovery time provides high flux rates and constant drug blood level profiles.

Smart Patch transdermal system: Smart Patch drug delivery technology is designed to provide a safe and effective method of delivering drugs via a pre-programmed regulating system. The patch is also designed to administer the peptide without needles and is being designed to deliver multiple transdermal pulses automatically, round the clock, in a painless, convenient and cost-effective manner. In this case four different electronic profiles are used to control the transdermal delivery of the peptide from patches loaded with different concentrations of the peptide. By varying the electronic profile from the Smart Patch, the amount of peptide delivered was adjusted above and below the typical therapeutic levels based on subcutaneous (SC) and intravenous (IV) injections. No adverse side effects were observed in any of the trial participants.

FUTURE DEVELOPMENTS

Drug delivery is evolving at a rapid rate with new drug product formulations being discovered frequently. Advanced drug delivery deals with developing solutions for new entities in therapeutic pharmacology such as protein and peptides and other novel compounds targeting drugs to specific disease sites, including gene therapy. Treatments for chronic conditions and growth in patient-administered drugs are factors leading to greater focus on ease-of-use and convenience.

Extending the patent term of older drugs by formulating them in new dosage forms has generated enthusiasm among the pharmaceutical scientists to develop new dosage forms. In addition, new dosage forms are essential for other drugs in order to enhance their performance by reducing their dose, increasing absorption, delivering to the target site etc. The patented innovations in transdermal drug delivery arena aim at these goals. However, the ultimate test that an innovative technique should pass relates to its successful performance *in vivo*. Hence, the formulator faces a challenging task of translating the patented claims to actual practice.

Liquid Transdermal Drug Delivery Systems: It is believed that the next evolutionary step for transdermal delivery technology could be to build a unique liquid delivery system that would spray the drug product directly onto intact skin. With a strong and growing IP position, proof of concept with a diverse list of pharmaceutical actives, including a small peptide and bolstered by a growing list of pre-clinical and peer-reviewed published clinical successes and encouraged by a growing list of industry partners who are expressing strong interest, researchers working on transdermal drug delivery systems are excited about the future of its new addition to the options for non-invasive dosing of drugs and peptides (Kirby, 2010).

Vaccine administration technologies - Beyond needles: The vaccine administration technologies are believed to have tremendous futuristic potentials for transdermal drug deliveries. Novel vaccine administration technologies have the potential to improve vaccine developers' commercial competitiveness

and to increase vaccination safety and convenience. Several reports assess the key strategies, technologies and products for novel dermal and mucosal vaccine administration. They also provide an overview of opportunities and challenges for the sector and a future outlook.

MARKET SIZE OF TRANSDERMAL/ TRANSMUCOSAL DRUG DELIVERY SYSTEMS

The US transdermal market approached $1.2 billion in 2001 (Brown, 2003), $5.6bn in 2009 and $7.9 in 2010 (Market Report, 2010). Innovative technologies that are able to deliver drugs with a broader spectrum of characteristics are poised to revolutionize the transdermal drug delivery market and drive significant growth. A combination of new drugs, new patient needs and new technologies is likely to fuel and further accelerate the existing steady growth in the transdermal/transmucosal drug delivery market during and after the year 2011. According to the latest reports (Kalorama Information's series, 2009) regarding the contemporary drug delivery markets, worldwide revenues from transdermal/transmucosal therapies climbed by around 1.5 per cent year on year to $6.86bn in 2006 and to $7.9bn in 2010 while continuing the trend of increasing @ 3.5 % a year. The driving force behind this are (i) the sustained growth of biotechnology that triggers for novel drugs delivery technologies; increased age expectancy and consequently the ageing populations with special needs for easier and more controlled modes of administration with better compliance; developments and innovation in new materials; and the rapid emergence of transmucosal therapies with as much as four times the absorption rate of drugs delivered through the skin.

Samad et al., (2009) have revealed, in a review article, that more than 200 patents have been granted by the United State patent alone, of which more than 35 TDD products have now been approved for sale in the US, and approximately 16 active ingredients have been approved for use globally. According to them, TDDS had a market of $ 12.7 billion in the year 2005 which was expected to increase by $ 21.5 billion in the year 2010 and $ 31.5 billion in the year 2015.

GlobalData, an industry analysis specialist, providing business information products and services, has published its latest report, "*Asia-Pacific Drug Delivery Devices Market Outlook to 2016*" which provides key market data on the Asia-Pacific Drug Delivery Devices market - Japan, China, Australia and India. The report provides an increasing trend in the market share of the TDDS and presents the Global corporate-level profiles of key companies operating within the Asia-Pacific Drug Delivery Devices market. Key players covered include GlaxoSmith-Kline plc, AstraZeneca International plc, Boehringer Ingelheim GmbH, 3M Health Care and Novartis Medical Nutrition. This report is built using data and information sourced from proprietary databases, primary and secondary research and in-house analysis by GlobalData's team of industry experts. This report reveals that China's demand for Drug Delivery System has grown at a fast pace in the past decade. In the next five years, both production and demand will continue to grow. This new study examines China's economic trends, investment environment, industry

development, supply and demand, industry capacity, industry structure, marketing channels and major industry participants. Historical data (1999, 2004 and 2009) and long-term forecasts through 2014 and 2019 are presented.

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WEAK AND STRONG DIMENSIONS OF SMALL AND MEDIUM ENTERPRISES (SMES) AND CONTRIBUTION TOWARD THE ECONOMY OF KPK (PAKISTAN)

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ABSTRACT

SMEs are the backbone of every economy and needs revolutionary support in the form of strategic policy decision from the State. There cannot be two opinions with regard to the importance of SMEs both in developed and developing economies. A country like Pakistan has a tremendous potential for the growth and development of SMEs to go to the next phase of industrialization with the help of technical and financial assistance to the sector. Here the researcher will pin point the weak and strong dimensions for the future of SMEs. One main reason for such reorientation has been the new way of thinking by managers and economists in developed market economies and a new perception of opportunities of economic success.

NTRODUCTION

At the time of partition in 1947, there were few industries in the newly established Pakistan, but particularly in N.W.F.P. there was no single industry. To initiate a process for SME development, the Government established "Small Industries Corporation" for the whole West Pakistan to develop and promote the cottage and small industries, to create skilled labor, to reduce the rate of un-employment and to feed the new coming industrial units. This corporation had to cover a vast area; priority was given to such places where there was greater potential for the new industry.

After the disintegration of the one unit in 1971, and after N.W.F.P. becoming a province, realizing the fact that small and medium scale industries are a breeding ground for small entrepreneurs as well as for large industries, the Government of N.W.F.P. established the "Sarhad Small Industries Development Board, in 1972, with the same objectives and role as that of Small Industries Corporation for promotion and development of cottages and small industries in the province".

Small and Medium Scale Industries have been recognized as a golden mean which can bring the benefits of modern

technology and economic production and can emerge as an important plank to tackle the problem of unemployment, under employment and regional and economic disparities. Through SMEs it is possible to achieve a balanced industrial development with social justice called for diffused ownership and controls. The SME sector grows where Large Scale Units does not germinate. The candle of SMEs shines where the grease of Large Scale Sector refuses to burn.

No doubt it has been recognized the World over that SMEs play a revolutionary role in the growth of an economy. This has been true with all developed and developing countries. The Small and Medium Scale Industrial Sector plays pivotal role in industrial development of Pakistan because it employs less fixed capital investment, generates more employment opportunities, uses indigenous technology and raw material, and helps to reduce urban migration (Webster, 1991).

According to ILO classification, units employing less than 10 persons come under the definition of small-scale industry. Many countries of the modern world, including Japan, have thriving small-scale industries. These industries, more important for entrepreneurs of small means, whose access to institutional credit is limited, require lesser skill and smaller capital but provide employment opportunities.

In Pakistan also these industries play an important role in the country's economy. These are the main source of earning foreign exchange as well as providing employment to a sizeable number of the people. The average capital cost per labor employed is much less these industries as compared to the large-scale industries. This is important in the sense that Pakistan is a country, which has abundant manpower, and thus labor-intensive techniques of production are more suitable to it. In Pakistan, industries having a capital of less than Rs 2 million including land and building are classified as small scale industries.

Now, side-by-side, the Government of Pakistan has introduced "SMEDA" in October 1998, a federal level agency with the challenge of developing SMEs in Pakistan. SMEDA is not only a policy advisory body to the Government of Pakistan but also a one-stop-shop for its SME clients. It is a relatively new

organization, based on a futuristic structure geared to provide business development services for small and medium enterprises.

DEFINITION OF SMEs

Meanwhile, Small and Medium Enterprise Development Authority (SMEDA) has defined SMEs in terms of employment generated as well as investment in productive assets.

Table-A

Nature of Business	Employment	Productive Assets (Rs. Million)
Small	Between 10-35 Workers	2-20 Million
Medium	Between 36-99 Workers	20-40 Million

Source: SMEDA, Pakistan.

STATEMENT OF PROBLEM

Nation-wise statistics dealing with business failures reveal that managerial inexperience and in-competency account for almost 90% of small business failures. Followings are the main weak dimensions:

- Lack of ability to supervise and direct others.
- Lack of capital is the indication of poor financial management.
- Lack of ability in sales promotion and sales management techniques.
- Lack of ability to collect bad debts and to curtail unwise credit policies.
- Lack of infrastructure facilities
- Lack of coordination between the private and public sector.

The SMEs strong dimensions are the use of indigenous machinery and raw materials, which, in turn, helps the growth of the country's engineering and other sectors. Pakistan has a strong base for industrial development due to large human capital, raw material availability etc. For many years now expectations concerning small and medium sized enterprises (SMEs) have been growing rapidly across the world both in developing and developed countries. After a distinct period of a considerable fascination of SMEs, the world economic literature together with economic and political leaders around the world have been recommending years the importance of the SME Sector for both advanced market economies as well as economies in transition.

METHODOLOGY

In order to carryout overall assessment of the small and medium enterprises operating in NWFP, the enterprises can be bifurcated in seven main sectors of

economy. These sectors have wide implications as they cover all the economic activities being carried out in true sense. This classification is with respect to the end product being marketed by the enterprises as well as based on the nature of business activities.

DATA COLLECTION AND ANALYSIS

The study focuses on the assessment of the manufacturing units in NWFP. The manufacturing is mainly concerned with the value addition or transformation of material from one shape to another. The processing units operating in the province have been counted as the manufacturing units. The province has diversified manufacturing activities, which are mostly documented as these facilities are located within the small industrial estates, being established by the government. These industrial estates are managed and looked after by Sarhad Development Authority/SIDB and the data, as long as the number of employees, initial investment and installed capacity are concerned, can be relied upon.

Some of the manufacturing activities also take place in unorganized sector. Excluding the micro businesses and cottage industry, the remaining manufacturing establishments constitute less than 10 percent of total manufacturing activities take place in NWFP. The manufacturing facilities established in the small industrial estates of Province are categorized in the following sectors:

Table-A: List of Sub-Sectors of SMEs

Sector	Sub-Sector
Food and Beverages	Distillery, Vegetable and Cooking Oil, Flour mills, Biscuit & Sweets, Bread Processing, Beverages and mineral water, Cold Storage, Ice factories, Processing Canning and Preservation of Fruits, Vegetables, Cigarette industries.
Textile, Wearing, Apparel & Leather Products	Textile mills sector, Woolen mills, Silk mills, Carpet industries, Hosiery, Embroidery, Garments, Leather products manufacturing.
Wood & Wood Products	Furniture and wood products.
Paper and Paper Products	Paper and Packages, Printing Press.
Chemicals, Rubber & Plastic Products.	Chemicals, Pharmacy, matchers, Soap Paints and Varnishes, Rubber and Plastic Goods, Adhesive Tapes, Fiber Glass and Formica.
Mineral Products	Cement base industries, Marbles and Crushing Stone industries.
Other Manufacturing Industries.	Lamps, Metal products, Arms and Ammunitions industries.

Source: Directory of Industrial Establishment Government of NFWP, 2002.

These areas are enlisted after uniting the various manufacturing activities under one heading. For example, the food and beverages includes distillery, vegetable and cooking oil, flour mills, biscuit & sweets, bread, meat processing, beverage and mineral water, cold storage, ice factories, processing canning & preservation of fruits, vegetables, cigarette industries.

Similarly the other sectors also contain a list of sub sectors. This classification has been done for the sake of simplicity, however, needs some elaboration for comprehension purpose.

SMEs-AREA WISE

The total area of the N.W.F.P. has been divided in five zones for compiling the data of the manufacturing units. These Zones are as under:

Zone-1 Peshawar, Charsadda, Nowshera.

Zone-2 Abbotabad, Mansehara, Batagrame, and Balakot (Districts of Hazara).

Zone-3 Kohat, Hungo, Karak, Bannu, Laki Marwat, Tank and D.I.Khan.

Zone-4 Swat, Bunair, Dir, Malakand, and Chitral.

Zone-5 Mardan and Swabi.

The division is not based on some criteria rather emphasis was to enlist the SMEs operating in the Province. The total units located in different areas of the province as per zone classification made above are given in the following table.

Table-B: Classification of SMEs on Zone Bases

Sector	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Total
Food & Beverages	284	49	24	17	43	417
Textile, Wearing, Apparel and Leather Products	157	54	07	205	19	424
Wood & Wood Products	76	28	14	32	39	189
Paper & Paper Products	10	08	04	--	12	34
Chemicals, Rubber & Plastic Products	49	34	18	53	70	224
Mineral Products	69	31	09	58	46	213
Metal & Metal Products	46	19	08	25	58	156

Source: Industrial Directory, 1998 and Micro Financing Unit, BOK.

These sub sectors still need further classification as numbers of activities have been clubbed in one sector. For example, leather products include leather shoe manufacturing, leather decoration pieces, leather tanning, leather preservation etc. Likewise the metal, textile sectors have various off shoots.

Besides the manufacturing industries located in organized industrial estates located in different parts of NWFP, there is some manufacturing-taking place in un-organized sector. These enterprises in individual capacity are of no significance. However, the cumulative influence of all the enterprises operating in a particular area carries a high weight.

In this context it can be quoted that every Khaddar weavers of Charsadda might not be documented with the concerned authorities or the exact statistics about the Chitrali Patti manufacturers might be known to the concerned authorities, but, the fact is well known that a significant amount of economic activity takes place in Khaddar weaving and Chitrali Patti manufacturing. The data regarding renowned manufacturing concerns are those who could be accessed in such sector have been collected and the small manufacturers have been ignored.

Total units reported in the Directory of Industrial Establishment Published by Industries Department amount to 1377 and enterprises operating in un-organized sector are estimated to be more than 2000. The units identified for the purpose of this study are 280 from the un-organized sector, which are mainly in textile, marble, metal products and light engineering (Directory of Industrial Establishment, 2003-04).

WEAK DIMENSIONS

Numbers of the indicators impending the failure of SMEs in the country, especially, in N.W.F.P. are relevant to its geographical location. Because, the Afghan War started in 1979, during this period the whole process of development was hampered due to geo-political relation failure with the neighboring countries. Up till now, the province is suffering from the burden of Afghan Refugees in every phase of life, especially in the business sector. Due to this crisis the indicators are as under (Bari, Cheema, and Haq, 2003):

- Declining sales record over several fiscal periods.
- Progressively higher debt ratios.
- Increased operating costs.
- Deterioration of working capital ratio.
- Reduction in profits (or increasing losses).

The importance of the standardized mass production lost its weight already some time ago on the account of the quality orientation in management and ability to tailor production to individual and changing needs of ever-stronger customers. Smaller enterprises proved to be more flexible in responding to the customer's needs, capable of an authentic customer focus, faster in adapting to and learning from changing world market situations more risk prone in introducing new technologies and new creative methods of management (Colgate, and Lang, 2003).

STRONG DIMENSIONS

In a natural way a small and medium enterprises is closer to contemporary vision of new flat and lean, horizontal company, which has created a new role model among enterprises around the world, the type of an enterprise which can succeed in present competitive markets, in times where leading giants are struggling to minimize losses after years of neglecting challenges from the domestic and foreign competitors.

The leading characteristics for sustainable SME growth in the economy are,

- Competitive Balanced Economy.
- Sound & Conducive Environment with ample growth opportunities and Productive Employment.
- To compete in the Global Export Markets or Open up domestic markets to international competitors. (A successful participation of any firm (SME) in local as well as in global markets depends heavily on the capacity to innovate through efficient economic networks)
- Thus SMEs can be considered as the basic constituents and building blocks towards fortifying the edifice of the economy.

On the other hand, It (SMEs) not only contributes, for the most part, in poverty reduction, being a self-reliant earning unit of the economy, but also plays a vital role in employment generation (Hiemenz & Bruch, 1982).

CONTRIBUTION OF SMEs TO THE ECONOMY

Most of the SMEs in Pakistan are involved in the production of export-oriented items. These SMEs contribute 30% of the total export receipts. Unfortunately, a large majority of these enterprises are involved in the export of unfinished products. This results firstly in the increased prices of inputs for the local manufacturer and secondly lower level of foreign exchange earnings. The contribution of these exporting small enterprises in the total export ex-chequer can be increased by making a shift from low value added to higher value added or finished goods. These finished goods are likely to fetch a better price in the international market, with comparatively lower cost incurred in the process of value addition.

Historically, the Government has not distinguished between large and small enterprises in industry or trade. Industrial and Commerce Policies have

been uniform for all scales of enterprises, as a consequence of which specifics needs of Small and Medium Enterprises have been left unattended to go ahead for the development purpose. SMEDA is creating an SME focus within Government for this crucial sector of the economy, which provides low cost employment opportunities and helps the economy in two valuable ways:

- One for boosting exports and
- Second one for poverty reduction.

Also, strong SME presence provides the resilience to the economy from global economic fluctuations that the large business enterprises are unable to respond too quickly (Huin, Luong, and Abhary, 2003).

The small-scale sector has dominated employment in the construction, wholesale, and retail trading, hotels, transport, communication, and storage industries in urban Pakistan since at least 1972. In the urban manufacturing sector, which mainly concerns us here, as many as 98 percent of manufacturing units were small scale unregistered firms, and in terms of urban manufacturing employment 51.4 percent were in the informal/small scale, while only 48.6 percent worked in the formal sector. The annual growth rates over last many years reveal that in much important areas- employment generation, value-added, and growth in capital stock- the small-scale sector has performed far better than the formal, large scale, manufacturing sector. Nadvi (1990) argues that a focus on small-scale units would appear to lead to the most socially efficient allocation of capital and, thereby, have the greatest potential for generation of productive employment. Much of the literature on small-scale sector is that this sector is more efficient than the large-scale sector in the use of capital. However, in the case of Pakistan, Sayeed (1995) concludes that the claim that higher labor intensity in the small-scale sector leads to its higher capital efficiency is not borne out by the date.

It is the facts of to day that every scholars working on the SMEs have indicated that the State or Government has until very recently treated this sector usually with indifference, and often with contempt. In Pakistan, I have observed more bias in favour of large-scale manufacturing particularly during the Z.A.Bhutto (Late) regime, while there was discrimination against small-scale sector (ADB, 1985, Aftab and Rahim, 1986). Presently, our small and medium

size enterprises and cottage industries, whose contribution to the growth of GDP is very significant (approximately three times that of large scale industries), who form an important sector of Pakistan economy, and as per statistics quoted by the press reports it provides employment to 80% of work force in the manufacturing sector, but receives only 20% share of the credit. They largely depend on non-institutional credit, which is very expensive.

FINDINGS AND SUGGESTIONS

It needs to be emphasized that the future entails many challenges both for the formal lending sector and SMEs alike, since the economic scenario has changed drastically over the past months. As the hazardous geopolitical factors and adverse impacts of the September events unfold, Pakistan's economy would be facing enhanced pressures. Economic recession amidst slow economic recovery, reluctant investors, unpredictable Forex markets and physical disruption of external trade are a few immediate hurdles that need to be coped with. In times like these, it is usually the SME sector, which proves to be the most resilient and able to withstand all the downslides. It has thus become even more important for both the entrepreneurs and the manager of Pakistan's economy to constantly update themselves on the issues facing SMEs at home and around the globe, and to know what assistance and support is needed by them to achieve the maximum potential. For instance, many SMEs lack knowledge on Intellectual Property (IP) Rights, which entitle them to solely own their innovative ideas and prevent imitation (Bangash, Shafiquallah, Amjad and Shehla, 1995).

Even if they are familiar with the concept, either they do not find their products unique or they shy away due to complicated procedures. The inefficiencies of management need to be done away with and intensive human resource training is required to ensure SMEs' fitness for survival. In order to qualify as lucrative recipient of bank credit, the SME sector would have to show increased productivity and positive cash flows in addition to sustainable business activities. Now, the research scholar is going towards the real data on the justification of SMEs development in the present trade oriented society competition in the world market.

In Pakistan, it is estimated that all small scale-manufacturing sector in the 1950s and 1960s grew at the rates of only 3.2 percent and 2.5 percent respectively. This was mainly because incentives were provided to large-scale manufacturing and small-scale industries were discriminated against. One of the main reasons was that they had to pay higher prices for the imported raw material (Economic Survey of Pakistan, 2003-2004).

In the 1970s the growth rate of small-scale sector increased to 7.9 percent and rose further to 8.4 percent in subsequent periods, during this period their access to imported inputs also improved. Unfortunately, recent data on the sub-sector is not available and the assumed growth rate is 8.4%, though there is some evidence to suggest that this is an under-estimate (Kamal, 1997).

As regards the manufacturing industries, Mahmood (1999) indicated that there is no legal, or single, clear-cut definition of what constitutes small and medium industries (SMIs) in Pakistan. He defined small industries as those firms, which employ 10 to 49 workers, and medium enterprises as those firms, which employ workers 50 to 99. As per Census of Manufacturing Industries (CMI) 1990-91, the SMIs accounted for about 78.9 percent of the manufacturing establishments. Small enterprises accounted for 67.7 percent, and medium and large accounted for 11.2 percent and 21.1 percent, respectively. In terms of value added and labor productivity, SMIs accounted for 16 percent of the employment and 13 percent in value added of the total manufacturing industries. Small enterprises absorbed 10 percent of the labor force and contributed 7.6 percent of value added. Medium enterprises absorbed 6 percent of the labor force and contributed 5.5 percent of value added. Traditionally, the SMIs have concentrated in those products more amenable to small and medium scale production requiring relatively less capital and catering mostly to local market demands. Consequently, the SMIs have tended to concentrate more on food, beverages and tobacco, textile, chemical and metal products.

In Pakistan, it comes as a surprise that it is not the large scale manufacturing sector that provides employment to most workers in the industrial sector, but the small scale or informal sector that

dominates the lives of people. The small-scale sector is, by far, the more dynamic. Exhibiting impressive growth rates in employment, output and contribution to value added (Naseem, 2002).

CONCLUSION

The SME sector grows where Large Scale Units does not germinate. The Large and Medium Scale Industrial Sector plays pivotal role in industrial development of Pakistan because it employs less fixed capital investment, generates more employment opportunities, uses indigenous technology and raw material, and helps to reduce urban migration.

In order to carry out overall assessment of small and medium enterprises operating in NWFP, the enterprises can be bifurcated in seven main sectors of economy-food and beverages, textile, wearing, apparel and leather products wood and wood products, paper and paper products, chemical, rubber and plastic products, mineral products other manufacturing industries.

Historically the government has not distinguished between large and small enterprises in industry or trade. The small scale sector has dominated employment in the construction, wholesale and retail trading, hotels, transport, communication, and storage industries in urban Pakistan since at least 1972.In the urban manufacturing sector, which mainly concerns this research, as many as 98% of manufacturing units were small scale unregistered firms, and in term of urban manufacturing employment 51.4 % were in the informal/small scale, which only 48.6% worked in the formal sector. The annual growth rates over last many years reveal that in many important areas-employment generation, value added, and growth in capital stock-the small scale sector has performed far better than the formal, large scale, manufacturing sector.

Literature on small-scale sector reveals that this sector is more efficient than the large-scale sector in the use of capital. In Pakistan, it is estimated that all small scale-manufacturing sector in the 1950s and 1960s grew at the rates of only 3.2 % and 2.5 % respectively. This was mainly because incentives were provided to large-scale manufacturing and small-scale industries were discriminated against. Medium enterprises absorbed 6

% of labor force and contributed 5.5 % of value added. In Pakistan, it comes as a surprise that it is not the large scale manufacturing sector that provides employment to most workers in the industrial sector, but the small scale or informal sector that dominates the lives of people.

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THEORIES OF JOB-SATISFACTION: GLOBAL APPLICATIONS & LIMITATIONS

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ABSTRACT

Multiplicity of theories for motivation and job satisfaction is constantly perplexes the students and managers. Since theories are neither right nor wrong therefore logically every theory has been an application in a compatible situation. For example, 'content theories' help explaining the attitudes of physical workers, while 'Process theories' better elaborate the behavior of knowledge workers. Furthermore, there are grey areas where mix of both models should be used. This paper is an effort to so classify and link the theories that the relative position and role of every single theory is identified to help managers in bringing some order in the application of theories.

INTRODUCTION

Motivation refers to the drive and effort to satisfy a need or goal. Satisfaction refers to the contentment experienced when a need is satisfied. Motivation implies a drive toward an outcome, and satisfaction is the outcome already experienced (Weihrich & Koontz, 1999:465). Job satisfaction is a general attitude, which is the result of many specific attitudes in three areas such as job factors, individual or personal characteristics and other social and groups' relationship outside the job (Shajahan & Shajahan, 2004:116). When people join an organization, they bring with them certain drives and needs that affect their performance on the job. Sometimes these are immediately apparent, but often they not only are difficult to determine and satisfy but also vary greatly from one person to another. [Understanding how needs create tensions which stimulate effort to perform and how effective performance brings the satisfaction of rewards is useful for managers. Newstrom, 2007:123].

To explain and understand the phenomena of 'job-satisfaction' several theories have been suggested (Maslow, Vroom, Adams etc.) and this effort continues forever when condition changes, the old theory needs to be either modified, or replaced with a new

model. Theories are the scientific tools, which are used to identify factors of job satisfaction and their mutual relationships during the motivation and job-satisfaction process (Griffin, 1990:67). With the passage of time the number of these factors changes as well as the inter-relations therefore new theories emerge. Furthermore, strength of organizational behavior is its interdisciplinary nature and its emerging base of research knowledge, models, and conceptual frameworks. The keys to its past and future success revolve around the related processes of theory development, research and managerial practice (Newstrom, 2007:6).

JOB SATISFACTION

The attitude of job satisfaction is a field of major interest to the researchers of organizational behavior and the practice of human resource management (Luthans, 2005:211). Job satisfaction is the degree to which individuals feel positively or negatively about their jobs. It is an attitude or emotional response to one's tasks as well as to the physical and social conditions of the workplace, for example, from the perspective of Herzberg's two-factor theory the contents of the job (i.e. achievement, responsibility, recognition etc) are the motivators, which lead to positive employment relationships and high level of job-satisfaction (Tirmizi et al., 2008). Job satisfaction is defined and measured with reference to various factors of the job. Regardless of the theoretical approach used to study job satisfaction, most studies have identified at least two general categories of antecedent variables. Environmental factors – personal characteristics both focuses on job satisfaction and individual attributes and characteristics (Ellickson & Logsdon, 2001). This is a general attitude, which is the result of many specific attitude in three areas such as job factors, individual or personal characteristics and other social and groups' relationship outside the job (Shajahan & Shajahan, 2004:116). Other researchers (Moynihan & Pandey, 2007) note that the literature on employee motivation, commitment, and job satisfaction proposes that organizational attitudes are driven by both personal as well as work context.

THEORIES OF JOB-SATISFACTION

Theory is a structure of fundamental concepts and principles around which knowledge in a field is organized. Principles are regarded as fundamental truths which can be used to describe and predict the results of certain variables in a given situation (Koontz & O'Donnell, 1972:92). Theory is a conceptual device for organizing knowledge and providing a framework for action. It is a roadmap to guide towards goals (Griffin, 1990:37). Theory is a systematic grouping of interdependent concepts and principles that provides a framework to a significant area of knowledge (Weihrich & Koontz, 1999:13). Theories offer explanations of how and why people think, feel, and act as they do. Theories identify important variables and link them to form tentative propositions that can be tested through research (Newstrom, 2007:6).

The executive attempting to manage without a theory, and knowledge structured by it, must trust to luck, intuition, or past experience; with organized knowledge has a far better opportunity to design a workable and sound solution to a managerial problem (Koontz & O'Donnell, 1972:7) because, theories are important as organizers of knowledge and as roadmaps to action (Griffin, 1990:67) and "there is nothing so practical as a good theory (Luthans, 1995:13)." Theories are a classification, a set of pigeon holes, a filing cabinet in which facts can be accumulated to make sense and thereby decisions (Weihrich & Koontz, 1999:13).

Though most of the discussions about the theories of job-satisfaction start with Maslow's theory of 'Hierarchy of Needs' (1943) however, the story actually begins from early decades of the 20th century with the theory of 'Scientific Management' commonly referred to as 'Taylorism' by Frederick W. Taylor (1911) wherein humans are treated as 'Economic-men' therefore 'Money' is considered the biggest motivator for job-satisfaction. This view was then split apart by Elton Mayo & Associates (1924-33) during 'Hawthorne Studies' about the nature of human being. They found that multiple factors contribute to the motivation and satisfaction of workers including, personal morale, positive interrelationships, management founded on the understanding of individual and

group behavior through interpersonal skills like "motivating, counseling, leading and communicating (Weihrich & Koontz, 1999:42)."

CLASSIFICATION OF THE THEORIES

Across the literature, theories about the job-satisfaction have consistently been grouped either on the 'nature of theoris' or 'chronological appearance these theories. For example, Dr S. Shajahan & Linu Shajahan (2004:90-99) give nature-based grouping as Content-theories (Maslow's Needs Hierarchy, Herzberg's Two Factor theory, Theory X and Theory Y, Alderfer's ERG theory, and McClelland's theory of Needs) and Process-theories (Behavior Modification, Cognitive Evaluation Theory, Goal Setting theory, Reinforcement theory, Expectancy theory, and Equity theory).

Fred Luthans (2005: 240-256) have been using a mix of nature-based and historically founded classifications since his first writings on the topic (See for example, Luthans, 1995) organized the theories into Content (Needs Hierarchy, Two-Factors, and ERG theories); Process (Expectancy theory and Porter & Lawler model); and Contemporary (Equity, Control and Agency theories). However, Stephen P. Robbins (2005:48-61) applies single base of chronology and categorizes the job satisfaction theories into Early-theories (Hierarchy of needs, Theory X & Y, Two-Factor theory) and Contemporary theories (McClelland's theory of needs, Goal Setting theory, Reinforcement theory, Job Design Theory (job-characteristics model), Equity theory and Expectancy theory). At present the content and process theories have become established explanations for work motivation.

Content Theories

The content theories are based on motivation of people at work, identifying the needs, drives and incentives/goals and their prioritization by the individual to get satisfaction and thus perform effectively (Luthans, 2005:240). Researchers have prepared different lists of biological, psychological, social and higher order needs or requirements of human beings. Almost all the researchers have categorized these needs into primary, secondary and high level requirements of employees, which need to be fulfilled when the worker is needed

to motivated and satisfied. There are several content theories, which guide the managers in understanding 'what motivates the workforce?'

Maslow's Theory of Motivation/Satisfaction (1943)

Maslow's hierarchy of needs is "the most widely mentioned theory of motivation and satisfaction (Weihrich & Koontz, 1999:468)." Capitalizing mainly on humanistic psychology and the clinical experiences, Abraham Maslow postulated that an individual's motivational needs could be arranged in a hierarchy. Once a given level of needs is satisfied, it no longer helps to motivate. Thus, next higher level of need has to be activated in order to motivate and thereby satisfy the individual (Luthans, 2005:240). Maslow (1943) identified five levels in his need hierarchy:

1. Physical needs: (food, clothing, shelter, sex),
2. Safety needs: (physical protection),
3. Social: (opportunities to develop close associations with other persons),
4. Esteem/Achievement needs: (prestige received from others), and
5. Self-Actualization: (opportunities for self-fulfillment and accomplishment through personal growth) (Maslow, 1943).

Furthermore, individual need satisfaction is influenced both by the importance attached to various needs and the degree to which each individual perceive that different aspects of his or her life should, and actually do, fulfill these needs (Karimi, 2007). Some argue that Maslow's hierarchy of needs theory is the first motivation theory actually laid the foundation for '*job satisfaction theory*'. This theory served as a good basis from which early researchers could develop job satisfaction theories (Wikipedia, 2009).

Herzberg's Two-Factor Theory (1959)

Herzberg developed a specific work motivation theory. He did a motivational study on about 200 accountants and engineers employed by firms in Pittsburgh, Pennsylvania. He used the critical incident method of data collection with two questions: a. when did you feel particularly good about your

job – what turned you on? And b. when did you feel exceptionally bad about your job – what turned you off? (Luthans, 2005:243).

Tabulating these reported good and bad feelings, Herzberg concluded that job satisfiers (motivators) are related to job content and that job dissatisfiers (Hygiene factors) are allied to job context. Motivators relate to the job contents like Achievement, Recognition, Work itself, Responsibility and Advancement). They hygiene factors do not 'motivate/satisfy' rather 'prevent dissatisfaction.' These factors relate to the context of the job such as, Company policy, Administration, Supervision, Salary, Interpersonal relations, Supervisor, and Working conditions (Herzberg et al., 1959).

The theory has been admired as the most useful model to study job satisfaction (Kim, 2004), for example, the theory has been found supported in educational settings (Karimi, 2007) and it has been used as a theoretical framework for scientifically assessing police officers' job satisfaction (Getahun et al., 2007) however, a review of literature revealed criticisms of the motivator-hygiene theory (Karimi, 2007). For example, researchers have not been able to empirically prove the model. Likewise, the theory ignores the individual differences and assumes that all employees react in a similar manner to the changes in motivators and hygiene factors. The model is also criticized for suggesting no specific method to measure the factors of job satisfaction and dissatisfaction (Wikipedia, 2009).

Theory X & Y (Douglas McGregor) (1960)

After viewing the way in which managers dealt with employees, McGregor concluded that a manager's view of the nature of human being is based on a certain grouping o assumptions and that he or she tends to mold his or her behavior toward subordinates according to these 'assumptions' (Robbins, 1998:170).

Theory X Assumptions

- Average human beings have an inherent dislike of work and will avoid it if they can.
- Because of disliking work, most people must be coerced, controlled, directed, and threatened with

punishment to get them work for organization.

- Average human beings prefer to be directed, wish to avoid responsibility, have relatively little ambition, and want security (Weihrich & Koontz, 1999:466).

Theory Y Assumptions

- Physical and mental efforts in work are as natural as play and rest.
- External control and threat are not the only means for producing effort toward organizational objectives. People will exercise self-direction and self-control in achieving committed objectives.
- Degree of commitment to objectives is in proportion to the size of the rewards associated with achievement.
- Average human beings learn, under proper conditions, not only to accept responsibility but also to seek it (Weihrich & Koontz, 1999:467).

Theory of Needs - Achievement Theory (McCelelland, David 1961)

McCelelland and Associates argued that some people have a compelling drive to succeed. They are striving for personal achievement rather than the rewards of success per se. they have desire to do something better or more efficiently than it has been done before so they prefer challenging work - these are high achievers (Shajahan & Shajahan, 2004:95). Theory emphasizes on the achievement motives thus, also known as 'achievement theory' however model includes three interrelated needs or motives:

1. Achievement: The drive to excel, to achieve in relation to asset of standards, to strive to succeed.
2. Power: The need to make others behave in a way that they would not have behaved otherwise (Shajahan & Shajahan, 2004:95). It refers to the desire to have an impact, to be influential, and to control others (Robbins, 2005:53).
3. Affiliation: The desire for friendly and close interpersonal relationships (Shajahan & Shajahan, 2004:95). People with high affiliation prefer cooperative situations rather than competitive ones (Robbins, 2005:53).

ERG Theory (Alderfer, Clayton P.) (1969)

Clayton Alderfer (1969) has reworked Maslow's need hierarchy to align it more closely with the empirical research. He did a grouping of the Maslow's hierarchy of needs into three groups of needs: Existence, Relatedness, and Growth, thus ERG theory. His classification of needs absorbs the Maslow's division of needs into: Existence (physiological and security needs), Relatedness (social and esteem needs) and Growth (self-actualization) (Shajahan & Shajahan, 2004:94). Alderfer is suggesting more of a continuum of needs than hierarchical levels or two factors of prepotency needs. Unlike Maslow and Herzberg, he does not content that a lower-level need must be fulfilled before a higher-level need becomes motivating or that deprivation is the only way to activate a need (Luthans, 2005:244).

Process Theories

Unlike content theories, process theories are more concerned with 'how the motivation takes place?' The concept of 'expectancy' from 'cognitive theory' plays dominant role in the process theories of job-satisfaction (Luthans, 2005:246). Thus, process theories try to explain how the needs and goals are fulfilled and accepted cognitively (Perry et al., 2006). A number of process-oriented theories have been suggested. Some of these theories have caught the attention of researchers who tested these hypotheses in different environments and found them thought-provoking. The leading theoretical formats in process domain are the following:

Equity Theory (J. Stacy Adams) (1963)

Equity theory says that employees weigh what they put into a job situation (input) against what they get from it (outcome) and then compare their input-outcome ratio with the input-outcome ratio of relevant others. If they perceive their ratio to be equal to that of the relevant others with whom they compare themselves, a state of equity is said to exist (Robbins, 2005:58). The first of these fairness perceptions - distributive justice - has been extensively studied over the past few decades under the more readily recognizable name of equity theory (Yusof & Shamsuri, 2006). Continuing through the motivation cycle suggests that high performance leads to the receipt of rewards, both intrinsic and

extrinsic, which leads to increased employee satisfaction when such rewards are valued by the employee and perceived as equitable (Perry et al., 2006).

Vroom's Expectancy Theory (1964)

Victor H. Vroom holds that people will be motivated to do things to reach a goal if they believe in the worth of that goal and if they can see (probability) that what they do will help them in achieving them (Weihrich & Koontz, 1999:470). Vroom's theory is characterized with three major variables: valance, expectancy and instrumentality. Valance is the strength of an individual's preference (or value, incentive, attitude, and expected utility) for a particular output. Expectancy refers to the probability that a particular effort will lead to a particular first-level outcome. While instrumentality is the degree to which a first-level outcome will lead to a desired second-level outcome. For example, a person would be motivated (motivational force or effort) toward superior performance (first-level output) to realize promotion (second-level output) (Luthans, 2005:247).

Vroom recognizes the importance of various individual needs and motivations (Weihrich & Koontz, 1999:471). For example, expectancy theory suggests that rewards used to influence employee behavior must be valued by individuals (Perry et al., 2006). Thus, theory is considered as the "most comprehensive theory of motivation and job satisfaction (Robbins, 2005:60)." This theory explains that motivation is a product of three factors: how much one wants a reward (valance), one's estimate of the probability that effort will result in the successful performance (expectancy), and one's estimate that performance will result n receiving the reward (instrumentality), which is explained as 'Valance × Expectancy × Instrumentality = Motivation' (Newstrom, 2007:115).

Porter/Lawler Expectancy Model (1968)

Porter and Lawler point out that 'effort' (force or strength of motivation) does not lead directly to 'performance.' It is moderated by 'abilities and traits' and by 'role perceptions.' Similarly, the 'satisfaction' does not depend on performance rather it is determined by

the 'probability of receiving fair rewards' (Weihrich & Koontz, 1999:473). The Porter-Lawler motivation model suggests that motivation depends on several interrelated cognitive factors, for example, effort stems from the 'perceived effort-reward probability' before it is initiated. However, before this effort is converted into performance, the 'abilities and traits' plus 'role-perceptions' cast moderating effect on the real efforts invested for performance. Finally, it is the 'perceived equitable rewards', which determines 'job-satisfaction.' (Luthans, 2005:249).

Goal-Setting Theory (Locke, 1968)

In late 1960s, Edwin Locke argued that intentions, expressed as goals, can be a major source of work motivation and satisfaction (Shajahan & Shajahan, 2004:95). Some specific goals lead to increased performance. For example, difficult goals, when accepted, result in higher performance than easy goals and that feedback leads to higher performance than no feedback. Similarly, 'specific hard' goals produce a higher level of output than 'generalized' goals of 'do your best'. Furthermore, people will do better when they get feedback on how well they are professing toward their goals because feedback helps to identify discrepancies between wheat they have done and what they want to do. Studies testing goal-setting theory have demonstrated the superiority of specific, challenging goals with feedback, as motivating forces (Robbins, 2005:54).

The goal-setting theory is the single most researched and dominant theory of employee motivation in the field, for example, researchers have applied goal-setting theory to studies of more than 40,000 participants' performance on well over 100 different tasks in eight countries in both lab and field settings (Perry et al., 2006). Goal theory proposes that difficult goals require focus on the problem, increase sense of goal importance, and encourage persisting and working harder to achieve the goals. Goal theory can be combined with cognitive theories to better understand the phenomena, for example, cognitive tool of self-efficacy is the perception of the difficulty of a goal and ability to achieve the goal. Greater self-efficacy is positively related to employees' perception that they are

successfully contributing to meaningful work and therefore foster enhanced work motivation (Moynihan & Pandey, 2007).

Job Characteristics Theory (Hachman & Oldham)(1975-76)

Hackman and Oldham's (1980) original formulation of job characteristics theory argued that the outcomes of job redesign were influenced by several moderators. Notable among these moderators are differences in the degree to which various individuals or employees desire personal or psychological development. (Perry et al., 2006). Job characteristics are aspects of the individual employee's job and tasks that shape how the individual perceives his or her particular role in the organization. The clarity of tasks leads to greater job satisfaction. We expect that greater role clarity will create employees who are more satisfied with, committed to, and involved in their work (Moynihan & Pandey, 2007).

The research reveals that jobs that are rich in motivating characteristics (i.e., task significance) trigger psychological states (e.g., experienced meaningfulness of work) among employees, which in turn increases the likelihood of desired outcomes. For instance, the significance of a task can ignite a sense of meaningfulness of work that leads to effective performance (Perry et al., 2006). More precisely, the model states that there are five core job characteristics (skill variety, task identity, task significance, autonomy, and feedback) which impact three critical psychological states (experienced meaningfulness, experienced responsibility for outcomes, and knowledge of the actual results), in turn influencing work outcomes (job satisfaction, absenteeism, work motivation, etc.) (Wikipedia, 2009).

DISCUSSION

Theories are neither right nor wrong rather different views of reality (Checkland, 1981:44). These are different perceptions (views) wherein every researcher visualizes the same attributes of the situation but gives them meaning from his/her own perspective thereby creating a difference of perception, which is again a psychological truth in the sense that psychologists even suggest that human cannot see the reality they simply develop a unique perception of it

(Luthans, 1995:86). Furthermore, "at present there is a lack of integration or synthesis of the various theories (Luthans, 2005:240).'

Furthermore, these theories need to be restructured according to the new areas of research in human psychology, for example, 'positive psychology' movement is now earning footings among the researchers on human motivation and job satisfaction (Seligman, 1998). Positive psychology is a scientific method to discover and promote the factors that allow individuals, groups, organizations and communities to thrive and prosper. These factors are optimism, hope, happiness, resiliency, confidence and self efficacy (Luthans, 2005:271). Thus, theories of job satisfaction have to be tested against these emerging factors of positive psychology and their impact on human behavior at individual, group and organizational levels.

Synthesizing the Diversity of Theories

The researchers comment that one of the errors in using theoretical frameworks is the tendency to overlook the need for 'compromising, or blending' while there is a little doubt about the fact that the "ability to compromise with the least of undesired consequences is the essence of art (Koontz & O'Donnell, 1972:7)." Role of theory is to provide a means of classifying significant and pertinent knowledge (Weihrich & Koontz, 1999:13). Several motivational models are available. All these models have strengths and weaknesses as well as advocates and critics. Though, no model is perfect, but each of them adds something to understanding the motivational and satisfaction process. While new models are emerging, there are also efforts to integrate the existing approaches (Newstrom, 2007:122; Moynihan & Pandey, 2007).

theory aims at explaining the motivation and job satisfaction attitudes of the employees so that managers can understand and thereby control the organizational behavior in the favor of organization. The major difference between each theory is the prioritization of the factors/variables involved in the process and their mutual relationships. For example, 'content theories' explain in terms of 'what motivates the employee?'

Table Showing the Synthesis of Motivation/Satisfaction Theories

Human Requirements	Human Behavior/Efforts to Meet those Requirements (Mediated by the personal, job-related, environmental and organizational characteristics)	Rewards for Human Behavior	Fulfilled Requirement
Needs	**Efforts/Performance**	**Rewards**	**Satisfaction**
Physical, Cognitive & Social Needs [Hierarchy of Needs **Maslow** 1943/54; Two-Factor Theory **Herzberg** - 1959; ERG Theory **Alderfer** 1969; Achievement Theory **McClelland** 1961	1. Personal Characteristics [Theory X & Y **McGregor** 1960; Expectancy Theory **Vroom** 1963; **Porter & Lawler** Model 1968; Attribution Theory; Control Theory **Scott & Snell** 1992] 2. Job Characteristics [Job-characteristics Theory **Hachman & Oldham**] 3. Environmental Characteristics [Hawthorne Studies **Mayo**] 4. Organizational/Management Characteristics [Reinforcement Theory **Skinner** 1953/69; Goal Setting Theory **Locke** 1968; Control Theory **Scott & Snell** 1992; Agency Theory **Hill & Jones** 1992]	*Intrinsic & Extrinsic Rewards* [Scientific Management **Taylor** 1911; **Porter & Lawler** Model 1968; Reinforcement Theory **Skinner** 1953/69; Perceived Equity Theory **Adams** 1963]	*If satisfied, the worker is likely to repeat the same behavior. If dissatisfied, the worker is more likely to discontinue the same behavior.* [16 Theories]

As said earlier, each while 'process models' prioritize 'how motivation/satisfaction takes place both intellectually and physically.'

Given these differences in approach, the researchers have positioned each theory across the motivation/satisfaction process (needs – drive – incentive - satisfaction) on the basis of 'which aspect is emphasized and explained more by a particular theory. For example, Maslow's theory is more about the needs (therefore comes in the 1st column for needs) while 'Equity theory' of Adams gives priority to the 'equality of rewards' as the starting point for the discussion on motivation and satisfaction (therefore placed in 3rd column of rewards/incentives). The positioning of leading theories is an effort to argue that each theory better explains a particular part of the whole process therefore using theories in this manner will help researchers in benefiting from each theory thereby developing a comprehensive story of motivation and job satisfaction process.

Cultural Limitations

Most of the motivation/satisfaction theories were developed in USA by natives for natives. So we need to be careful in assuming that these theoretical models are workable across the cultures in the same manner. For example, almost all the theories emphasize individualism

and achievement, which are pro-American characteristic (Robbins, 2005:61). Thus, the story of these theory changes from one culture to another due to several factors. For example, religion attaches varying values with diverse needs/motives thereby changing the importance of different needs in different religious beliefs (Luthans, 2005:258), which definitely modifies the hypotheses of the original theories.

The well known research by a Dutch researcher Geert Hofstede identifies four cultural dimensions to help explain how and why people from various cultures behave as they do. These dimensions also explain the reasons for modifying the theories according to the specific dimensions of every single nation and culture. The researcher filled 116,000 questionnaires from the IBM employees from 70 countries (Hofstede, 1980). He found that cultures are different on the following four dimensions:

- Power distance: People in societies where authority is obeyed without question live in a high power distance culture. In cultures with high power distance, managers can make autocratic decisions and the subordinates follow unquestionably. Many Latin and Asian countries like Malaysia, Philippines, Panama, Guatemala, Venezuela, and Mexico demonstrate high power distance but America, Canada and several countries such as Denmark, UK, and Australia are moderate or low on power distance (Rugman & Hodgetts, 2002:133).
- Uncertainty avoidance: It refers to understanding the tendency of people to face or avoid uncertainty - are they risk-takers or risk-avoiders. Research reveals that people in Latin countries (in Europe and South America) do not like uncertainty. However, nations in Denmark, Sweden, UK, Ireland, Canada and USA like uncertainty or ambiguity. While Asian countries like Japan and Korea fall in the middle of these extremes (Luthans, 2005:257).
- Individualism is the tendency of people to look after themselves and their immediate family only. On the contrary is the collectivism, the tendency of people to beling to groups that look after each other in exchange for loyalty. For example, US, UK, Netherlands, and Canada have high individualism but

Ecuador, Guatemala, Pakistan and Indonesia have low individualism (Rugman & Hodgetts, 2002:134).

- Masculinity: If the dominant values of a society are 'success, money and things' in contrast to femininity (caring for others and the quality of life), the society is known as 'Masculine'. Research tells that Japan, Austria, Veneuela, and Mexico are high on masculinity values than Norway, Sweden, Denmar, and Netherlands while America is moderate on these two extremes (Rugman & Hodgetts, 2002:134).

The researchers pinpoint that there are more differences than similarities in the application of various job satisfaction theories (Luthans, 2005:258). For example, Maslow's hierarchy of needs demonstrates more the American culture than the countries like Japan, Greece, or Mexico, where uncertainty avoidance characteristics are strong, safety needs would be on top of the needs hierarchy (Robbins, 2005:61-62). Despite these differences, all the theories of job-satisfaction share some similarities, for example, they encourage mangers not only to consider lower-level factors rather use higher-order, motivational, and intrinsic factors as well to motivate and thereby satisfy the workforce (Newstrom, 2007:123).

CONCLUSIONS

After skimming through the break-up of different theories of motivation, it comes clear that none of them are either good or bad rather explanation of one or another aspect of the reality. The nature and emphasis of content theories suggests that these theories are more practical in understanding the behavior of 'physical-workers'. Similarly, process theories, which give priority to the cognitive dimensions of the brain power, therefore, on the face of it, these theories seem more suitable for comprehending and managing the motivation and satisfaction of the 'knowledge-workers'. Furthermore, these theories have been developed by different scholars in different countries and multiple cultures. Therefore, the universality of these theories is limited. Theories are applicable around the world but if they contextual conditions are compatible with the contents and processes of the theory. Management should be careful in

using any of the theories as a guide for understanding and managing the motivation and satisfaction their employees. First there must be an analysis of the surrounding cultural context of a particular organization and then that theory should be selected which is most compatible or matching with the situation in hand.

It should however, be recognized without any doubt that every manager must have closer understanding of both content and process theories because contents and processes are not disconnected within human being. Both are affected by each other therefore the role of content-theories for 'physical-workers' and process-theories for 'knowledge-workers' is not exclusive. It should rather be taken as a matter of degree, namely, the behavior of physical workers is more explained by content theories while the attitude of knowledge workers is more analyzable with process theory models of behavior.

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LAW COURTS VS. ADMINISTRATIVE TRIBUNALS

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ABSTRACT

It is an established fact that since long the ordinary law courts had been playing the role of custodian to the rights of public servants, so why it was felt that there should be another kind of mechanism i.e, Administrative Tribunals, wherein the grievances of the employees could be redressed. Through this article an attempt has been made to introduce the Administrative Tribunals, what were the causes for its growth, to explain the characteristics of tribunals, the difference between courts and tribunals and the advantages, which the aggrieved public servant can get.

INTRODUCTION

The emergence of the concept of welfare state resulted in expansion of state activities in various fields. The multiple state functions made it inevitable to create Tribunals for settlement of disputes between the employer and employees. Administrative matters are, no doubt, specialized matters and so are the administrative disputes. To decide disputes arising from the unlawful administrative actions or from the adoption of irregular procedure by the administrators, a kind of expertise was needed, as according to Garner (1979:219) no institution was in existence to bring into proper relation the actual behavior of governmental executive agencies to regulate administrative discretion. It was, probably, due to these complexities that the governments of several countries opted for the creation of separate bodies for the settlement of administrative disputes. The contemporary adjudicating bodies were named, 'the Administrative Tribunals'

It is not possible to define the word 'tribunal' precisely and scientifically. According to the dictionary meanings tribunal means a seat or a bench upon which a judge or judges sit in a court, a place of judgment (Hornby 1974: 924); but this meaning is very wide as it includes even the ordinary law courts. Dr. Thanzeelur. Rehman, (1976: 497) to some extent has tried to give somewhat specific meaning to the term, "though the term 'tribunal' is not identical with court but the term is used for all those adjudicatory bodies which are created by the Government to settle down some

specified issues in a judicial manner In administrative law this expression is limited, only, to adjudicating authorities other than ordinary courts of law. The expression has also not been defined in the constitution of 1973, where the word 'tribunal' finds place in Article 212.

A full Bench of the Supreme Court of India, comprising of Chief Justice Mahajan, Justice B.K. Mukherjea, Justice Bhagwati and Justice Venkatarama, while defining the term tribunal, observed that: "The expression Tribunal is used in Article, 136 of the Constitution does not mean the same thing as "Court" but includes within its ambit all adjudicating bodies, provided they are constituted by the State and are invested with judicial as distinguished from administrative or executive functions". (Durga Shankar Mehta v. Raghuraj Singh, AIR 1954 SC, 520)

In another case a Bench of the Supreme Court of India, headed by Chief Justice Kania, observed that "though tribunals are clad in many of the trappings of a court and though they exercise quasi-judicial functions, they are not full fledged courts. Thus, a tribunal is an adjudicating body which decides controversies between the parties and exercise judicial powers as distinguished from purely administrative functions and thus possesses some of the trappings of a court but not all". (Bharat Bank Ltd v. Employees, AIR 1950 SC 188)

It is to mention here that like other institutions, the administrative tribunals also have a history behind its growth and evolution. As far its origin in South Asian region, the study of literature reveals the existence of administrative courts and tribunals in the Indian sub-continent. According to Ramachandran (1984: 6269, "Tribunals are the institutions which are not foreign to the soil of sub-continent because these tribunals existed in the pre-partition period." It is not clear whether those tribunals handled cases and disputes pertinent to civil service. But it seems that all claims and disputes of civil nature, including the violations of civil servants' rights, were the subject matters of ordinary law courts.

Despite the opportunities for judicial review, majority of the civil servant, who had some grievances, did not carry the issue further. In some cases they might not be aware of their rights and some were not sure of getting redressal through the court. The most important

elements that kept the affected citizens away from the courts were, probably, the procedural technicalities, the delay and expenses involved in the court's proceedings. Similarly, Simon and Smithburg (1974:521), too, maintained that because of the slowness, complexity and expensiveness of our legal system, judicial protection of individuals against oppressive administrative action has become a difficult task.

These circumstances led to various suggestions for alternative institutions and procedures that could resolve the administrative disputes, in particular the disputes related with service matters i.e. promotion, demotion, disciplinary actions and the like issues.

CAUSES FOR THE GROWTH OF ADMINISTRATIVE TRIBUNALS

The exercise of official authority may on occasion trench on the constitutional or statutory rights of individuals, whether by reason of error, misunderstanding or excessive zeal. It has been a historic function of the ordinary law courts to examine, upon complaint; the official acts and determine their validity. Ernst Fruend once wrote (Quoted by White, 1955:510), "Increased administrative powers call for increased safeguards against their abuse and as long as there is the possibility of official error, partiality or excess of zeal, the protection of private right is as important an object as the effectuation of some governmental policy".

Over the course of the last half a century there has been a vast proliferation of the types of the duties entrusted to government. As the sheer volume of functions assigned to government has expanded, the number of governmental employees has, too, grown significantly. In the words of Tucker (1977: 103) "the larger the corps of officials, the greater is the potential for misuse and abuse of the power of government". Keeping in view the human nature of self-preservation it was expected that the citizens themselves would devise a device for the achievement of the said purpose. In this regard Hugh (1995: 9) writes, "Since the dawn of humanity man had been making ceaseless endeavors to brighten and refine his ways of living". The governments of various countries, therefore, considered it imperative to introduce a mechanism of proper check and balance over the administrative powers.

It is noted that the complexities of modern industrialized and urbanized society compelled the state to play a positive and effective role in safeguarding the rights of poor and oppressed citizens, at the same time it should also be active in securing the public interest. Since the rise of the concept of social justice and welfare state, the emphasis has shifted from individual rights to social interest. According to Prof Robson (1951:33), "with the extension, during the nineteenth and twentieth centuries, of the functions of the government to one new field after another, with the progressive limitation of the rights of the individual in the interests of the health, safety and general welfare of a community as a whole, with the development of collective control over the conditions of employment and manner of living and elementary necessities of the people, there has arisen a need for a technique of adjudication better fitted to respond to the social requirements of the time than the elaborate and costly system of decision provided by litigation in the court of law".

The causes for the growth of administrative tribunals are quite similar to that of delegated legislation. The causes that introduced the phenomenon of delegated legislation include, a) reducing pressure on parliament, b) the subject-matter of modern legislation is highly technical, is not susceptible to discussion in parliament, c) delegated legislation provides a degree of flexibility and d) emergency powers when the parliament is not in session (Phillips, 1973:486). Same were the considerations for the creation of such tribunals.

The social requirements widened the field of state activities thus increasing the volume of litigations in the law courts. The courts with their present size could not cope with a huge number of suits. So the first reason for the establishment of administrative tribunal was to reduce the burden of law courts (Sharma: 443, Tiyagi: 626). Justice A. Hussain, too, has supported the idea of reduction in the workload of law courts. He said, "in order to reduce the burden of the courts there is a tendency to create administrative tribunals on the lines as in France. Such tribunals have been created to deal with problems of civil service and labor in Pakistan (PLD 1977: 12). In this regard Massey (1995:413), also, is

of the opinion that for a long time a search was going on for a mechanism to relieve the courts, including High Courts and the Supreme Court, from the burden of service litigation which formed a substantial portion of pending litigation.

Second reason was the dilatory and costly procedure of the courts. Delay and costs are, still, the problems that have created a sense of distrust in the administration of justice among the litigants. Jain, S.N (1975:328-329) maintained that in civil matters, a case has necessarily to pass preliminary stages such as pleading, counter pleadings and service of process before the start of trial. The delay and costs in civil litigation can further be increased if a party to the suit chooses to appeal against interlocutory orders. Moreover, the finality of judgment remains uncertain till all the stages are exhausted. The execution of decree also involves a number of dilatory processes. The amount of time spent in getting a case is shocking, observed Naik (PLD 1959: 2); a civil suit may go on for years and the aggrieved party, even if successful at the end obtains hardly any worthwhile redress.

In most of the case, therefore, the aggrieved civil servants instead of getting expensive and delayed justice, preferred to bear the injustices of the administrators. The need of the situation, therefore, was to provide the citizens an alternative machinery of cheap and speedy justice. Prof Robson (1951:20) has also advocated the establishment of administrative courts on this ground. In his words, "parliament did not overlook the courts of law, but they found that the possibility of setting up new organs of adjudication that would do the work more rapidly, more cheaply and more efficiently than the ordinary courts."

Third reason was the involvement of highly technical problems in many of the administrative disputes, in the words of Sharma (1958:443), "which were beyond the comprehension of legally trained judges". These technical problems and process required the expert knowledge of technologists, economists and social scientists, observed Tiyagi (624-626).

According to Sharma (ibid: 444), "social interest often requires what has been called 'progressive enforcement' of the social policy and legislation. The ordinary law courts can act only on the

initiative of some private party or applicant and never on their own accord". So the fourth reason was the need for such institution that could detect, investigate and punish the violation of law and regulation, which the public functionaries were supposed to comply with. Administrative Tribunals are in many cases vested with such powers. These are the instruments of 'aggressive enforcement' of the established rules and regulations.

The final and the most dynamic reason for the creation of such tribunals was the imposition of restraints on bureaucratic discretion. In this regard Pound said (1959: 443), "the desirability of having an adequate provisions for judicial scrutiny of administrative determination in order to assure due process of law and to keep administrators not merely within their jurisdiction but also to hold them to the legislative policies in the statutes and to ensure that their determination have an adequate basis in evidence of logical probative force".

Mr. Khan (200: 239) has summarized all the above-mentioned causes in one paragraph, "to add all this work to the task of ordinary courts would cause a breakdown of the court system. The court process is generally elaborate, slow and costly; its defects are also of its merit if the object is to dispense with high standard of justice. But in administering social services the aim is different. Disputes have to be disposed of smoothly, quickly and cheaply. Many of these disputes are better decided by administrative bodies on which technical experts can sit, special forms of tribunals have therefore been devised".

Professor Robson (1951:) expressed the point, which had been made about seventy years earlier by the Doughnomore Committee and adverted to by the Franks Committee in the United Kingdom, as follows:

" the reasons for preferring administrative Tribunals are generally known by now and accepted—speed, flexibility, cheapness to the parties, simple procedure, informality, a knowledge of the subject matter and the need to infuse decisions with public policy to the extent which would be impossible in the courts."

(Mentioned in Sydney's Jurists Conference, PLD, 1967: 64-65)

Yardley's (1981: 163-164) view is very much consistent to that of fore cited authors. He believes that the ordinary

law courts could never cope with administrative litigation even their number is greatly increased. Because the basic requirements in dealing with the problems arising in this whole area of administrative law are speed, cheapness, simplicity and a special aptitude for the particular type of problems.

Franks Committee on Administrative Tribunals and Enquiries, England, had recognized in its report that the requirements in meeting the new social and economic problems raised by the settlement of disputes connected with such manifestations as the welfare state were speed, cheapness, expert knowledge, flexibility and in many cases a degree of informality. The committee found that there were other prime characteristics of these procedures. We will call these characteristics openness, fairness and impartiality (Yardley 1981: 192,). So did say Wade (1982: 777), "Tribunals exist in order to provide simpler, speedier, cheaper and more accessible justice than do the ordinary courts". Zafar (1998: 59-60), too, has mentioned the above elements, which have played their role in the movement of establishing administrative tribunals.

CHARACHTERISTICS OF TRIBUNALS

From functional point of view administrative tribunals are neither exclusively judicial bodies nor exclusively administrative bodies but are some where between the two. Mr. Thakker (1992: 231) has quoted some characteristics which were pointed out by Sir Oliver Franks in his report of 1957, these were the following:

1. Administrative Tribunal is the creation of a statute and thus has statutory origin.
2. It has some trappings of a court but not all.
3. Administrative Tribunal is entrusted with the judicial power of the state and thus performs judicial and quasi-judicial functions, as distinguished from pure administrative or executive functions and is bound to act judicially.
4. With regard to procedural matters the administrative tribunal possesses the power of a court.
5. An administrative tribunal is not bound by strict rules of evidence and procedure.
6. In most of the tribunals the decisions are in fact judicial rather than

administrative because they have to record findings of facts and then apply law to them without regard to executive policy.

7. Most of the tribunals are not concerned exclusively with the cases in which Government is a party; they also decide disputes between parties; e.g. election tribunal, rent tribunal, industrial tribunal etc.
8. Administrative tribunals are independent from any administrative interference in discharge of their judicial and quasi-judicial functions. Wade (1982: 381-82) has also discussed the same points as the characteristics of administrative tribunals.

Whether a body should be deemed to be tribunal or not is a question full of difficulties as the courts have not yet been able to answer this question with a greater amount of certainty. Professor Gupta (1983: 49) concludes that before an authority can be described as Tribunal, it must be established that: (i) it was constituted by the State; (ii) it was invested with some functions of the judicial powers of the State. To the same effect are the observations of Professor Jain (1987: 137) when he says, "To be a Tribunal, a body, besides being under a duty to act judicially, should be one which has been constituted by, and invested with a part of the judicial functions of the State".

Whether a body may be characterized as a tribunal or not, Jain (ibid) thinks, it can be decided by applying several tests. Some of the accepted tests are:

(i) It should be a quasi-judicial body and not merely an administrative one;
(ii) It should have been constituted by the state;
(iii) It should have been clothed with the State's inherent judicial powers; and
(iv) It should possess some trapping of a court.

These criterias are not exhaustive but illustrative and how much each of these, should a body possess before being termed as a tribunal, has been left vague and uncertain.

The principal test which must necessarily be present in determining the character of authority as tribunal is that authority must be empowered of the State's judicial power and the power must have been conferred on it by any statute or statutory rule.

Thus, it can be safely observed that all Courts are tribunals, but all tribunals are not Courts. This position emerges because the word tribunal is of wider amplitude and comprehends within its meaning all the adjudicatory bodies which may or may not derive their authority from the State, but courts are institutions which derive authority from the Constitution or Statute, as the case may be, and all their functions are judicial in nature.

DIFFERENCE BETWEEN COURTS AND TRIBUNALS

It is extremely difficult to define the word 'tribunal'. It is not even the case that all the bodies normally treated as deserving the description 'tribunal' or which perform tribunal-like functions actually bear the name 'tribunal'. Since the Franks Report (1957) the prime function of tribunals has been seen as adjudication and, as a result, tribunals are often compared and contrasted with courts, which also perform primarily this function (Cane, 1992: 325).

Dr Goel (2003: 968) has mentioned some points of difference between the courts and tribunals. He writes, "The main point of difference between administrative adjudication and administration of justice by the courts is that administrative justice is administered by administrative agencies instead of regular courts. The administrative courts follow the principle of natural justice and common good, whereas the courts of law follow the settled principles of law and evidence, the administrative courts are manned by officers belonging to the executive branch, whereas the judges are the members of the judiciary, independent of executive control".

Administrative Tribunals differ from the ordinary law courts in their constitution and the procedure. The tribunals are composed of administrative officials and experts who are not legally trained judges; on the other hand law courts are always presided over by legally trained judges and related to legal fraternity. The procedure of administrative tribunals is simpler and informal as compare to the procedure of courts. The ordinary rules of evidence are not observed in the tribunals as provided in the law of evidence (Qanun-e-Shahadat). The courts are, however, bound to follow the rules of evidence. In tribunals the complainant is not required to be represented by a council. Unlike the courts, facts of a case are quickly elicited

by active questioning and the decisions are speedily reached (Shaikh, 1998: 703; Sharma, 1958: 444).

These bodies are often called 'administrative tribunals' but this does not mean that their decisions are necessarily administrative in a large number of cases the decisions are judicial in nature, in the sense that tribunals have to find facts and then apply legal rules to them impartially and without at times considering executive policy (Khan, 2000: 240). Ordinary courts are dealing with different kind of cases, applying the relevant laws but the tribunals, according to Wade (1982: 780), "are subject to a law of evolution which fosters diversity of species. Each one is devised for the purpose of some particular statute and is therefore, so to speak, tailor-made".

As per the observations of Mahmood (1998: 83-84), "an Administrative Tribunal is not a Court. A Tribunal possesses some of the trappings of a Court, but not all, and therefore, both must be distinguished". He has mentioned some of the distinguishing points, which are as under:

1- A court of law is a part of the traditional judicial system; it derives judicial powers from the State or the King. On the other hand the tribunal is an agency created by a statute and invested with judicial powers. It is, primarily and necessarily, part and parcel of the executive branch of the State.
2- Judges of the ordinary courts are independent of the executive in respect of their tenure, terms and conditions of service, whereas the members of administrative tribunals are entirely in the hands of Executive officials.
3- A court of law is, essentially, presided over by an officer trained in law, but the president and members of the tribunal may not be so trained.
4- In a court of law, a judge must be an impartial arbiter and he cannot decide a matter in which he is interested, but an administrative tribunal may be part to the dispute tob3e decided by it.
5- A court is bound by all the rules of evidence and procedure but an administrative tribunal in not so bound, unless the relevant statute imposes such an obligation.
6- Court decides all the questions objectively on the basis of evidence

and materials produced before it, but administrative tribunal may decide the questions taking into account the departmental policy or expediency and that sense, the decision may be subjective rather than objective.

7- Precedents and principles of resjudicata bind the court of law; they do not strictly bind an administrative tribunal.

ADVANTAGES

According to many writers the system of administrative tribunals is advantageous for ordinary citizens particularly for people in the services of the state because it serves more adequately than any other method. This system has several advantages which have been analyzed as follow:

- The first advantage of administrative justice is that it ensures cheap justice. As against this the litigation in the law courts is costly because in the administrative tribunals very nominal court fee is charged, no stamp fee is required, no lawyer for pleading is necessary and the procedure is so simple that can be easily understood by a layman.
- Secondly the administrative tribunal provides quick justice because its procedure is not lengthy and cumbersome. Oral hearing, abandonment of intricate trial procedure and leaving aside the rules of evidence result in saving of time and quick decision.
- Flexibility is the third worth mentioning advantage of administrative tribunals. The changing society demands, to a great extent a progressive attitude and an adaptation of policies to meet the novel conditions. These tribunals can operate with great flexibility and adaptability than the law courts. Unlike law courts the tribunals are not bound with their previous decisions or with the decisions of any other body. It, certainly, does not mean that they do no honor their own judgments but what it means is that they are at liberty to depart from their previous ruling when it is deemed essential in the light of new facts and in the interest of the public.
- The fourth advantage is the relief to the ordinary law courts. This system provides the much-needed relief to the courts, which are already over-burdened with different types of suits. Many of the disputes that come before the courts are not of very serious nature, the attention of highly paid judges or a guaranteed

elaborate procedure and strict adherence to rules of evidence is not needed. Therefore, for such like cases tribunals are the best-suited places where these can be handled in a simple manner.

- The fifth advantage of administrative tribunals is that individuals possessing special experience and training in particular fields man them. The social and economical fields of the modern era involve great technicalities, it is therefore, imperative for the reasonable solution of the problem and a good decision that the adjudicator must have specialized knowledge.
- Finally, the administrative tribunals, unlike the ordinary courts where the judge cannot travel outside the evidence produced before him, can use information other than the evidence put before him. These tribunals are also investigating bodies, before making decisions they can probe into the questions of fact outside the court. (Sharma, 1958: 451;

Wade, 1982: 779; Tyagi, 1999: 627; Shaikh, 1998: 710) Robson (1951:573) has summarized these advantages in such words, "cheapness and speed with which they usually work; the technical knowledge and experience which they make available for the discharge of judicial functions in special fields; the assistance which they lend to the efficient conduct of public administration; and the ability they possessed to lay down new standards". Neil, Hawke (1996: 67) has observed that cheapness is the first outstanding advantage of tribunals. The main emphasis of this advantage depends chiefly on the comparison of costs for the litigant who has to use the ordinary courts of law. The second advantage is the accessibility. In tribunals there is a great likelihood of relative informality. The proceedings are free from technicalities; hence the hearings are shorter than in the case of full trial before a court of law with a resultant saving of time and money. Tribunals enable a large body of cases to be disposed of efficiently in a way, which is not possible as far as the ordinary courts are concerned.

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COMPARATIVE EFFECTIVENESS OF FORMAL AND NON FORMAL BASIC EDUCATION COMMUNITY SCHOOLS IN KHYBER PAKHTOONKHWA

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ABSTRACT

The study was conducted on "Comparative Effectiveness of formal and non formal basic education community schools in N.W.F.P. The objectives of the study were to compare the cost effectiveness, student's progress, learning and teaching facilities, the enrolment and subjects offered to both types of the schools at primary level in N.W.F.P. Population of the study consisted of the teachers and students of formal and non formal Basic education community schools. Teachers and students in both the systems were taken as a sample consisted of 127 formal teachers, 20 non formal basic education community schools teachers, 200 formal students and 200 non formal basic education community schools students in Dera Ismail Khan were taken on random basis. The validation and reliability of the questionnaires was done through expert and pilot study. Finalized questionnaires were distributed to the students and teachers. Mean and t-test were used for data analysis. The Data received through the questionnaires was tabulated in the form of 3 tables. Significant difference was not found between two types of schools regarding the suitability of the school for learning requirements, availability of the rooms for the students and the type of evaluation i.e. internal evaluation and availability of free books, sufficient number of teachers and teacher's preparation, suitability of building for learning requirements. In this aspect the responses were the same because Ho was not rejected at 0.05 level. On the other hand significant difference was found in students classification, students teachers relations, system of reward and punishment, parental emolument, school admission fees and participation in game and sports, refresh course, teachers appointment, provision of materials, establishment of visits teacher parent council, use of supplementary materials, physical facilities, opportunity of admission, subject opportunities and sports facilities. In all these aspects Ho was rejected at 0.05 level in there aspects.

INTRODUCTION

Education is a lifelong and continued process which takes place in many forms. The formal system cannot meet the requirements of the whole population in the country. The non-formal system of education is to supplement and complement the formal system. Due to low literacy rate in Pakistan, the educationists and policy makers felt burning need for crash programmes. One of these programmes is establishment of the non formal Basic education community schools.

The Prime Ministers Literacy commission in 1995 formulated a project titled "Establishment of 10000 non formal Basic Education Schools" with

the total cost of Rs. 1,263.375 million the project, based on the idea of a home schools to be run through NGOs, was to be implemented within a period of five years. However, the projects suffered due to financial constraints PMLC 2001-2010 (2003,p.43)

Various programs of NFBEC schools were started by Government of Pakistan in order to accommodate the out of school children in to the non-formal basic institutions and make them functionally literate. The prime minister was much in favor of non formal system, therefore the Prime Minister Literacy Commission formulated the project of NFBEC schools and main role was given to NGOs. It was to be implemented in five years, The project is still in process it needs a lot of work to over come the financial and other constraints. Following are some main features of the non formal basic education community schools as discussed by PMLC 2001-2010.

i. The target age group of these basic education community schools is 6 -14 years.
ii. An educated person preferably a trained PTC has to be given the task against a fixed amount 1000 which is now increased up to three to four thousand. Matriculates are to be paid fixed F.A passed teachers Rs. Four thousand and those having highly qualification B.A or M.A are to be paid Rs 5000. Government provides teaching aids to the students like black board. Charts pencils etc.
iii. Similarly learning materials like pencils, books and notebooks are also provided to the students free of cost.
iv. A condensed course is provided which is specially developed for drop out and out of school youth of age ten to fourteen.
v. The final exam of these schools would be administered by the formal district Government set up after completing the course. They would be enrolled in the mainstream.
vi. Accommodation facilities would also be provided by the community free of cost. It may be public places, mosques, community center buildings specified for the social purposes. The building of the existing school can also be used in the evening for drop out and miss out ever possible.

The researcher tried to find out the effectiveness of these NFBEC schools. He made efforts to compare these

schools with the formal schools in so many aspects. There is a need to compare different modes of education not only for children but also for adults. Rumbles and harry, K (1982, p.49) stated that the adults choose distance education rather than conventional forms of education because of social, economic and geographical reasons.

STATEMENT OF THE PROBLEM

The study was to investigate as what system is more effective for students learning than the other one, which one is more economical and in which system qualified teachers are available?

The researcher made efforts for conducting research on this important issue. Pakistan is lagging behind in conducting research particularly in comparison of different modes of education.. This study aimed at" Comparative effectiveness of formal and non formal basic education community schools in N.W.F.P.

OBJECTIVES OF THE STUDY:

1. To compare the cost effectiveness of formal and non formal basic education community schools.
2. To compare the student's progress in formal and non formal basic education community schools.
3. To compare learning and teaching facilities provided to both types of schools.
4. To compare the enrolment and subjects offered to both types of the schools.

SIGNIFICANCE OF THE STUDY:

Education plays a very important role in the development of personality of individual. Educated people can contribute a lot in building of a nation. Education can bring revolution in all aspects of a nation. Every country in the world provides educational facilities to its citizens. To educate the people is one of the basic responsibilities of the state. Both formal and non formal system have their own merits and demerits in providing education to the young ones. The government has given much emphasis to formal education system. However combs, p.et all (1973 P.9) pointed out that system of education has failed to meet the demand of all the people properly. The government spends much of education budget in developmental and non developmental work of formal education system; in spite of much expense on formal education the desired objectives of

education have not been achieved. Keeping in view the need to educate young ones at large rate the government has adopted non formal education system. No doubt the government does not spend much of its money on non formal education system, but one should not be disappointed in this regard. This system can play important role in education of the young ones.

Keeping in view the gap between formal and formal education systems the researcher took initiative to conduct a research on analysis of formal and non formal basic education community schools in N.W.F.P. This study may identify the needs and requirements of both formal and non-formal basic education community systems. This study may facilitate the decision makers, administrators, managers, finance experts, of education department and may bring awareness among the people about formal and non formal basic education community schools. In non formal systems non formal basic education community schools can play a vital role.

Pakistan is a developing country. In Pakistan the literacy rate is very low as compared to other countries in Asia. The lack of education effects the function of all institutions of Pakistan. To educate more people the government of Pakistan has adopted two systems of education. These system are formal and non formal education system.

METHODS AND PROCEDURE OF THE STUDY

The study was mainly related to Analysis of formal and non formal basic education community schools in N.W.F.P. Following main aspects were kept in mind for methods and procedure of the study.

i. Population
ii. Sampling
iii. Description
iv. Administration and scoring of the instrument
v. Description of the relevant statistics for analysis of data.

POPULATION:

The population of the study had two types of students and teachers. These were students and teachers working at formal and non formal basic education community schools in D.I.Khan

SAMPLE:

Five hundred and forty seven teachers and students have been taken as a sample. Twenty (20) formal and twenty (20) non formal basic education

community schools were selected as a convenient sample for the study. Ten students and all the teachers working in every school were selected for the study. The distribution of teachers and students of both systems of formal and non formal basic education community schools in district Dera Ismail Khan was as under.

Respondents	**Formal**	**Non formal Basic Education community:**
Teachers	127	20
Students	200	200
Total	**327**	**220**
Grand total	**547**	

ADMINISTRATION AND SCORING OF THE INSTRUMENTS:

Likert type scale was used for data collection of both type of schools. Likert scale is appreciated by many educators.

Stanley (1981, p.294) has stated that likert scale is most widely used technique for the attitude measurement, on which a statement is followed by the three response continuum. Yes. "No. To some extent" The responses categories may also be five or more than Five Likert scales are easy and flexible than other types of attitude scales. Following procedure was adapted for constructing and administration of the instrument.

For Analysis of formal and non formal basic education community schools 59 items were stated with the help of related literature and experts of social sciences and researchers from different universities.

1 The 59 selected items were sent to 65 experts and researchers in different universities for the reliability of the items.

2 The experts in Gomal University were consulted personally, whereas to the experts from other universities the scale was sent by post. The proper directions were written for selection of a reliable item to the respondent.

3 The responses received were tabulated in the SPSS for reliability/item analysis. A reliable instrument with 34 items was finally selected for administration. The Cronbach Alpha of the scale was 0.892. To show the intensity of the option, the scale was divided into 3 options (1,2, and 3) As per the responses of respondent option "1" means Yes. "2" means to some extent. "3' means No. the scale has clear directions on its first page for the respondent. A copy of the scale can be observed in appendix "A" verbal instructions were also given

where needed

The data collected through questionnaire was analyzed through statistical tools; i.e. t-test and arithmetic mean were used as main statistical techniques for the analysis of formal and non formal basic education community schools.

Table 1; Showing Comparison of Formal and Non Formal Basic Education Community Schools regarding Students related items in the scale.

		Formal Schools			NFBEC Schools				
S:N0	**Item**	**N**	**Mean**	**S.D**	**N**	**Mean**	**S.D**	**t-value**	**p-value**
1	Building for students	127	2.37	.85	20	2.55	.75	-.84	.39
2	Rooms for students	127	2.23	.87	20	2.50	.82	-1.25	.21
3	Students classification	127	1.69	.78	20	1.50	.88	1.00	.31
4	Enrollment of students	127	2.67	.46	20	2.30	.86	1.90	.70
5	Internal and external evaluation	127	2.57	.67	20	2.95	.22	-4.81	.00
6	Students teacher relation	127	2.79	.40	20	2.70	.65	.63	.53
7	Enrollment of students at 5 years	127	2.81	.39	20	1.80	.69	6.34	.00
8	System of reward and punishment	127	2.63	.48	20	2.55	.60	.61	.54
9	Parents invitation	127	2.66	.47	20	2.20	.95	2.12	.04
10	Free books	127	2.92	.39	20	2.95	.22	-.32	.74
11	School admission	127	2.88	.31	20	1.35	.74	9.11	.00
12	Student involved in game and sports	127	1.29	.61	20	1.00	.00	5.30	.00

The above table shows that in 20 formal and 20 NFBEC Schools, there was no significant difference between two types of schools regarding the suitability of the School for learning requirements, availability of the rooms for the students and the type of evaluation i.e. internal evaluation and availability of free book. In these aspects their responses were the same, because H_0 was not rejected at 0.05 level. On the other hand significant difference was found in students classification, students teachers relations, system of reward & punishment, parental emolument, School admission fees and participation in game & sports because H_0 was rejected at 0.05 level in these aspects.

Table 2; showing Comparison of Formal and Non Formal Basic Education Community Schools regarding Teachers related items in the scale.

		Formal Schools			NFBEC Schools				
S:N0	Item	N	Mean	S.D	N	Mean	S.D	t-value	P-value
1	Teacher Sufficient	127	2.25	.76	20	1.90	.96	2.90	.00
2	Sufficient Command	127	3.00	.00	20	3.00	.00	_	_
3	Teacher preparation	127	2.92	.27	20	2.25	.91	3.27	.00
4	Refresh Courses	127	2.61	.78	20	2.90	.44	-2.43	.02
5	Teacher appointment	127	1.37	.78	20	2.85	.48	-11.34	.00
6	Educational administration visiting	127	3.00	.00	20	3.00	.00	_	_

The above table shows that in 20 formal and 20 NFBEC School, there was no significant difference between two types of schools, regarding sufficient number of teachers and teachers preparation. In these aspects the reponses were the same because H_0 was not rejected at 0.05 levels. On the other hand significant difference was found in conducting refresh courses, teachers appointment because, H_0 was rejected at 0.05 level in these aspects.

Table 3: showing Comparison of Formal and Non Formal Basic Education Community Schools regarding items related to infrastructure in both types of schools.

		Formal Schools			NFBEC Schools				
S:N0	Item	N	Mean	S.D	N	Mean	S.D	t-value	p-value
1	Suitability of Building	127	2.43	.75	20	2.75	.55	-1.96	.05
2	Library facility	127	1.09	.29	20	1.00	.00	_	_
3	Provision of Material	127	2.02	.70	20	1.85	.81	1.00	.31
4	Uses of Urdu language	127	2.63	.78	20	1.80	.83	2.25	.02
5	Establishment of P.T.C	127	2.54	.50	20	1.70	.86	4.25	.00
6	Supplementary Material	127	2.41	.56	20	2.05	.82	1.91	.06
7	Parents visits	127	2.89	.30	20	2.60	.68	1.92	.00
8	Physical Facilities	127	2.35	.62	20	2.00	.32	3.88	.02
9	School Location	127	2.66	.47	20	2.25	.71	2.48	.00
10	Availability of furniture	127	2.14	.71	20	1.40	.68	4.39	.11
11	Conducted of Assembly	127	2.92	.39	20	2.75	.44	1.62	.00
12	Time Table	127	3.00	.00	20	2.50	.60	3.68	.00
13	Condition for admission	127	3.00	.00	20	2.95	.22	1.00	.33
14	Opportunity of admission	127	3.00	.00	20	2.50	.51	4.35	.00
15	Subject opportunities	127	3.00	.00	20	2.40	.50	5.33	.00
16	Sports facilities	127	2.15	.91	20	1.15	.48	7.40	.00

The above table shows that in 20 formal and 20 NFBEC schools, there was no significant difference between the two types of school regarding suitability of building for learning requirements. In this aspects the responses were the same because H_0 was not rejected at 0.05 level. On the other hand significant difference was found in provision of materials, uses of Urdu Language, parents visits, establishment of teacher parents council, supplementary materials, physical facilities, school location, availability of furniture, the Conduct of assembly, conditions for admission opportunity of admission, subject opportunities and sports facilities. In all these aspects H_0 was rejected at 0.05 level in there aspects.

RESULTS

Students of non formal basic education community schools were more satisfied with learning requirements as compared

of formal school students. Students in formal system opined that the number of rooms is appropriate, according to the strength of the students, but the students in non formal basic education community schools were not satisfied in this regard. The classification of students in formal schools is done in a more proper way than classification in non formal basic education community schools. Students in formal schools show more regularity in their attendance than Non formal basic education community schools. Students interact freely with their teacher both in formal and non formal basic education community schools.

Reward and punishment exists in both formal and non formal basic education community schools. Parents in both systems are invited in schools. Free books are provided in schools of both formal and non-formal basic education community schools. . Fee is received in formal schools. but non formal basic education community schools do not receive any Fee from students in school. Students in both systems think that the number of teachers is appropriate. Teachers in formal school system have mastery over their subjects as compared to their counter parts in non formal basic education schools. Teachers in non formal basic education community schools make more preparation for teachers in non formal basic education community schools.

Refresher courses for teachers are arranged in schools of both of formal and non formal basic education community schools. All the teachers in non formal basic education community schools are totally appointed on contract basis but a most of the teachers are appointed on regular basis in formal system. Supervision is more regularly conducted in formal schools. In formal schools 8 periods are arranged every day. But in non formal basic education community schools the numbers of period vary. More sports facilities are provided to students in formal schools as compared to sports facilities provided by Non formal basic education schools. The provision of teaching materials for maths and equipment for science laboratory in formal system is better than non formal Basic education community schools. Urdu is medium of instruction in both formal and non formal basic education community schools. Teachers in formal schools system invite the parents of their

students more regularly than teachers in non formal basic education community schools Basic facilities like electricity, Toilet, offices, garden are available in formal school system. Basic facilities like electricity, toilets, office are available in a very few schools in Non formal basic education community schools. Location of formal schools is more appropriate than in Non formal basic education community schools. The availability of furniture in schools of formal system is more appropriate than NFBEC schools. School assembly is more regularly conducted in formal schools as compared to non formal basic education community schools. Students in both systems think that the number of teachers is appropriate.

Teachers interact with parents of students both in formal and non formal basic education community schools. Most of teachers are appointed on the regular basis in formal schools. Admission criteria is flexible in both schools. Students after passing fifth class exam have enough admission opportunities in middle and secondary schools. Subject taught in formal and non formal basic education community schools have equal market value Students' participation in sports activities in formal schools is greater than student's participation in sports activities in Non formal basic education schools.

The school building of non formal basic education community school is more suitable because there are only primary schools students in such schools. The rooms are appropriate in formal education system because their dimension is properly planned before construction.On the other hand there is dissatisfaction over the room in non formal basic education community schools. These schools are opened wherever there are convenient and their structure is not preplanned. The discipline in non formal basic education community schools is flexible therefore the students of these schools are less regular than formal schools. The teachers are appointed on contract basis in non formal basic education community school. Therefore there may be more tendencies towards effective teaching, In formal system most of the teachers are appointed on regular basis and they are more qualified.

The morning assembly is regularly conducted in formal schools while in

non formal basic education community schools, morning assembly is not regularly conducted. Basic facilities like office, electricity, garden, toilets etc. are more available in formal schools, on the other hand the basic facilities are not so much available in non formal basic education community schools. To attract the students, no admission and tuition fee is charged from the students in NFBEC schools, similarly the admission criteria and the timetable is also flexible if compared with formal schools. As for as sports activities are concerned, formal system is better in this regard. The reason may be that there are regular tournaments and the students of different classes are available.

Both the systems have some strength and also some weaknesses. Muhammad (2005) stated that there are two models of education formal and non formal System. They have their own strengths and weakness. Harvey (2005) Non formal education is generally treated as a low priority sub sector with in education. Following are some recommendations to improve both the systems of education.

RECOMMENDATIONS

1. The non formal basic education community schools are confined to elementary education only; these may be extended to the secondary level.
2. The appointment of teachers in the Non Formal Basic Education Community Schools may be made on regular basis.
3. The number of rooms may be constructed according to strength of students in non Formal Basic Education Community (NFBEC) School.
4. The attendance of students enrolled in Non Formal Basic Education Community Schools may be improved and the provision of teaching materials Math's and condition of science laborites in Non Formal Basic Education Community Schools may be improved.
5. Proper evaluation set up may be considered in order to make the system more effective.
6. The new approach of technology may also be utilized in this setup in order to keep it up to date.
7. The provision of sports facilities in Non Formal Basic Education Community Schools may be improved and the participation of students in Non Formal Basic

Education Community Schools may be increased.

8. The teacher interaction with parents in Non Formal Basic Education Community Schools may be improved. The availability of basic facilities like office, garden, toilet etc. may also be improved.
9. For smooth running of the schools school building and structure of class rooms may also be kept in consideration and the finances may be enhanced accordingly.
10. Community support may be involved in non formal basic education community system.
11. Proper curriculum may be developed for effective teacher participation for non for basic education community system.
12. The interaction of students with teachers in Non Formal Basic Education Community Schools may be increased.
13. The system of proper supervision may be initiated to improve the quality of the institutions.

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ROLE OF HEADS OF TEACHING DEPARTMENTS IN THE PROMOTION OF COMMUNICATION AT POSTGRADUATE LEVEL AS PERCEIVED BY TEACHERS

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ABSTRACT

The paper investigates the Role of Heads of Teaching Departments in the Promotion of Communication at postgraduate level as perceived by teachers. Promotion of communication means to what extent the heads communicate with subordinates, superordinates and counterparts. The population of the study constituted all those teachers teaching in universities and postgraduate colleges. Two teachers were randomly selected from every teaching department. Seventy two (75%) universities teachers and 24 (25%) postgraduate colleges' teachers were the respondents of the study. The researcher developed a questionnaire consisting 27 items for data collection. Questionnaire was personally administered by the researcher at local level and mailed to outstation respondents. t-test was used for data analysis. The major findings of the study included: No significant difference was found between the opinions of teachers of postgraduate colleges and universities regarding the role of heads in the promotion of communication at postgraduate level. No significant difference was found between the views of male and female, Ph.D and non Ph.D teachers on the role of heads of teaching departments in the promotion of communication. It is concluded that the heads of teaching departments promotes communication to maximum extent.

INTRODUCTION

Communication plays a very important role in the management of universities and postgraduate colleges in Pakistan. Communication facilitates cooperation and coordination among employees in the institutions of higher education. Effective communication enhances job satisfaction of heads and teachers in institutions of higher education. As Alexander (1996) stated that strong relationship exist between communication climate and job satisfaction of academic department chairs, and that communication climate activities are characterized by mutual influence, openness and free flow of information. Zorn and Violant (1996) pointed out that positive and significant association existed between communication abilities and attainment of organizational rewards.

Effective communication enhances commitment of heads and their subordinates with their institutions. Gorden and Infante (1991) revealed that

less perceived freedom of speech in the workplace resulted in less employees' organizational commitment and satisfaction with their work and supervisor. They (Gorden and Infante, 1991) further stated that employees wish more freedom of speech in the workplace than they presently have. Vertical communication is more strongly related to levels of commitment at both organizational and unit level than horizontal communication (Postmes, 2001). Organizational communication is a critical component of employee commitment to a firm. Positive relationship was observed between effective internal communications and perceptions of the firm (Unzicker et al, 2000). Effective communication enhances output of an educational institution. Clampitt and downs (1993) indicated:

"*Communication was perceived to have impact on productivity that varied in both kind and magnitude. Moreover, a number of intriguing differences emerged between these two companies. The findings suggest that the link between communication and productivity is more complex than previously assumed."*

Trust develops communication between a head and teachers within an educational institution. Effective communication between individuals within an organization is based on a foundation of mutual trust. An atmosphere of trust can eliminate or minimize communication barriers: context-related barriers and content-related barriers within an organization (Phelps and Dufrene, 1989). Innovations can be easily incorporated by effective communication. Monge et al (1993) indicated that communication variables: level of information and group communication were causes of organizational innovation. Johnson et al (2001) revealed that communication variables: quality of communication, interpersonal communication and mediated communication, have both direct and indirect effects on perceived innovativeness. They (Johnson, Donohue, Atkin and Johnson, 2001) suggested that mediated channels could play a critical role in the implementation of management-initiated innovation.

Communication is the exchange of information between a sender and a receiver. It is a link between a man and his role. Communication is the wheel, which administrators use to establish policy and to obtain action.

Communication is the sharing or exchange of thoughts through written, oral or nonverbal means. Brown (1959) defines communication as:

"the process of transmitting ideas or thoughts from one person to another or within a single person for creating understanding in the thinking of the person receiving the communication".

Communication is a method of transferring ideas from one person to another, and then verifying that the ideas have been transmitted (Allen, 1990). To function effectively, managers should know and be able to apply strategically a variety of communication skills that match varying managerial tasks. These tasks might call for nonverbal, presentational, or written skills as the manager meets others, speaks at meetings, or prepares reports to be read by clients or those higher on the organizational ladder.

Lousee (1999) described the following characteristics of communication**:**

- Communication is typified by information transfer.
- Processing takes place in communication systems.
- Both the sender and the receiver are actively involved in a communication system, and
- The quality of communications varies.

The purposes of communication in an organization as stated by **B**askin and Aronoff (1984) are (a) to coordinate actions of the members in an organization **(**b) information sharing and (c) expression of feelings and emotions**.** Staton-spicer and Spicer (1987) described four functions of communication: informative, integrative, regulative and innovative of department chairpersons in their study.

it is generally believed that good workplace communication is of much importance in today's world. Work place communication is usually between management and employees, between individual employees. It can easily come under strain through a lack of good communication skills (Bruce, 2008). To work effectively, managers should know sources of information. Finally, managers should understand the different communication channels available.

The primary methods of communicating in organization are oral and written. Often these methods are combined. Considerations that affect the choice of a method include the audience, the nature

of the message, and the cost of transmission. Oral communication takes place everywhere in an organization. Oral communication takes place in informal conversation, in the process of doing work, in meetings of group and task forces, in formal speeches and presentations. Hopkins (2006) stated that verbal communication could be improved by adopting the communication skills viz: (1) talk to them in their language (2) be prepared to meet and talk face to face with those peers. (3) get to understand their cultures (4) know your audience, and (5) keep smiling. Organizations produce a great deal of written communication of many kinds. A letter is a formal mean of communicating with an individual, generally someone outside the organization. The most common form of written communication in organizations is the office memorandum or memos. They are addressed to a person or group inside the organization, and deal with a single topic. Other common forms of written communication are manuals, reports and forms.

Professional communication can be defined as a functional concept in organizational settings. Its understanding and practice cannot be separated from, and is dependent upon other communication activities in the organization (Ticehurst, 1998). Task significance, team size and the degree of collocation could affect team communication and team performance (Patrashkova-Volzdoska, 2003).

Participative decision making has been considered as communication dimension of managerial climate. Traditionally participative decision making has been conceptualized to include subordinate-superior collaboration, information sharing and problem solving. In organization where subordinates opinions are valued, communication becomes important. When managers invite subordinates to participate in decision making, it is functionalized through communication. Through communication superiors and subordinates define their relationship and negotiate definitions of perspective roles. It is through communication that decision making is shared and influence is shared (Aller and Judd, 2001). Competent communication is essential for creation of organization change and motivation of the constituents of an

organization. Communication is essential for achieving daily goals of an individual in an organization (forward and Czech, 2003). Communication is important for educational leaders and their followers. Effective communication creates an organizational environment in which chief academics officers can need emotional and information support. In effective communication followers are listed to and engage in an active process of role negotiation (Forward and Czech, 2003). Cultural differences which haven been played out in different verbal behaviors and work styles, present intercultural challenges. Individual direct communication and informality are indicated as sources of communication difficulty. Language competence and cultural knowledge are variables which can affect communication in an organization (Kim, 2003). Managers could improve communication in an organization by exercising the following tips:

- Actively seek feedback about your own communication, and communication within the organization.
- Make assessment of your own communication knowledge and understanding.
- Educate your staff members to communicate effectively in the organization.
- Always use direct communication.
- Learn about, and make use of listening techniques (Bacal, 1996).

Communication can be improved with some skills:

- Plan and put ideas in logical sequence.
- Always use clear and concise language.
- Always use positive language.
- In writing a report use short sentences and keeps paragraphs short and snappy.

To make sure that message has been understood, always ask for feedback (Manning, 2008).

Modes of Communication

1. Formal Communication.

Communication through officially designated channels of message flow between organizational positions. Formal communication is strictly adheres to rules, conventions, and ceremony, and is free of colloquial expressions. The different forms of

formal communication include; departmental meetings, conferences, telephone calls, company news bulletins, special interviews and special purpose publications. Communication channels, media through which messages are sent—can have an influence on the success of communication. Typical channels used in business communication are face-to-face conversations, telephone conversations, formal letters, memos, or e-mails. Each channel has its own advantages and disadvantages in communicating a particular message. Communication *channel* is the set of components in the universe that implement the functionality *needed* for the communication process to take place (Losee, 1999). The humorous message may be most effective in a secondary, supportive role with them (Houser et al, 2003). A superior can facilitate more upward communication and open communication with all subordinates irrespective of their relationship quality and cultural background (Abu Bakar et al, 2003). Employees are required to follow a chain of command. There is a hierarchically link between the potential wrong use of managerial authority and prevalence of hierarchical information in organization (Friebel et al, 2001). There are many factors which influence flow of information in an organization. Indoor and outdoor policies of management influence communication in an organization. The wage structure, the effectiveness of recruiting good line managers, the monitoring of personnel decisions and job design, affect the firm's optimal level of openness of communication (Friebel, 2001). Superiors should possess the following communication competences for successful interaction with their employees.

1. Awareness of their own culture and communication characteristics.
2. Knowledge of the culture and communication styles of their employees.
3. The ability to value culture and communication diversity as assets for the organization.
4. To understand and manage the socio cultural, socioeconomic and sociopolitical situation of the country culture affecting the communication styles of the employees.

To possess an intercultural communication style to be able to interact successfully with employees from different cultural backgrounds and communication styles (varona et at, 2006).

1.1 **Vertical Communication**

Information is the lifeblood of every organization. Successful educational managers communicate downward communication with subordinates, upward with high ups, and horizontal with peers in their institutions. Getting a task done requires decentralization. Obtaining the resources to do that job, letting others know what is going on, and coordinating with others are also crucial skills. These skills keep the organization working, and enhance the visibility of the manager and her division, thus ensuring continued support and promotion**.**

Downward communication is more than passing on information to subordinates. It involves effectively managing the tone of the message, as well as showing skill in delegation to ensure the right person does the job effectively. In upward communication, tone is even more crucial, as are timing, strategy, and audience adaptation.

1.2 **Horizontal Communication**

In horizontal communication the heads of teaching departments transmit messages with their counterparts. Horizontal communication facilitates problem solving, information sharing across different work groups, and task coordination within an organization.

2. Informal Communication

Informal communication does not reflect officially designated channels of communication. Informal communication emerges from social and personal interests of the employees rather than formal requirements of the organization. Informal communication is necessary for organizational life. The grapevine is the confidential communication network that quickly develops within an organization. It supplements the formal channels. It follows relationship and networking patterns within and outside the organization, rather than the formal, rational ones imposed by the organizational hierarchy.. Informal communication facilitates organizational members in learning about each other and their work. It facilitates both production work and the social relations that underlie it. “informal

communication brings collaboration and coordination in an organization" (Kaurt et al, 1990). Informal communication is spontaneous, interactive and rich. The essence of informal communication systems is their lack of pre specification. Information is not prepackaged, and is often exchanged interactively through meetings and conversations. Courses of actions are not computed and then executed without information. Courses of actions are worked out in the context of situations in to which the actions must fit. Informal communication is unscheduled. There in no arranged agenda in informal communication. It is interactive communication. The content of informal communication is often rich, and the language is informal. Informal communication is distance sensitive. Informal conversations tend to be shorter than more formal communication (Kaurt et al, 1990). Suppression of informal communication opportunities between members of the remote collaboration had a negative effect on the work of these collaborators (Kaurt et al, 1990).

the study is to explore the role which the heads play in the promotion of communication in universities and postgraduate colleges as perceived by teachers.

Methodology of the Study

It was a descriptive study. The population of the study constituted all those teachers teaching at postgraduate level in N.W.F.P, Pakistan. The sample consisted of 96 teachers (24 postgraduate and 72 universities teachers) from five postgraduate colleges and three universities. The researcher randomly selected two teachers as respondents from every teaching department of postgraduate colleges and universities. The researcher developed a 27 items questionnaire for the data collection. The researcher studied relevant literature for development of questionnaire. Research supervisor and experts in social sciences were consulted for the sake of validation of the scale. For reliability a dry run of the scale was conducted. Cronbach' alpha was 0.937. Questionnaire was personally administered by the researcher at local level and mailed to outstation respondents. T-test was utilized as a statistical technique for data analysis.

RESULTS

Table 1 Comparison of the Opinions of Postgraduate Colleges and Universities Teachers on The Role of Heads in the Promotion of Communication

Respondents	Strength	Mean	SD	Df	Calculated value of t-test	Tabulated value of t-test
Postgraduate colleges' teachers	24	102.958	18.65	94	0.1155	1.99
Universities' teachers	72	103.527	21.579			

Table 1 shows that calculated value of t-test is 0.1155 is less than tabulated of t-test 1.99, means that no significant difference exists between the opinions of postgraduate colleges and universities teachers on the role of heads in the promotion of communication in postgraduate colleges and universities.

Table 2 Comparison between the views of male and female teachers regarding the role of heads in the promotion of communication

Respondents	Strength	Mean	SD	Df	Calculated value of t-test	Tabulated value of t-test
Female teachers	19	99.684	24.479	94	0.831	1.99
Male teachers	77	104.1428	19.99			

Since calculated value of t-test 0.831 is less than tabulated value of t-test 1.99, means that there is no significant difference between the opinions of male teachers and female teachers regarding the role of heads in the promotion of communication.

Table 3 Comparisons between the views of ph.d and non-ph.d degree holder teachers

Respondents	Strength	Mean	SD	df	Calculated value of t-test	Tabulated value of t-test
Ph.D	16	105.437	21.596	94	0.394	1.99
Non Ph.D	80	103.162	20.961			

The above table shows calculated value of t-test 0.394 is less than tabulated value of t-test 1.99, means that no significant difference exist between the opinions of Ph.D and non Ph.D teachers on the role of their heads in the promotion of communication at postgraduate level.

CONCLUSION

No significant difference between the views of postgraduate colleges' teachers and universities teachers on the role of heads in the promotion of communication. Male and female teachers have the same views about the role of heads in the promotion of Communication. Insignificant difference was found between the opinions of Ph.D

and Non-Ph.D degree holder teachers on the role of head in the promotion of communication. The main conclusion of this study is that role of heads is positive in all aspects of communication as perceived by teachers.

DISCUSSION

The role of heads of teaching departments is very important in the promotion of communication at postgraduate level. An educational institution cannot be operated without an effective communication. Universities and postgraduate colleges are the institutions of higher education. Teaching departments are the units of these institutions. Chairman/chairperson is the heads of a department. The management of these departments are more complicated than other educational institutions. Communication is the essence of management of these departments. Therefore, the researcher was interested to investigate the role of heads of teaching departments in the promotion of communication. The researchers heavily searched the literature. The researcher failed to directly quote any single study in this regard. The study explored new area of research for other researchers. The heads provide teachers with all relevant information. They provide teachers with opportunities to have interaction with them. Humans are attracted to others with whom they share similar characteristics such as attitudes, beliefs, values and personality traits. Extroverts should produce greater communication accuracy than introverts. High extroverts are more effective communicators than low extroverts (Dugas et al, 2003).The heads of teaching departments communication with all teachers openly. The results show that teachers were of the view that their heads promote communication in all aspects. Insignificant difference was found between the opinions of universities and postgraduate colleges' teachers regarding the role of heads in the promotion of communication. The reasons of insignificance may be:

- The channels of communication are the same for teaching departments of both universities and postgraduate colleges.
- The duties and responsibilities of the heads are the same in both institutions.
- The leadership styles of the heads of departments are democratic in both

universities and postgraduate colleges.

Male and female teachers have the same views about the role of heads of teaching departments in the promotion of communication. The insignificance intensifies the idea that the heads of teaching departments do not believe in gender disparity. Male and female teachers are equally treated in sharing of information. No significant difference was found between the opinions of teachers having Ph.D qualification and those they do not have. This means that qualifications do not affect the opinions of teachers regarding the role of heads in the promotion of communication. It is concluded that the role of heads of teaching departments is positive in promotion of communication in all aspects.

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Appendix A

Questionnaire Specimen
QUESTIONNAIRE FOR TEACHERS

Name of the college/university _____
Name of the department _____
Designation _____
Professor _____ Associate Prof _____
Assistant Prof. _____ Lecturer _____
Qualification _____
Ph.D _____ M.Phil _____
Master _____ Age _____ (In Years)
Sex _____ Male _____ Female _____
Length of Service in the present department _____ in Years).

Note: "A" stands for Always, "F" for Frequently, "O" for Occasionally, "S" for Seldom, "N" for Never. Please (√) tick the most appropriate answer,

S.No	Statements	A	F	O	S	N
1	He/she calls meetings of teachers.					
2	He/she likes to distribute agenda of the meeting in advance.					
3	He/she makes every effort to provide favorable environment for faculty meetings.					
4	He/she provides information regarding rules and regulations governing service of the employees in staff meetings					
5	He/she notifies whatever is related to the faculty.					
6	He/she keeps aware his/her colleagues about the decisions taken in the meetings of the heads of teaching departments.					
7	He/she shares information received from the high-ups with teachers.					
8	He/she provides opportunity to discuss various issues with his/her colleagues.					
9	He/she seeks views of the teachers on different issues.					
10	He/she does not call teachers to discuss any particular issue with him/her.					
11	He/she encourages teachers to communicate whatever they want to communicate.					
12	He/she does not keep channels of communication open.					
13	He/she uses both formal and informal ways of communication.					
14	He/she favors establishing effective channels of communication with all concerned.					
15	He/she listens to his/her colleagues whenever they have something to discuss it with him/her.					
16	He/she invites all concerned to give him/her feedback.					
17	He/she allows faculty members to meet and discuss their problems with him/her.					
18	He/she hesitates to initiate dialogues with his/her colleagues.					
19	He/she conceals information from his/her fellows.					
20	Participation of staff members in framing institutional plans is invited by him/her.					
21	He/she conveys suggestions of his/her colleagues to high ups.					
22	He/she keeps authorities informed of his/her colleagues' performance.					
23	He/she does not exchange views with his/her counterparts about the promotion of educational activities.					
24	He/she lets his/her colleagues to seek information from every source.					
25	He/she believes in free and frank discussions on every matter related to educational enterprise.					
26	He/she minds when someone is communicating something to him/her.					
27	He/she believe in providing fair chance of participation to every member in group discussion.					

DEVELOPMENT OF A VALID AND RELIABLE INSTRUMENT FOR THE ASSESSMENT OF INSTRUCTIONAL LEADERSHIP OF SECONDARY SCHOOL HEADS

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ABSTRACT

The present study was designed to develop a valid and reliable instrument for assessing the instructional leadership of school head at secondary school level. A pool of items was picked by examining the existing literature of instructional leadership. The items were then scrutinized and validated by experts in the field of education. After receiving appropriate validation the instrument was administered to public school teachers at secondary school level in district Dera Ismail Khan of the province Khyber Pakhtunkhwa. A total of 64 working teachers at secondary school level participated in the study. A 30 item instructional leadership scale was finalized after getting its reliability. The outcomes of the reliability analysis for item total correlation ranges from .40 to .85; inter scale correlation ranges from .64 to .84, while the magnitude of Cronbach alpha varies from .83 to .88 between the domains and for all 30 items this value is 96.

INTRODUCTION

Head of a school is time and again considered as a basic source for teachers' supervision, as he is most experienced one in the school. But how actually he provides assistance to teacher is a question to investigate. (Panah, 2008) argued that "Principal is regarded as the top leadership position holder in the school, who is responsible for all that, happens in the school".

As the quality of teaching is influenced by many factors and one of them is principal guidance. An important constituent of instructional leadership is supporting and judging teachers. (Danley & Burch, 1978) assumed that those principals are good at their job, which make frequent visits to classrooms and provides complete clue for improving the quality of instruction. (Hope, 1999) suggested that Principals can strengthen this aspect by visiting teachers' classrooms regularly and providing them constructive feedback.

Head of a school can set the base to promote quality teaching in schools by carrying out the strong instructional leadership measures, helping teachers to continue high standards of teaching. (DeBevoise, 1984) suggested that instructional leadership meant "Those actions that a Principal takes, or delegates to others to promote growth in student learning".

The major objective of instructional leadership is to make better the teaching and learning in the school. (Blase & Blase, 1999) Categorize the characteristics of instructional leadership

in their Reflective-Growth model. These characteristics comprises of encouraging teaching and learning, supporting teacher teamwork, and building up coaching relationships. The authors also emphasized that the instructional leader have to hold effective practices in curriculum, instruction, and assessments. He or she must have the skills to work with teachers daily on difficulties related to teaching and learning. (Edmonds, 1980) in the effective schools research described the instructional leader as the Principal, who gives attention to quality of learning and teaching in the school. (Louis and Miles, 1991) documented eight fundamental instructional leadership behaviors pertinent to instructional enhancement: (a) make frequent classroom visits, (b) encourage discussion of instructional matter, (c) minimize interruptions, (d) focus test results, (e) discuss how instruction affects achievement, (f) carefully observe students' advancement, (g) communicate instructional targets, and (h) protect the faculty from external pressure.

Teaching quality can also be builds up when principals creates conditions that promote teacher learning. Such actions include arranging regular staff meeting for teachers to plan instruction and suggestion on their practices.

(Youngs & King, 2002) also concluded that "effective principals can maintain high levels of capacity by establishing trust, creating structures that promote teacher learning".

Instructional leadership covers those measures that a principal takes to improve student learning.

The Head of institution builds up a vision for the school as well, which reflects an image of the school i.e. how well this school perform in the days to come? Principal outline the targets for school that fulfill the academic requirements of the students, but he has to share it with his staff members to achieve the maximum outcomes. As an instructional leader, the head of school has an extensive influence over the school success, chalk out the school improvement plans, set up a learning environment, look for partnership with society, and make available various types of resources to assist teaching and learning.

Statement of the problem

This study was carried out to develop a valid and reliable tool for judging the

instructional leadership of school head at secondary school level in the province of Khyber pakhtunkhwa.

Objectives of the study

Following were the major objectives of this study

- To develop a valid and reliable tool for measuring instructional leadership.
- To find out the reliability of the instructional leadership Questionnaire.
- To determine the validity of the instructional leadership Questionnaire.

Reliability and validity of Tool

An instrument may be reliable, but it cannot be valid without being reliable, thus reliability is essential but not sufficient condition for validity (Germuth,n.d).

There are multiple types of reliability and validity. Validity is the degree to which a tool actually measures the variables it claims to measure (Brog, 1995); he further identified five kinds of the validity which are: content validity, predictive validity, concurrent validity, construct validity, and face validity.

Content validity is the measure to which items on a tool represent the content that the tool is designed to measure. It is not a statistical estimate; only a matter of specialists' judgment.

Predictive validity is the measure to which the predictions made by a tool are verified by the later on actions of the subjects. Concurrent validity of a test is established by comparing scores on a test with those obtained on another test of established validity.

Construct validity is the degree to which a particular test can be shown to measure a hypothetical construct, while Face validity is concerned with the degree to which a test appears to measure what it claim to measure.

Reliability is concerned with the level of internal consistency of the measure, or its stability over time. The reliability of educational measure is usually expressed as a coefficient that indicates the degree of relationship between two set of scores obtained from the same subjects under different conditions. Reliability coefficient varies from 0, which indicates no reliability while 1, indicates perfect reliability. The closer the reliability coefficient to 1, the more the tool is reliable.

PROCEDURE FOR THE DEVELOPMENT OF TOOL

The researcher carefully examined and scrutinized the statement available in the existing literature (Blase & Blase, 2004), (Glanz, 2004), (Hallinger P. , 2003), (Quinn, 2002), (Brailsford, 2001), (Blase & Blase, 1999), (Hallinger & Heck, 1996), (Nyland, 1996), (Sheppard, 1996), (SMITH & PIELE, 1996), (Heck, 1992) and made them in accordance to local setting.

The items were written to be meaningful and used standardized language rather than specific terminology or words.

For this purpose initially 70 statements were identified by the researcher and compile them in a logical sequence and sent to 20 experts of the field for content validation.

These experts includes working experienced teachers, retired school Principals, teachers of institute of education and research, Ph.D scholars and the trainers in the field of education.

The following questions were also asked by them

- Check the item if it best fit to the Pakistani context
- Identify the item which repeats the concept
- Suggest any changes in the item of the questionnaire

13 statements were dropped because majority of the expert considered them that they do not best fit in our existing education setup and 7 more were dropped as they were repeating the concepts. 13 more statements were dropped as they do not receive a consensus of more than 60% of the experts. 8 statements were re written. The format of the questionnaire was also discussed.

The next stage was to categorize these items in to suitable domains and organized items in to five domains. Again researcher took the help of active researcher in the field of education and a panel of three researchers gave their opinion on each statement. Based upon their judgments five dimensions of instructional leadership were derived. These domains were identified as

- Establishing Educational Objectives
- Creating Learning atmosphere
- Protecting Instructional time
- Supervising and Monitoring the Progress
- Promoting Professional development

After identification of domains the researcher put the statements into these

domains. These statements were composed on a five point likert scale starting "Never", "Seldom", "Occasionally", "frequently" and "Always". The score varied from 1 to 5. Demographic information concerning age, gender, qualification, total experience as a secondary school teacher and number of years working with present school head were included. Only 37 out of 70 items were clearly categorized in to ***the*** domains.

Translation of the tool

The questionnaire was also translated into Urdu language for the ease of respondents who are more familiar to Urdu than English language. This translation was made by the researcher with the help of two other active researchers and research supervisor, who had command over both the languages as well as content knowledge. Changes were made wherever required.

Pilot testing of the tool

The data collected for this specific study was from district Dera Ismail Khan. All the secondary school teachers teaching to secondary classes in district Dera Ismail Khan were the population of the study.

For pilot testing the researcher sent the questionnaire to the randomly selected 80 senior teachers of the secondary schools in the district Dera Ismail khan. The contributions of sample teachers were 20 teachers from each stratum i.e. rural, urban, male, and female.

Procedure of data Collection

The researcher distributed instructional leadership questionnaire by visiting each school in the morning and requested secondary school teachers to fill it and submit to the clerk office of the school. Next day researcher collected the questionnaires from the clerk of the school.

A total of 64 senior working teachers responded to the questionnaire. The response rate was 80 % and the contribution of stratum ware 19 male urban, 18 female urban, 15 male rural and 12 female rural teachers.

Statistical treatment of data

The obtained data was then put in to the statistical package SPSS version-16. Score of each item was entered followed by entering score for each domain. Item total correlation, inter scale correlation and Cronbach alpha were computed to measure the reliability of the instrument. The frame work for instructional

leadership instrument was consisted of 37 items organized in to five domains i.e. Establishing Educational objectives, creating learning atmosphere, protecting instructional time, supervising and monitoring the progress and promoting the professional development of teachers.

RESULTS AND DISCUSSIONS

This section of the paper presents the results obtained from the relevant statistical analysis.

Factor Analysis

The construct validity of the Instructional leadership questionnaire was analyzed by means of factor analysis. Those items who did not fall within satisfactory parameter (<.40) were excluded from further analysis. As (Nunnally, 1978) suggested a cutoff of .40 to determine the number of items to retain in a specific factor (cited in Clark, 2005, p. 78).

Principal component factor analysis and varimax rotation method was used to extract five factors. 7 items were discarded; they did not strongly load on the factors greater than .40.

Table 1
Item Total Correlation of the Instrument

Item	Total score	Item	Total score	Item	Total score
1	.47**	11	.44**	21	.53**
2	.54**	12	.45**	22	.51**
3	.47**	13	.69**	23	.79**
4	.59**	14	.63**	24	.53**
5	.61**	15	.42**	25	.40**
6	.50**	16	.46**	26	.52**
7	.49**	17	.45**	27	.45**
8	.60**	18	.79**	28	.60**
9	.57**	19	.85**	29	.54**
10	.47**	20	.43**	30	.48**

****P<.01 level (2-tailed)**

Table 1 depicts that all the items are significantly correlated with the total score of instructional leadership. The value of R ranges from .40 to .85, which clearly shows that the items are consistent with the total score of the instructional leadership. It also verifies the construct validity of the instrument.

Table 2
Inter scale correlation of Instructional Leadership Instrument

Domains	1	2	3	4	5
1. Establishing Educational Objectives					
2. Creating Learning atmosphere	.84**				
3. Protecting Instructional time	.64**	.76**			
4. Supervising and Monitoring the Progress	.66**	.70**	.69**		
5. Promoting Professional development	.81**	.83**	.69**	.77**	
Total	.92**	.92**	.90**	.90**	.91**

**** P< 0.01 level (2-tailed)**

Table 2 illustrates the inter domains correlation between the domains of Instructional leadership as well as with the total score of the instrument. It

clearly shows that all the domains of the instrument are significantly correlated with each other as well as with the total score of the instrument.

Defining mission and vision and creating learning atmosphere have highest correlation (.84), while protecting instructional time and defining mission and vision have lowest correlation (.64).

Table 3

Cronbach Alpha reliability of Instructional leadership Instrument

Domains	Items	Alpha Value
Establishing Educational Objectives	*6*	.87
Creating Learning atmosphere	6	.85
Protecting Instructional time	6	.83
Supervising and Monitoring the Progress	6	.87
Promoting Professional development	6	.88
Total	30	.96

Cronbach alpha reliability of the instrument ranges from .83 (Protecting Instructional time) to .88 (Promoting Professional development) between the domains, while this value for the all 30 items is .96.

DISCUSSION

(Gliem & Gliem, 2003) concluded that when using Likert-type scale it is essential to compute and illustrate Cronbach's alpha coefficient for internal consistency reliability for any scales or subscales one may be using. Cronbach's alpha value in general varies from 0 to 1. However, the value of the Cronbach's alpha is closer to 1 the higher the internal consistency of the items in the scale. The Cronbach alpha reliability of the above instructional leadership instrument ranges from .83 (Protecting Instructional Time) to .88 (Promoting Professional Development) for subscales and for the whole scale this value is .96.

According to rule of thumb if the Cronbach alpha value for the tool falls .81 and above then its reliability is said to be excellent (Landis and Koch,1977; Fliess, 1981; Field, 2005) as cited in (Bhutta, 2006, p. 102) (George & Mallery, 2003). So, it illustrates that instructional leadership instrument is highly reliable.

The inter-rater reliability of the instrument of teachers' responses varies from .64 to .84. All the subscales are above the value of .60. (Hallinger P. , 1983) conducted reliability analysis of the Principal Instructional Management Rating Scale (PIMRS) by setting a minimum standard of .60 for each of the subscales. He also recommended these criteria for assessing the reliability for subscales.

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QUESTIONNAIRE FOR TEACHERS

1. Name of School _____
2. Location of School ☐ Rural ☐ Urban
3. Name of teacher (optional) _____ 4. Age _____ years
5. Gender of teacher ☐ Male ☐ Female
6. What is your highest Qualification (Please tick)

   ☐ ☐ B.A B☐Sc ☐ M.A ☐ M.Sc M.Phil

   ☐ B.Ed ☐ B.S.Ed ☐ M.Ed
7. Total experience as a secondary school teacher _____ years
8. Experience with the present head of institution _____ years

Note: *Please read the following statements carefully and tick (√) that best describe your opinion. The criteria for ticking the statements are as follows.*

Always (5) Frequently (4) Occasionally (3) Seldom (2) Never (1)

S. No	STATEMENT	Always	Frequently	Occasionally	Seldom	Never
The Head of Institution:-						
	Establishing Educational objectives					
1	calls staff meeting to set academic targets	5	4	3	2	1
2	assigns duties to teachers in accordance with educational objectives of school	5	4	3	2	1
3	makes plan for improving educational standard of the school	5	4	3	2	1
4	consults teachers on subject interest for planning school time table	5	4	3	2	1
5	holds discussion about academic progress of students in the staff meeting	5	4	3	2	1
6	develops collective vision for school by involving staff members	5	4	3	2	1
	Creating Learning Atmosphere					
7	gives enough autonomy to teachers in instructional work	5	4	3	2	1
8	develops positive working relationship among teachers	5	4	3	2	1
9	honors teachers' opinions and ideas	5	4	3	2	1
10	encourages teachers for their innovative approaches in teaching	5	4	3	2	1
11	appreciates teachers for their work related to student engagement	5	4	3	2	1
12	helps teachers to solve their teaching problems	5	4	3	2	1
13	**Protecting Instructional Time**	5	4	3	2	1
	does not interrupt teachers while they are engaged in teaching					
14	makes an alternative arrangement for class when a teacher is late/or on leave	5	4	3	2	1
15	implements school rules for the effective use of time allocated to instruction	5	4	3	2	1
16	discusses class room activities with teachers	5	4	3	2	1
17	readily available to teachers for discussing matters dealing with instruction	5	4	3	2	1
18	limits the interruption of extra and co-curricular activities on instructional time	5	4	3	2	1
19	**Supervising and Monitoring the Progress**	5	4	3	2	1
	evaluates the teaching according to syllabus break up					
20	visits classrooms to monitor teaching learning process	5	4	3	2	1
21	provides constructive feedback to teachers after classroom observation	5	4	3	2	1
22	shares teaching strategies with teachers for improvement of instruction	5	4	3	2	1
23	observes teachers' lesson planning and use of Audio Visual Aids	5	4	3	2	1
24	cheeks test results of students for their learning outcomes	5	4	3	2	1
25	**Promoting Professional Development**	5	4	3	2	1
	nominates teachers for in-service training on need basis, whenever program is available					
26	encourages teachers to improve professional qualification	5	4	3	2	1
27	guides teachers to improve their teaching skills	5	4	3	2	1
28	encourages collaborative learning among the teachers	5	4	3	2	1
29	discusses matters of professional development whenever he/she meets teachers	5	4	3	2	1
30	supports teachers for use of skills acquired during in-service training	5	4	3	2	1

VIEWS OF THE SECONDARY SCHOOL TEACHERS ABOUT COMPOSITE AND BY PARTS EXAMS AT SECONDARY LEVEL IN KPK

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ABSTRACT

The purpose of the study was to know the opinions of secondary school teachers about the examination system at secondary level in N.W.F.P. It was carried out through a survey. The population of the study was both urban and rural secondary school teachers. A self-developed questionnaire consisted of twenty four items was used as a research instrument for data collection. The content validity of the instrument was obtained through its review by the teachers of Gomal University D.I.Khan. One hundred secondary school teachers were randomly selected as subjects of the study. Majority of the teachers were of the view that the composite exam is burden for students having irregularities in it and does not properly evaluate students' achievements. Most of the teachers opined that composite exam encourages the selected study and they do not teach least important chapters. Many of the respondents were of the view that students have to work regularly for by part exam and its revision can easily be done and the teacher has to cover the whole course.

INTRODUCTION

Iqbal (1967) describe “examinations are conducted to test the ability of a student and find out if he has reached a certain standard of academic learning and knowledge”

Examination tends to checks whether the prescribed objectives are obtained or not. Whether the students have grasp full command over the contents of education or not? Whether the selected methods of teaching are fully worked out or not? Thus the examination system remained an integral part of our teaching learning process.

According to Broadfoot (1985) examinations are more or less formalized procedure usually separated from the class room procedure. The candidate who passes the examination is awarded a certificate or diploma which gives him some right to be admitted to higher types of education. Educational assessment can be both formative, that is during the course of education and summative, conducted at the end of a stage of education, examinations are normally concerned with summative assessment.

Examinations are related to three different functions

(i) Certification (attesting to be the attainment of a particular standard)
(ii) Predication (probable future performance)
(iii) Evaluation (overall standard of a group of pupils)

They scrutinize and measure the standard capabilities against a required standard, and determine his skill in answering a question under the conditions imposed by the examiner. The Secondary School Certificate (SSC) Examination is the first in the hierarchy of public examinations in Pakistan. It is held after 10 years of schooling. It is considered as the terminal school exam. Composite exam of IX and X classes had been taken up to years 2002. In 2002 it was decided that since now Secondary School Certificate (SSC) exam, will be conducted in two parts, SSC part I at the end of grade IX and SSC part II at the end of grade X. The SSC certificate is issued on the successful completion of both parts, but two elective subjects for example for a science student that is biology and chemistry will be taught and examined in IX class while mathematics and physics will be taught and examined in X class. But after one year division of course instead of division of subjects was implemented. For example if there are 20 chapters in a subject. 10 of them were to be taught in IX class while the remaining in the X class. After three years it was again decided that secondary level exam will be taken in a combined form from year 2007. But later on again it was decided that from year 2008 it will be taken as by parts. Both the systems are tried in their merits but still the situation is not clear which one will be adopted. Both the systems have merits and demerits but their success or failure depends upon the peoples who initiate the system. Teachers are the best judges who check many of the inputs and outputs of education.

A good and objective system of evaluation is a clear indicator to determine the extent of the effectiveness and efficiency of educational activities.

Objectives of the Study

Following were the main objectives of the study

To analyze the merits and demerits of composite exam

To investigate the merits and demerits of by parts exam

To know the opinions of the public secondary school teachers about composite exam

To compare the views of the public secondary school teachers regarding composite and by parts exam

Methodology of the study

The study was carried out through a survey. All the public secondary school teachers who were teaching to IX & X classes were the population of the study.

The study was delimited to 20 public secondary schools in district Dera Ismail Khan. 10 urban secondary schools (5 boys & 5 girls) and 10 rural secondary schools (5 boys & 5 girls) were randomly selected. Five teachers teaching secondary classes were selected from each school. The total no of respondents were 100 teachers. A self-developed questionnaire consisted of twenty four items was used as a research instrument. The content validity of the instrument was obtained through its review by the teachers of Gomal University D.I.Khan.

Findings

Table 1 Urban Secondary School Teachers Views about Composite Exam at Secondary Level in N.W.F.P

S.No	Item	Male		Female	
		Yes Responses	*No Responses*	*Yes Responses*	*No Responses*
1	The students have low ability to cover long course	79 %	21 %	72 %	28 %
2	A single paper is not enough to cover the whole subject	85 %	15 %	87.50 %	12.50 %
3	Teachers do not teach less important chapters	73 %	27 %	62.50 %	37.50 %
4	Depends upon the memory of the students	70 %	30 %	81 %	19 %
5	Students feel burden in composite exam	87 %	13 %	87.50 %	12.50 %
6	Most of students get tuition	52 %	48 %	81 %	19 %
7	More irregularities are observed	76 %	24 %	62.50 %	37.50 %

Table 1 shows that 79 % male and 72 % female urban secondary school teachers were of the view that students have low ability to cover the two year course for composite exam. As many as 85 % male and 87.50 % female urban teachers opined that a single paper in which only five questions are to be attempt is not sufficient to judge the students abilities. Up to 73 % male and 62.50 % female secondary school teachers responded that by only teaching some chapters their students are able to pass the exam so, they do not teach the less important chapters to the students. Up to 70 % male and 81 % female teachers were of the view that composite exam mainly depends upon the memory of the students.

As many as 87 % male and 87.50 % female urban secondary schools' teachers were of the view that students feel burden in composite exam.52 % male and 81 %

female urban secondary school teachers were of the view that students gets tuition to pass the composite exam. Up to 76 % male and 62.50 % female teachers were of the view that more irregularities were observed in composite exam.

Table 2 Rural Secondary Schools' Teachers Views about Composite Exam at Secondary Level in N.W.F.P

S. No	Item	Male		Female	
		Yes Responses	*No Responses*	*Yes Responses*	*No Responses*
1	The students have low ability to cover long course	78 %	22 %	76 %	24 %
2	A single paper is not enough to cover the whole subject	83 %	17 %	71 %	29 %
3	Teachers do not teach less important chapters	71 %	29 %	67 %	33 %
4	Depends upon the memory of the student	69 %	31 %	79 %	21 %
5	Students feel burden in composite exam	87.50 %	12.50 %	77 %	23 %
6	Most of students gets tuition	67 %	33 %	71 %	29 %
7	More irregularities are observed	82 %	18 %	72 %	28 %

Table 2 indicates that as high as 78 % male and 76 % female rural secondary school teachers hold the views that two year course is not according to the mental level of the students. Up to 83 % male and 71 % female teachers consider that a single paper is not enough to cover the whole course of a subject. 71 % male and 67 % female rural secondary school teachers were of the view that they do not teach those chapters which are not important from examination point of view. Up to 69 % male and 79 % female rural secondary school teachers hold the opinions that composite exam mainly depends upon the memory of the students. 87.50 % male and 77 % female rural secondary teachers observed that students feel burden in composite exam. Up to 67 % male and 71 % female teachers perceive that most of the students get tuition. As many as 82 % male and 72 % female teachers noticed that more irregularities are observed in composite exam.

Table 3 Urban Secondary School Teachers Views about By Parts Exam at Secondary Level in N.W.F.P

S.No	*Item*	*Male*		*Female*	
		Yes Responses	*No Responses*	*Yes Responses*	*No Responses*
1	Students have to work regularly	79 %	21 %	89 %	11 %
2	Revision of course can easily be done	67 %	33 %	78 %	22 %
3	Co curricular activities of students are limited	45 %	55 %	25 %	75 %
4	Teacher has to teach the whole course	85 %	15 %	87.50 %	12.50 %
5	Parents consider further financial burden	45 %	55 %	37.50 %	62.50 %
6	By part exam is not more than a fatigue	18 %	82 %	19 %	81 %
7	Students can get higher marks	58 %	42 %	74 %	26 %

Table 3 shows that 79 % male and 89 % female urban secondary school teachers observed that students have to work regularly for by parts exam. As many as 67 % male and 78 % female teachers opined that revision of course can easily

be done in by parts exam. 45 % male and 25 % female urban secondary school teachers thought that co curricular activities of students become limited. As high as 85 % male and 87.50 % female teachers analyzed that they have to teach the whole course in by parts exam. 45 % male and 37.50 % female teachers consider by parts exam as a financial burden for the parents. As low as 18 % male and 19 % female urban secondary school teachers were of the view that by part exam is a fatigue. 58 % male and 74 % female teachers opined that students can get higher marks in by parts exam.

Table 4 Rural Secondary School Teachers Views about By Parts Exam at Secondary Level in N.W.F.P

S. No	*Item*	*Male*		*Female*	
		Yes Responses	*No Responses*	*Yes Responses*	*No Responses*
1	Students have to work regularly	80 %	20 %	86 %	14 %
2	Revision of course can easily be done	83 %	17 %	81 %	19 %
3	Co curricular activities of students are limited	38 %	62 %	29 %	71 %
4	Teachers have to teach the whole course	78 %	22 %	71 %	29 %
5	Parents consider further financial burden	57 %	43 %	39 %	61 %
6	By part exam is not more than a fatigue	25 %	75 %	19 %	81 %
7	Students can get higher marks	87 %	13 %	86 %	14 %

Table 4 indicates that as high as 80 % male and 86 % female rural secondary school teachers observed that students have to work regularly for by parts exam. Up to 83 % male and 81 % female teachers were of the view that a teacher has to teach only 10 chapters for a subject, so they feel easy for their revision.38 % male and 29 % female teachers opined that by parts exam do not affect the co curricular activities of the students.78 % male and 71 % female rural secondary school teachers judged that they have to teach the whole course of study for by parts exam. 57 % male and 39 % female teachers hold the opinions that parents consider by parts exam as financial burden. As low as 25 % male and 19 % female teachers consider by parts exam as a fatigue. As high as 87 % male and 86 % female rural secondary school teachers opined that students can get higher marks in by parts exam at secondary level.

Discussion

Examinations are means of judging or knowing the abilities of candidates. Good results in examinations are taken as a sign of knowledge and ability. Rehman (1995) stated that the value and importance of many of our examinations has become less in the last few years. A lot of choices had to be provided in question papers. As a result, the candidates taking those examinations could depend upon

some parts of their courses to be passed. Student as a whole got used to common kind of questions in the papers.

Shah and Afzal (2004) have investigated the two sampled subjects (English and Biology) and found that there has been an increased repetition of questions in both English and Biology papers over the last four years (2000-2003) in both BSE Karachi and FBISE Islamabad, encouraging the use by students of short cuts such as guess papers, selective study and preparing for the last 4-5 years' Board papers. They reported that questions from some selected chapters have repeatedly been asked over the last four years.

Due to these practices the teachers at the secondary level teach only those chapters which are important from examination point of view. In the four years old papers of English they found that there was not even a single Question asked from three chapters over the last four years. So, that is another reason that teachers at secondary level do not teach the less important chapters. The students getting degrees after passing these examinations felt that they did not have enough knowledge of their subjects. Our examinations should include the new developments in the arts and science around the world. That is, these courses should be made as much modern and useful as possible. In the arts, they should include proper details of our history, culture and religion and should be in agreement with our national aims and purposes. All our Examination should be conducted honestly and efficiently. The results of examinations should be declared as early as possible.

Christie & Afzal (2005) have cited various shortcomings in the Pakistani examination system which affects the quality of education. Subjectivity, poor content coverage, use of single textbooks for examination preparation, administrative shortcomings, malpractices and rote memorization are listed as major shortfalls of the examinations system in Pakistan.

Khan (1982) found that the examination system in Pakistan has steadily lost credibility due to poor quality, un reliable scoring, and unethical practices.

It is our examination system which is spoiling the inner and real charm of students. It is not providing us real and practical people but studious ones. Government needs to work on this sector.

Farooqi (2008) covered all the areas related to the difficulties faced by Pakistan's education system in a limited space, he tried to address the imperative subject by dividing it into five key segments — students, parents, teachers,

private sector and government. Starting from students, the most affected ones. An amorphous bifurcation of the education system (government, matric/private, O/A Levels) coupled with language medium barrier, lack of proper facilities particularly at government institutions/rural areas, scarcity of practical knowledge (which they don't get from teachers), effects of media distractions, non-existence of cohesion among fellow students due to the "class-conscious" stance fed into some of them by society and what not. A majority of them don't even have set education goals.

The students are not going to sit in exam to understand whatever they have studied but they want to qualify for the next class.

Mirza (1999) found that quite a good number of question paper setters spend one to two hours only in setting the papers and that examiners hardly receive any instructions for scoring the papers.

Patel (2008) stated that the present examination system in Pakistan is also supporting the tuition culture. The students are expected to develop knowledge-level understanding of their subject rather than indulge in the self-investigation of different phenomenon which leads them into the trap of rote learning and solving old examination papers before sitting for an exam.

Tuition centers encourage students to take shortcuts. Rather than studying the respective subjects in depth, they provide them with old examination papers to solve in a given time period and just like that studying becomes the training of the mind to work mechanically rather than think objectively. These causes have made a huge impact on the social and educational system of our society. The quality of classroom teaching has been affected. Teachers are usually cognizant of the fact that 90 % of their students take tuitions making them fulfill their responsibility in class half-heartedly. The tutors are expected to pay special attention to the students. On the other hand, students also pay less attention in the classroom as they feel that their tutors will do the needful later.

Conclusions

Keeping in view the results of the study it is concluded that examination system at secondary level in N.W.F.P is in need of improvement. Our present examination system in not reliable in many aspects. It does not enable the students to understand things but to learn them. Students are being prepared just for passing examination by memorizing the text

books. Questions papers setting is not up to the required standard. Teachers use examination oriented methodologies for courses to get good results. Questions from some selected chapters are repeated year after Year.

Rate of malpractices is high in composite exam as compared to by parts exam because a single paper (33 % marks) is consider enough to pass a subject.

There is also a greater possibility of success by chance in the composite exam. So, composite exam is also considered as one of the factor of low standard of education at secondary level in N.W.F.P.

Students take interest in by parts exam which promotes regular class work among the students at secondary level, and both teachers and student have to work regularly.

A large number of choices in question papers provide opportunity to students to do selective study. By part exam has more advantages than composite exam at secondary level in N.W.F.P.

Recommendations

In the light of the findings and conclusions, the following recommendations have been made.

(i) There should be a continuous evaluation system in which students are evaluated on the basis of class room performance. Monthly and weekly tests should be introduced by assigning them some weightage at secondary level in N.W.F.P.

(ii) The teacher of a particular subject is the best judge of students' performance, requiring selflessness and dedication to truth and services. So, there should be some internal marks given by the subject teacher (about attitude, behavior and character of the students).

(iii) An effective monitoring mechanism needs to be devised to ensure the fair conduct of examination at secondary level in N.W.F.P.

(iv) The training should be given to the paper setters. So, that standardized papers may be developed to test the abilities of students.

(v) Question papers should be designed in such a way that they cover whole course. In this way selective studies can be discouraged.

(vi) A large number of Objective type and short questions should be used in papers.

(vii) The patterns of exams and course of study once have been decided, should not be changed after every one or two years just on experimental basis

because students suffer from such practices.

(viii) Examinations should be prepared objectively in order to achieve pre set goals.

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EFFECT OF CLASS SIZE ON THE ACADEMIC ACHIEVEMENT OF COMPUTER SCIENCE STUDENTS AT SECONDARY LEVEL

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ABSTRACT

The problem under study was to finding out the effects of class size on the academic achievement of secondary school student in the subject of computer science. The study is important because it highlights the problem of over-crowdedness on the academic achievement of the secondary school students, which proves to be very helpful for the teachers and administrators. A teacher made achievement tests (instruments) were used to check the achievement of the student before and after treatment. The null hypothesis that there is no significant difference b/w the academic achievement of the large and normal class size at the secondary level was tested. The t-Statistics was used for the analysis of data. In the Post test the t-value calculated 6.94 was greater than the t -value tabulated 1.98. This shows that both the groups were different in the post test. Mean of large and normal class size were 7.39 and 9.7 respectively which shows that normal class performed significantly better than the large class. This suggests that small classes have a greater effect in enhancing the quality of classroom dealing.

INTRODUCTION

No doubt all the under developed and developing countries of the world are facing the problem of over population. Pakistan is one of the countries which not only over populated but also its population is increasing day by day. The increasing population on one side is a risk for the resources of the country. On the other side it affects the educational system of the country.

With the increase in population the schools and classes becomes over populated which create a lot of problems concerning the areas of discipline, management, school resources, teacher control, buildings, quality of education and achievement of students. Therefore there is need to highlight the educational problems with the increase of population, which have not only effected but destroy the educational system. This report is an attempt to uncover one of such problem that whether there is difference in achievement of the student of the over crowded and the normal class size or not.

No doubt the most widely cited review is the classic Meta-analysis of research on the relationship of class size and achievement (Glass & Smith, 1978). The authors collected and summarized nearly

80 studies of the relationship of class size with academic performance that yielded over 700 class-size comparisons on data from nearly 900,000 pupils. The two primary conclusions drawn from this material are:

- Reduced class size may produce increased academic achievement.
- The major benefits from reduced class size are obtained as the size is reduced below 20 pupils.

Class size and student achievement should be negatively sloped and concave (logarithmic). This model has become a basis for further normative discussion on whether, or how, class sizes should vary (Lipman, 1990; Kennedy, 1996). They also presented the results of their own meta-analysis of studies looking at the effect of class size sustaining their model that there is a negative logarithmic relationship between class size and student performance. Glass et al. (1982) argued that the positive effect of smaller class sizes results from attitudinal changes in both teachers and students in that environment and that evidence that smaller class sizes are beneficial. (Nelson & Hevert, 1992; Maxwell & Lopus, 1995) suggest that average class sizes must be reduced to 15 to achieve significant improvement in test scores (William et al., 1985; Pascarella & Terenzini, 1991) Internationally there has been enormous interest in class size differences. In the USA there have been a number of class size reduction projects, following Achilles and Finn's (1999) proclamation that small classes should be a cornerstone of educational policy.

We would assume that bigger classes will decrease the amount of time that can be spent on instruction and dealing with individual children. This is consistent with teachers' views (Bennett, 1996, Pate-Bain et al, 1992), and some previous research (Achilles, 1999, Glass et al., 1982; Cooper, 1989, Molnar et al, 1999). Anderson's (2000) model of possible factors linking class size to student achievement includes aspects connected to teaching, but Finn et al. (2003) point to the dearth of good quality observation data on class size effects. They conclude that the effects of class size in the elementary grades are more in terms of student engagement rather than teaching. Large classes demand more time for organizational activities thereby reducing the time for physical activity (Darst & Pangrazi,

2006; Hastie & Saunder, 1991). Large physical education classes contribute to a decrease in student learning, a decrease in acquisition of motor skills, and a decrease in the achievement of Texas Essential Knowledge and Skills. Research reveals that smaller classes are associated with higher achievement at all grades levels (Sallis et al, 1999; Shepard, 1996). Recent findings in the area of brain research indicate that student performance in physical education can impact student performance across all subject areas. Schools that provide quality physical education, with normal class sizes, generate a positive effect on academic achievement including increased concentration, improved mathematics, reading, and writing scores, and a reduction in disruptive behaviors (Hennessy, 2005).

Statement of the problem: The problem under study was to finding out the effects of class size on the academic achievement of computer science students at secondary level.

Objectives of the study: The following were the objective of the study.

1. To find out the effects of normal class size on the academic achievement of the secondary school students in the subject of computer science.
2. To find out the effects of large class size on the academic achievement of the secondary school student in subject of computer science.
3. To find out the difference of academic achievement of normal and large class size.

Significance of the study: Study is significant because it tells that normal class size is the best remedy for improving the quality of education and student teacher interaction in an overpopulated country like Pakistan. This study uncovers the problems of overcrowded classes in the school at secondary level and highlights the effects of overcrowded classes on the academic achievement of the students. The study is helpful for the administrators, planners, and decision makers and for the teachers who are teaching at the secondary school level. Recently in developing countries these are the attempts to adapt this approach to improve the institutional environment and opportunities for individual personal growth.

Limitations of the study: There was no such instrument for measuring the academic achievement in the subject of

computer science at secondary level. So the researcher himself made two tests (pre-test and post-test) to measure the academic achievement before and after the treatment.

Delimitations of the study: Following were the delimitations of the study.

1. The study was delimited to only Secondary School level.
2. The study was delimited to University Wensam College.
3. The study was delimited to a sample of 75 students.

METHOD OF RESEARCH

Population: All the secondary school students of the High and Higher Secondary Schools of the District D.I.Khan were included in the population of the study.

Sample: This section has been subdivided into two parts:

a) Sampling of the students

b) Sampling of the teachers

1. Sampling of the Students: The school used for study was University Wensam College D.I.Khan. The process of sampling: Simple random sampling using draw method technique was used. Sample size was 75.

2. Sampling of the Teachers: Two teachers, almost similar in respect of educational qualifications, age, training, teaching experience at the secondary level, socio-economic status and their reputation at the school were selected at the secondary level. One teacher was randomly assigned to Control (Group A) and other to the experimental (Group B).

Instrument: Researcher made achievement tests (pre-test and post-test) were used to check the achievement of the student before and after the treatment (teaching). Instruments were developed by the researcher with the help of the experts in this field.

Hypothesis*:* The null hypothesis that "There is no significant difference b/w the academic achievement of the large and normal class size at the secondary level." was tested.

Procedure: A sample of 75 students was selected on random basis from the four sections (A, B, C, D) of the 9^{th} class of University Wensam College. The sample was tested on pre-test and was distributed into two groups. Group A (Large class of 50 students) and Group B (Normal class of 25 students). It was assumed that all the 75 students were equal in all other aspects such as, intelligence, socio-economic, physical age and status etc. These 75 students were divided into two groups i.e. Group

A comprising 50 students (large class) and Section B comprising 25 students (Normal Class). The sample was tested on pre-test and was distributed into two groups. The Standard deviation of the group A and B on the pre-test were respectively 1.10 and 1.14 which shows that both the groups were equal before the treatment.Two teachers which were nearly equal in qualification, intelligence, post and experience were selected for teaching. One teacher was assigned the group A and the other teacher was assigned group B randomly. Both the teachers taught their respective groups for a period of one month (30 days). After one month teaching (treatment) both the groups were given a post-test to check their achievement after the treatment. The results of the post-test were tabulated in the form of tables.

Analysis of Data: The results of the tests were tabulated in the form of tables. The mean, standard deviation, variance and the t-Statistics for the difference b/w the mean were used for the analysis of data.

Resentation And Analysis of Data

The table1 shows that the mean of the Group A and Group B were 7.31 and 7.59 respectively while the t-value calculated 1.0 is less than the t-value tabulated 1.98 at 0.05 level of significance. This means that both the groups were equal before treatment.

The table2 shows that the mean of the Group A and Group B on post-test were respectively 7.39 and 9.7 while the t-value calculated 6.94 was greater than the t-value tabulated 1.98 at 0.05 level of significance. This means that the Group B performed significantly better than the Group A on post-test.

Table 3 shows that the mean of the Group A on pre-test and post-test were 7.31 and 7.39 while the t-value calculated 0.36 is less than the t-value tabulated 1.98 which shows that there was no significant difference in the academic achievement in the pre-test and the post-test of Group A.

Table4 shows that the mean of the Group B on pre-test and post-test were 7.59 and 9.7 while the t-value calculated 5.506 is greater than the t-value tabulated 1.98 which shows there was a significant difference in the pre-test and post-test score of the Group B. the Group B performed significantly better in the post-test than the pre-test.

Table 1: Mean, standard-deviation, variance and t-value on pre-test of Group A (Large class size) and Group B (Normal class size).

School	Group	No. of students	Mean	S.D	Var	t-value	Sign
Wensam College	A	50	7.31	1.10	1.22	1.0	α =.05
	B	25	7.59	1.14	1.31		

Table 2: Mean, standard-deviation, Variance and t-value on post-test of Group A (large class) and Group B (small Class).

School	Group	No. of students	Mean	S.D	Var	t-value	Sign
Wensam College	A	50	7.39	1.14	1.31	6.94	α = .05
	B	25	9.7	1.54	2.39		

Table 3: Mean, standard deviation, and t-value on pre-test and post-test of Group A (Large class)

School	Group	Test	No. of student	Mean	S.D	t- value	Sign
Wensam College	A	Pre-test	50	7.31	1.10	0.36	α= .05
	A	Post- test	50	7.39	1.10		

Table 4: Mean, standard deviation, and t-value on pre-test and post-test of Group B (Small class)

School	Group	Test	No. of student	Mean	S.D	t- value	Sign
Wensam College	B	Pre-test	25	7.59	1.14	5.506	α= .05
	B	Post- test	25	9.7	1.54		

FINDINGS

Following findings emerged out as the result of the data analysis.

1. Mean score of both the Group A and B on the Pre-test is 7.31 and 7.59.
2. Means score of Group A and B on the Post-test is 7.39 and 9.7 respectively.
3. Standard deviation of Group A on the Pre-test and Post-test are 1.10 and 1.10 respectively.
4. Standard deviation of Group B on the Pre-test and Post-test are 1.14 and 1.54 respectively.
5. The t-value calculated was 1.0 and tabulated was 1.98 on pre-test for group A and B.
6. The t- value calculated was 6.94 and tabulated was 1.98 on post- test for group A and B.

CONCLUSIONS

Following were conclusions of the study.

1. In the pre-test the t-value calculated 1.0 is less than the t-value tabulated 1.98 at 0.05 level of significance. This shows that both the groups were equal at the start of experiment.
2. In the Post test the t-value calculated 6.94 is greater than the t-value tabulated 1.98 at 0.05 level of significance. Also the means score of Group A and B on the Post-test is 7.39 and 9.7 respectively which shows that Group B (Normal class) performed significantly better than the Group A (Large class) on the post test. So we reject the null hypothesis.

RECOMMENDATIONS

Following recommendations are made in the light of the findings and conclusions of the study.

1. Over crowded classes has a negative effect on academic achievement at the secondary level. So it is recommended that the class size should be normal at the secondary level.
2. Where there is a great strength of student at the secondary level. The student should be divided into different section to avoid the problem of over crowd ness.
3. The study may prove helpful for the administrators and teachers to improve the academic achievement of students.
4. Keeping in view the results, it is recommended that new rooms may be arranged for classes where there is a problem of over crowd ness.
5. The number of a high school may be increased to handle the problem of over crowd ness in the classes at the secondary level.
6. The teachers of the over populated classes may be trained specially to handle this problem.
7. Special types of A.V aids may be used to enhance the achievement of the over populated classes, where it is difficult to divide them in the different section.

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DEVELOPMENT OF SCHOOL BASED IN-SERVICE STAFF DEVELOPMENT PROGRAM FOR SPECIAL EDUCATIONAL NEEDS

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ABSTRACT

Inclusion involves the education of all students, not just special education students. Inclusion assumes that all students should be educated in a general classroom in their neighborhood school and with peers of their age. The problem under study was the development of teachers for inclusion, through in-service staff development program. This study focused on the staff development in light of primary and secondary school students with Special Education Needs (SEN). SEN may be met in inclusive education perspective. This perspective is based on the principle that all children can be educated in the same, mainstream schools, regardless of their learning or other abilities. This study was further linked with in-service education of teachers as parts of total school improvement program as it is great need to prepare teachers and equip them according to SEN. The researcher focuses his attention on how to develop teachers in the light of these SEN in the regular class through in-service training program. The researcher has made an effort to design school based in-service training model according to SEN of teachers.

INTRODUCTION

Inclusion is a philosophy, not a legal term (Florian, 1996). Inclusion involves the education of all students, not just special education students. Inclusion assumes that all students should be educated in a general classroom in their neighborhood school and with peers their age. "Inclusion places the burden of proof on the school to justify removal rather than on the child to justify why he or she should be allowed to return to regular education environments.

Inclusion education for all students should utilize the best teaching techniques, and any necessary support services and supplementary aids available to make the process of learning a success. Services are brought to the students instead of students being removed from the general classroom to receive the services. The requirements of inclusion involve changes in the school's organization and curriculum, as well as modifications in instruction and assessment. Inclusion is an educational philosophy that challenges the traditionally accepted delivery methods of special and general education services (Freagon, 1993). There is much

confusion about what inclusion really means. Some believe that inclusion means the elimination of all other special education programming, that all needs of the special education student must be met in the general classroom. This is called "full inclusion". Inclusion has also been equated with the term "least restrictive environment" (LRE) which is taken from the Individuals with Disabilities Education Act (IDEA). LRE means that disabled students are educated in general education classes unless "education in regular classes with the use of supplementary aids and services cannot be achieved satisfactorily, (The NCERI Bulletin- v3, 1996)

The National Center on Educational Restructuring and Inclusion defines inclusion as ” Providing to all students, including those with severe handicaps, equitable opportunities to receive effective educational services, with the needed supplementary aids and support services, in age-appropriate classes in their neighborhood schools, in order to prepare students for productive lives as full members of the society”. (Salamanca,1994) suggests fundamental policy shift and required to promote the approach of inclusive education, namely establishing schools to serve all children, particularly those with special educational need (SEN).They stress the principle of inclusion i.e., “School for all” i.e., an institutions which include every body and must satisfy the needs of all types of individual differences.

Teacher Education for inclusive practice

The inclusion of pupils with learning difficulties in ordinary schools and classrooms in part of a large world – wide human rights movement which calls for the full inclusion of all people with disabilities in all aspects of life.

The term inclusive education has come to refer to a philosophy of education that promotes the education for all pupils in mainstream schools. The centers of studies of inclusive education are:

1. All children have the right to learn and play together.
2. Children should not be devalued or discriminated against by being excluded or sent away because of their disability or difficulty.
3. There is no legitimate reason to separate children for the duration of their schooling. They belong together

rather them need to be promoted from one another, (CSIE, 1996).

A set of principles, which ensures, that the student with a disability is viewed, as a valued and needed member of the community in every respect. (Clark et al. 1995).

Inclusive schools are diverse problem solving organizations with a common mission that emphasis's learning for all students (Rouse and Florian, 1996).

Inclusion of SEN Students in Regular Schools

Special education system was established to meet the SEN of handicap students i.e., blind, deaf, damp, crippled and mentally retarded children. As these schools are organized in capital areas (i.e., District H. Q.) therefore, they are unable to meet the needs of all handicapped children (Raja, 1985; Miles, 1987).

Existing situation in Pakistan calls for the inclusive education of all children with SEN. Because the population distribution in Pakistan is Urban 20, Rural 80 and present system is not fulfilling the needs of 80% rural communities. Positive results of inclusion have been reported by a number of researchers (Contrell & Contrell, 1978; Fredericks, Baldwin, Grove, Moore, Rigg and Lyons, 1978; Kaufman, Agard and Semmel, 1978). One of the purpose of this study to make a workable model of inclusive education for students with special need i.e., inclusive education and how to develop teachers to meet these needs and demands of school teachers according to SEN.

To Develop Teachers Through In-service Programmed For SEN

The researcher has keen interest to develop the teachers in the light of SEN for inclusive education, through diagnosing the needs of schools, students and inclusive education. The researcher focused his attention on how to develop teachers in the light of these SEN in the regular class. The main focus of the researcher was on the development of teaching skills and techniques of the teachers for the inclusive school.

There is a growing body of research literature, which indicates that some techniques and practices of teachers not only promote student, learning but also affect the aptitude of students to learn. Especially the research studies indicating the effectiveness of various models of teaching can greatly help in development

of teacher's education program (Ausubel, 1963, 1968; Jhonson and Jhonson, 1975).

Coaching as techniques as described by (Joyce, Weil and Showers, 1992) has a great potential for pre-service and in-service training of teachers. These techniques may be used for mastering different methods and models of teaching and learning, to meet the needs inclusive schools.

Recent research has suggested that in-service program is more effective when school is considered a basic unit for it (Baker, 1980; Henderson, 1975). In such a program all the teachers of the school are targeted and teacher development was linked to overall improvement in teaching learning environment.

In this study a model of school based in service teacher education program was developed which was further linked to SEN of the inclusive schools.

STATEMENT OF THE STUDY

The problem under study was the "Development of school based in-Service staff development program for special educational needs".

OBJECTIVES OF THE STUDY

Following were the main objectives of the study:

1. To review research literature on development in-service teacher training program.
2. To diagnose the areas of teachers development for inclusion.
3. To develop a program of inclusive education according to Pakistan condition.
4. To develop a school base in-service program for teachers to meet the Special Educational Needs of all the students.
5. To develop teachers with latest skills, method of teaching with respect to Special Educational Needs of all the students.
6. To develop a workable model for in-service teacher education in the light of Special Educational Needs in Pakistan.

SIGNIFICANCE OF THE STUDY

This study may be helpful due to following reasons:

1. Focal point of this study is special education needs of students (SEN). With the help of this study we may be able to improve teachers according to SEN.
2. In order to improve the quality of education for all students existing system of pre-service education of

teachers in Pakistan should be changed in such a way that perspective teacher become capable of satisfying the diverse educational needs of different students.

3. Teaching skills of the teachers may be improved in the light of findings of this study, as this study may focus on the teaching skills according to SEN.
4. It may be helpful in improving the quality of in-service program as all the previous in-service programs are arranged and organized by some body else and not according to the participating teachers needs. The study may stress to organize in-service programs in the light of SEN of teachers and students.
5. It may be economical both in terms of time and as well as resources. As in-service teacher education programmed requires a great deal of resources and time. School based programmed will reduces these expenditures.

DELIMITATIONS

Followings were the delimitations of the study:

1. The study was delimited to District Dera Ismail Khan only.
2. The study was delimited to 20 primary schools, 20 non-formal schools and 4 secondary schools.
3. It was not possible to include all the teachers of selected schools; therefore only 210 teachers were selected and focused for staff development
4. For the evaluation of teachers, one colleague and head of school was taken.
5. Only available inclusive students were included in the selected schools.
6. Only seven days staff development workshop was organized for each group.

RESEARCH QUESTIONNAIRES

Pre-test

A comprehensive test was developed from the content of the workshop. After completing the orientation session of the workshop the participants of the worship were given pretest and the responses were recorded.

Post-test

After the completion of seven days workshop the same test was given to participants and the performance of

teachers on the pretest and posttest were compared.

Evaluation of Teachers

The development of teachers was evaluated through:

1. Evaluation of teachers by self.
2. Evaluation of teachers by colleagues.
3. Evaluation of teachers by heads.

A comprehensive questionnaire containing 30 questions was designed. The content of the questionnaire for teachers, colleagues and head was kept the same. Where as the wording of the questions were changed for teachers, colleagues and heads.

Opinions of teachers regarding in-service training

A check list was developed to draw the opinions of teachers regarding in-service training.

Opinions of Trainers regarding in-service training

After compiling the results of teacher's the opinions regarding in-service training was given to 30 teacher trainers for validations.

Observation check list.

An observation check list was developed for researcher to assess the utilization of staff development training.

PROCEDURE OF THE STUDY

The present study was aimed at investigating the development of in-service teacher training program for staff development for inclusion and diagnose the areas of teachers development for inclusion, to develop a workable model for in-service teacher education in the light of Special educational needs in Pakistan and to suggest some systematic changes in in-service teacher education program in the light finding and recommendation of the study.

Research Design

Pre-test, post-test controlled group designed was considered more appropriate for this study.

Population:

All the secondary and primary (both formal and non-formal) schools comprised population for the study. All teachers of these primary schools and their heads were included in the study.

Sample:

1. 20 Government Primary schools and 20 non-formal schools were selected on Random basis.
2. 4 secondary Schools (including two boys and two girls)

All teachers of these selected primary schools in D.I.Khan and their heads comprised sample for the study.

Table (1) Showing the sample stratification

Schools	Male	Female	Total
20 formal primary school	80	60	140
20 non-formal schools	------	20	20
4 high schools	25	25	50
Total= 44	105	105	210

3. For the evaluation of teachers the opinion of 210 teachers, 210 colleagues and 30 heads were obtained. One colleague was randomly selected from selected school.

Instrument

Following instruments were developed and used.

1. Pre-test, Post-test: Tests were developed to assess the performance and achievement of teachers before and after the workshop. The test was based on the content of the workshop. The performance of participant teachers was compared on the basis of their scores in both the tests.

2. Three questionnaires for the opinions of teachers, head and teacher's trainers.

Validation of Questionnaires

The test and the questionnaires, designed for the evaluation of teachers were submitted to advisor of the study and faculty members of Institute of Education and Research, Gomal University, Dera Ismail Khan for feedback and critical review. The test and the questionnaires were improved on the basis of observations, comments and critique of the advisor. The content, pattern, format and weight age was validated and improved in the light of observations, comments critiques and suggestions of the Jury.

Pilot Testing

The pilot testing of post-test was carried out into two stages.

(1) One to one testing (2) Small group testing.

Small Group Testing

A small group testing of pre-test, post-test and questionnaires were executed on 10 participants, two primary school teachers, two secondary school teachers, two colleagues two heads and two non formal school teachers.

Table (2) Sample distribution of small group testing

School teachers	Primary	Secondary	Non-Formal	Total
Teachers	**2**	**2**	**2**	**6**
Colleagues	**2**	**2**	**--**	**4**
Heads	**2**	**--**	**--**	**2**

Staff Development workshop:

1. Selection of teachers:

Researcher selected participant for the workshop with the consultation of EDO education.

2. Venue of the Workshop:

Elementary college D.I.Khan was selected for the work shop for the convenience of the participants.

3. Selection of content for work shop

Researcher with the consultation of advisor selected content for the work shop from the literature of inclusive education and the Jerry model of inclusive teacher's preparation.

4. Conduct of Staff development workshop

Seven days workshop was organized for 30 participants. In this respect seven workshops were arranged. The duration of each workshop was 6 hours daily.

5. Resource persons:

Researcher himself and supervisor act as the principal resource person. The services of elementary college teachers were also utilized when needed. For the needs of special students, the services of special educators were arranged from special school D.I.Khan.

6. School based in-service program:

After the completion of workshop teachers were assigned to start the inclusive education program in their schools. The researchers visited these schools and assess the performance of the teachers as well as their difficulties regarding inclusion.

DATA COLLECTION

The training of 210 teachers was completed in the groups of 30 teachers each. The duration of each workshop was one week. Each group was given pre test before training and posttest after training. The results of these were recorded.

Data analysis:

The data collected from the instruments used in the study was tabulated and subjected to followings statistical analysis.

1. The pre test and post test was analyzed through descriptive statistics and paired t test. Mean, Median, S E Mean, Tr. Mean and SD were calculated.
2. Data regarding evaluation of teachers by self, by heads, and colleagues were analyzed on chi- square analysis.
3. Observations of teachers were qualitatively analyzed on percentage basis.

4. The opinions of teachers regarding in-service training were analyzed on the percentage basis.

FINDINGS

The main findings of the study are as under:

1. The average difference between post test and pre test results of participant teachers are 32.838 with standard deviation of 12.4874, and the test statistic T- Value is 38.108.
2. The results of participant female teachers on post-test pretest mean is 34.3810, Standard deviation is 13.9314, standard error mean. 1.3596and T- Value is 25.288.
3. The results of participant male teachers on post-test pretest mean is 31.3302; Standard deviation is 10.6545, standard error mean. 1.0349 And T- Value is 30.275.
4. Values obtained on pre-test have the mean value as 42.5, a variation of about 12. It indicates that a normal value of the above may not be less than or more 12 unit. We have 70% data with in interval 30.5 and 54.5.
5. Values obtained on post-test have the mean value as 75.36, a variation of about 14.53. It indicates that a normal value of the above may not be less than or more 14.53 unit. We have 75% data with in interval 65 and 85.
6. The Chi-Square value of teacher's, colleagues and heads for special educational needs is 244.096, peer tutoring and cooperative learning is 147.830, planning and management is 225.165, for lessons planning according to needs of the inclusive students is 40.669, giving instructionally relevant information to all the students is 48.177, management of students with special educational needs is 224.126, working individually with each identified child in the is 101.069, altering classroom arrangements according to the special educational needs is 101.069 and observing individual learning style in their teaching is 53.445..
7. The 40% schools observe self respect for inclusive students, 40% schools acceptance for inclusive students, 50% schools teachers' collaborate with each others regarding problems of inclusive students, 58% schools teachers' observe co-teaching, 64% schools teachers' share their matter with one

and other occasionally, 78% schools teachers' were using regularly co-operative learning in their daily teaching, 42% schools teachers' were using regularly group competition in their classes and 100% schools teachers' were using general strategies regularly in their classes.

8. According to data 100% teachers were in favor of in-service teacher training program. 90% were in favor of special educational needs, 80% in favor of collaboration, 73.33 % in favor team teaching, 66.67 % in favor co-teaching, 66.67% in favor of sharing, 83.33% in favor of inclusive arrangements, 93.33 % in favor of hard ware and soft ware, 70% in favor of team teaching, 86.67% in favor of guidance and counseling, 90% in favor of co operative learning, 93% in favor of need based in-service training, 86.33 % in favor of lesson planning, 96.66% in favor of school based in-service training , 83.33% in favor of inclusive education 100.% in favor of evaluation, 90% in favor of record keeping, 66.67% in favor of case study preparation, 43.33.% in favor of general methodology and 90% in favor of special methodology.

CONCLUSIONS

Following main conclusions were drawn from the findings of the study.

1. Teachers were observing special educational needs of the student in their teaching have a significant result with test statistic value of 244.096. So, it is concluded that responses of the colleagues and heads of the schools support the responses of the teachers.
2. The majority of the teachers were using cooperative learning in their teaching. The chi-square has a significant result with test statistic value of 147.83. So, it is concluded that responses of the colleagues and heads of the schools support the responses of the teachers.
3. Most of the schools teachers' were regularly preparing case studies of inclusive students. The teachers were in favor of including cooperative learning, inclusive education, special educational needs, collaboration, team teaching, co-teaching, sharing, inclusive arrangements, hard ware

and soft ware in the syllabus of in-service training program.

4. Teacher Trainer's were in favor of including pre service training, in service training, special educational needs, collaboration, team teaching, co-teaching, sharing, inclusive arrangements, hard ware and soft ware, team teaching, guidance and counseling, co operative learning, need based in-service training, lesson planning, school based in-service training , inclusive education, evaluation, record keeping, case study preparation, and special methodology in the in service teacher training program.

RECOMMENDATIONS

Having gone through an intensive research work on development of in-service teacher training program for inclusion the researcher is able to make following recommendation:

1. All the teachers in the schools should be trained in the light of inclusion. In this respect in service training program may be arranged for them.
2. School based in service training programs should be started in all the schools, at High School level and at Union Council level for Primary School Teachers.
3. Team for in-service training programs must be organized and trained with the innovative developments in education. These teams on completing training should organize in service training programs for teachers at local level.
4. In-service teachers training program for inclusive teacher preparation must include special educational needs, special methodology, collaboration, team teaching, co-teaching, sharing, inclusive arrangements, hard ware and soft ware, team teaching, guidance and counseling, co operative learning, need based in-service training, lesson planning, school based in-service training , inclusive education, evaluation, record keeping, case study preparation of special cases.
5. All the programs of in-service training must be need base and flexible. They must be changed according to the needs of teachers at local level.

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AIDS AND ITS ISLAMIC INTERPRETATION

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ABSTRACT
Aids first started in Prophet luts (AS) nation. The Holy Quran mentions this and Hazrat lut (AS) seems to be admanishing his nation "you are perpetrating such a crime that no nation has ever done before". Aids in the modern time are extremely fatal and dangerous disease. In 1981 after research this disease was called Aids. Its first patient in America came to light in 1981. Now this disease is spreading like a wild fire the world over. The article highlights this disease, its causes, treatment and also treats it in the light of Islam.

INTRODUCTION
During the days of Hazrat Prophet Ibrahim (AS) at the bank of the Dead Sea there stood a beautiful city. There was a village of historical importance, a place which was named "Sadoom" Hazrat Lut(AS) was sent there. All these cities now, stand under the surface of water, devastated. The land emits a kind of warm liquid which renders the ocean poisonous. Fishes cannot live in that poisonous water. Homosexuality, a heinous act started here. That is why this act is named sodomy or sadamat. Sodomy first started in Lut's (AS) nation. The Holy Quran gives a proof and Hazrat Lut (AS) seems to be admonishing his nation.

"You are perpetrating such a heinous crime that no nation has ever done before".

The Holy Quran has vividly delineated the situation of prophet Lut's (AS) nation exactly the Western world has fallen in the same abyss today and here sodomy is not considered a sin. Homogeneity is justified there and new framework of law is adopted to justify it.

It is amazing to note that Aids patients change more than hundred partners in a year. Aids in the modern time are extremely fatal and dangerous disease (Ashraf A, 1951).

1. Definition of Aids, its spread, symptoms and treatment.
2. The methods of treating this fatalic disease.
3. Aids patient and his responsibilities.
4. Can nikah be terminated on finding Aids?

5. Can abortion be allowed on account of Aids?
6. Problem of the Aid effectees on schools for admission.
7. Can Aids causes' death?

DEFINITION

Aids is abbreviation of an English pharase Acquired Immune Deficiency Syndrome which is contracted due to frequent adultery and other criminal carnal diseases, immoral salacious acts. Aids is that destructive disease which is the net and result of mean culture of the West starting in 1978. According to a research report first of all this disease began to spread in "Beljika". No one knew it, hence no proper name was given to it.

In 1981 after research this disease was called Aids. Its first patient in America came to the lime light in 1981 and in Pakistan first patient came to forefront in 1987. Now this disease is spreading like a wild fire the world over.(Amir Ali,1979) In Pakistan Khyber Pakhtoonkhawa is the worstly affected area. The doctors place this disease in realm of contagious disease. About contagious disease the Prophet (Peace be upon Him) has said that such patients be restricted to freely mix up with healthy people (Abdullah, 1977) and he further said that never go near a leper. If you find an area afflicted with plague, do not go there(Ibne-Hajar,2002) and if it spreads at a place where you are living then never go out of that place(Abu Daud,1983) because contagious/ endemic diseases spread soon.(Ibne Abidin,2003)

SPREAD OF AIDS

Aids spread through a special virus. This virus is called: Human Immune Deficiency Syndrome" and is called HIV.(Abdur) This is mainly found in blood and sexual fluids (Abdur-Raheem,2006). Aids spread through them. This virus is found in:

Spittle 8 to 6 liter, Tear 6 to 4 liter, Urine 0.5 liter, Sweat 4 liter and Mother milk 6 to 4 liter (Ibne Abidin,2005).

Illicit relation of sexual nature with prostitutes

Blood transfusion:

If Aids affected person donates blood to someone the recipient will contract this disease.

Hereditary Infection:

If a pregnant woman is suffering from Aids, its virus gets altered into janeen. (Abdul Waheed, 1999) If Aids virus is present in a person its test is must.

Diagnostic process is a complicated one. (Ibnul-Qayyim, 1994) Primary stage of Aids is HIV infection, it remains non-symbolic for 5 to 10 years and then it develops into full fledged Aids. Aids is on its spread. According to World Health Organizations estimate almost 2 million women are suffering from Aids.(Al-Kasani,1987)

SYMPTOMS OF AIDS

This fatal disease destroys the defensive automatic system of man, the system that protects man from all sorts of infections. When this system gets completely destroyed, leaves the man unarmed and prone to all sorts of physical troubles. Thus no medicine works at this stage and ultimately man dies in a painful way. After infection the patient enters into condition of influenza. He gets fever / weakness also. The patient feels tiresomeness and fatigued. Glands either are developed in the body or become more visible. Headache, cough etc remain dormant with the patient for some time in the beginning. Later on after sometime these aforesaid troubles reoccur and the patient becomes a permanent ailing man of this disease. These symptoms appear within Six months. This disease matures from 6 months to 6 years. one can survive for 10 years with this fatal ailment, but the vital force can be much more.(Muslim,1955)

TREATMENT

Aids is a fatal and dangerous disease. In the present era of corruption and turpitude, Allah is seeking moral revenge on men. Adultery and sodomy serve as waring from Allah. No vaccine, injection have been invented so far to control the disease. It is due to the fact that the virus of the disease changes its shape rapidly, that is why no drug becomes effective and thus no efficacious medicine has been invented. Scientists of the advance world are working on the drugs of this fatal disease. To some extent our researchers have got control over this disease. Out of 32 patients only 12 patients have recuperated and recovered. (Abu, Abdullah, 1990) Aids patient does not seem to be unnerved on account of this disease, rather he fears. The people who may not pay heed to him and even his funeral may go unattended. (Malik I, 1983). In fact the Holy Prophet had predicted such kinds of ailments and their prevalence in the last time of the world.

CARE-TAKING OF AIDS PATIENT

Care-taking of such patient falls in the category of farz-e-kifaya (individual obligation). According to holy saying is compulsory of such patients. As Mulah Qadri has said those who need care-taking they must be attended to. If there is none to do this job and someone assumes the responsibility, he should do the job.

Care-taking of such patient becomes a religious duty and thus must be performed, even if the disease is contagious and fatalic. The Prophet also attended the patients suffering from contagious diseases. (Mahmud H, 1986)

METHOD OF TENDING THE PATIENT

While taking care the patient attention must be paid to prevention patient must be kept separated. He should not mix with the people. Hazrat Umar happened to see a leper during Haj. He strictly forbade her to meet the people freely and further advised her to sit at home in isolation so that rest of people may remain safe. (Ibn-Najeem, 1970)

Allama Zerqawi has given detailed description. A leper must be stopped from free mixing with the people. It is a religious duty. So that protection may be granted to the rest of the people.

Allama Baji Malki says, that if the disease of the patient is of mild nature then in such case separate accommodation is not advised. But, if multiple number of people suffering from acute attack of serious contagious disease is there, then they must be kept away from healthy people.(Ibn-Hammam,1861)

Care-taking of the Aids affected is a must, but all the possible precautions must be adopted as it has been advised in the case of lepercy. Aids is much more fatal and a serious disease, care should be taken because Aids is more painful and troublesome as regards to lepercy. Therefore all the religious schools hold the same view and have consensus of opinion that a person suffering from contagious disease of any type, must be kept aloof and separated from the healthy people.

AIDS PATIENTS AND RESPONSIBILITY

Aids patient knows it fully well that if he communicates with someone else he is sure to transfer his disease to others and he shall be responsible for his this act. Such a person will be taken as culprit

(prisoner) and from religious point of view he will stand guilty.

Allama Aini has said if someone casts evil eye on someone and he is subjected to trouble, then the caster of evil eye will be held responsible for that. If someone kills other man, he will be killed in qisas. According to Malki, Shawafe and Hinabila anyone who tries to transfer Aids to someone deliberately, such person shall be killed. If Aid's patient donates blood to someone and it is given to someone the patient shall not be held responsible for that. An example is found in Fiqh books that someone offered a drink which was poisonous. The man not knowingly drank it. The giver of the drink is a culprit. Islamic Court can sentence such a person. The murderer is changed with "Diayat". Due to murder if the loss is not of much value, even then responsibility devolves on the shoulder of the killer. If death has not taken place and some loss of health has occurred, then in that case proper ransom would be imposed. Govt can impeach the criminal too. If there was no clear intention of transferring the disease, but the person was in the know of effect, even then he can be held responsible, because he knew the causes of the torture and the ultimate loss. The scholars have cited a number of instances of this type.

A person suffering from Aids when he intercourse with his wife or donating blood to other patient not with the intention of transferring disease to other, it is positively certain that he is held responsible because he is becoming the cause of danger to the health of other. It amounts to administering the poison / bane to other.

Allama Kasai remarks, if a person is offered poison to drink and he drinks himself then no responsibility is fixed on him. But anyone makes him drink then "Diyat" is to be imposed on him. To inflict other to torture other people is no doubt a great sin. Like a person who urinates or passes stoods in way of the people, his act is despicable and man must be condemned.

Alshrieh ul Jinai contains it description and detail. If any doctor intends to inflict pain on his patient and the patient gets recovered, the act of the doctor is condemnable and contemptuous.

So far as the problem of children is concerned, azl or contraceptives are allowed to use. Azl can only be practiced when there is imminent danger of strife

(coutention), even if the wife is willing or not. But when the couple has agreed up then there is no problem.

AIDS AND TERMINATION OF NIKAH

Maliki, Shafii and Hanafi jurespudence say that nikah can be terminated if wife comes to know about the congenital defect or acquired defect of spouse known later on. The wife after nikah is permitted to ask for the termination of Nikah. Descriptions differ, but the two basic things are there. one thing is the sexual aspect and another is despicable thing is transferability which may go contagious sometime.

According to Imam Abu Hanifa and Imam Yousaf separation between husband and wife is only possible if the husband is castrated. Imam Muhammad says wife can get separation if the husband happens to be insane and mentally deranged. She can claim the termination of Nikah. Same is versioin of Allama Kasai. Allama Zaila`i has written in "Tabeen ul Haqik" in its description same things. The same version is available in Fatawa Alamgiri also.

Aids has been considered very fatal and remediless is much more fatalic than lepercy. Imam Muhammad is of the opinion that lepercy cum-insanity render the Nikah cancelled then Aids being deadly fatal Conjugal life becomes difficult and this gives the woman right to get her Nikah cancelled. All the religious scholars accept the viewpoint of Shaikhain instead of Imam Muhammad. Abne Hamam in Fath-ul-Qadeer has accepted Shaikhain viewpoint and Imam Muhammad view point has also been recorded. Mufti Aziz-ur-Rehman has gone to the extent that to pass a verdict on Imam Muhammad separation is not correct. Mufti Shaf'i says that keeping in view the present situation Imam Muhammad and Malkia standpoint be considered in view. According to needs of time all scholars have accepted the saying of Imam Muhammad. Maulana Ashraf Thanvi and a large number of scholars have toed the lines Maulana Abdul Samad Rehmani, Maulana Abdul Hay of Lucknow, Maulana Khalil Ahmed Saharan Puri, Mufti Mehmood Gangohee, Mufti Abdur Rahim Lagpuri and many other scholars have passed verdict on Imam Muhammad view point. On other deadly fatal diseases like

lepercy scholars are of the opinion that Shekhain cult be followed.

If the Husband contacts Aids or some other death-dealing disease, would the wife have the right of cancellation of Nikah or not?

According to the hanfia fiqh if the wife having first intercourse with the husband that he has developed some dangerous disease on the basis of which Nikah can be cancelled, but the wife will not be allowed the right of separation, because once intercourse is committed Nikah become permanent. Allama Kasani says Nikah can only be cancelled if the husband has not met the wife. When once both Husband and Wife have met with each other right of Nikah becomes vital and she announced cancelled Nikah. According to Imam Muhammad insanity, lepercy are the disease a woman can exercise her right of cancellation Nikah, because the man under the impression that her issue may not inherit the fatal diseases, she would refrain from intercourse with the affected husband. Keeping in view that apprehension scholars of Khwarzam have granted the right of cancellation of nikah to the wife. In Fatwa Alamgiri Imam Muhammad's Standpoints has been acknowledged. But, on the other hand if wife develops Aids, the husband can divorce her.

ABORTION DUE TO AIDS

A number of contagious diseases exist due to which newly born kid gets affected. Inbe-Qateba and Ibne-ul-Qayym both have discussed it. Scholars Ahnaf have said if the lactating child's mother falls sick, breast fed child also falls ill. Therefore abortion becomes must and is justified. Detail of this can be found in Fatawa Alamgiri. Researcher Thanwi also believes in it.

Qazi Khan also has said so. Abortion is only allowed when the embryo has not been given soul. After the young kid has been a living kid, abortion is not at all allowed. Kid gets life within one hundred and twenty days. Shafi also gives the same period. The original things are the soul and developing of the organs of the kid. If this purpose is achieved prior to 120 days, the order does not alter. When the soul (Rooh) enters the body of the kid then abortion is not justified at all. The perpetrator will be taken / considered as a killer. Shiekh Ahmed Alish Malki has also agreed upon it.

Allah Says, "A woman having pregnancy and the kid gets transverse in

her abdomen and the kid is cut into pieces because the mother is in danger. If the child is dead already, it can be cut into pieces and if it is alive, it should not be destroyed. To kill one living organism and to save another is not rule in Sharieha.

There are two types of abortions:

1. Abortion with no valid cause/reason.
2. Abortion with valid cause/reason.

There is no doubt a deliberate abortion is a sin. According to Fatawa Khania Allama Sirkhasi, consider it a sin. But there are other who considers it justified but undesirable.

Secondly, under a specific need abortion becomes must, inevitable in the case of Aids abortion is necessary. Scholars have given an excuse, if the father is very poor, he does not have anything to nourish his kid, abortion in this situation is also allowed. If a child is going to be born under the condition of Aids before the child gets its movement, it can be aborted. Aborting mother, father and the dept all the three are responsible for abortion.

KIDS AIDS AFFECTED AND THEIR ADMISSION INTO SCHOOL

Aids has limited causes. Under these causes a kid may not be deprived of going to school one suffering from lepercy which spreads rapidly, if he goes to Juma prayers mustn't be stopped.

If in a society plenty of the children are suffering from Aids then Govt. and welfare societies must open separate institutes for them. Mausu'a Fiqhiyya says if lepers increase in number they should be asked to stay away in isolation. Aids does not get spread by sitting together or eating together, therefore Aids patients cannot be deprived of school admission. Once the holy Prophet took meal with a leper it didn't affect. Allama Hijadi says that leper may not freely mix up with healthy people. They must be kept in isolation. Allama Nadi has written if drawing of water by leper, can cause trouble to other normal people, a separate arrangement may be made for them so that they may not mix up with normal people and the chances of disease communication be affectively obviated and combated.

AIDS AND DEATH

Marad al-maut is such a moribund condition where slim chances of recovery are there. Allama Zaila'i, Shiekh Shibly has said the same thing. Allama Haskafi has said, any one of us who is not in position to go out to transact because he fears death and the sufferer fears death then it is called marazul-maut.

Imam Muhammad in his book "Al-Asal" has mentioned this when death is imminent it is not necessary that he may be lying on death-bed. Patient moving about in the home, in the hospital is not restricted. If the disease gets longated or the danger of imminent death gets driven off then this does not fall in the category of Marad al-maut (Death Bed).

Under the above definition Aids does not come under the perview. Aids patient does not pass away quickly. He seemingly remains hale and hearty for years. He does all his works himself. Although it is not treatable disease, yet death does not occur, but when this disease reaches a certain stage of critical nature then the doctors also becomes depressed and despaired, because the disease has gone out of control and a death is the only way then such patient can be under the spell of marazul maut even if he is not lying on death-bed or in the agony of death.

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EFFECT OF FICTITIOUS STATEMENTS ON THE EDUCATIONAL ATTAINMENT OF STUDENTS

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ABSTRACT
This study was aimed at investigation of the "effects of fictitious statements on educational attainment of the students". In this research work a sample consisting of 9th class student was taken and was divided into two equal groups i.e. control group and experimental group. In order to analyze the data, t-test was used. The results of this research work indicated that a fictitious statement effects the educational attainment of students.

INTRODUCTION

In a school, students come across numerous situations and face many difficulties. Many students face difficulties academically. When a student says "I can not understand this subject matter" he is saying more about himself than about the subject matter. The probability of malfunction reaps its pitiable produce.

Baumeiste (1990) In the schools it has been seen that when students succeed, teacher attribute their success to themselves, while on the other hand students attributes their success to themselves. Similarly when students fails, teacher deposit the failure to the student while student deposit the failure to the teachers. But some research reports have found the opposite trend as the teachers tend to attribute students failure to themselves and student success to students. Similarly student may attribute success to teacher and failure to themselves.

Baron (1992) some teachers give value to their students in developing the necessary skills and performance to deal with their work and to face any kind of situation successfully. They set their student consistent and realistic standards encourage them to have the confidence to act independently and responsibly, and on the other hand many teachers pass fictitious statement and leave student with negative feelings about themselves and their abilities. These teachers are not fair while to prepare and marking the papers of their students. Self awareness plays an important role in academic achievement of the students. Strong negative feelings reduced interest and lead toward high level of anxiety which is harmful for all kind of performance.

STATEMENT OF THE PROBLEM

The problem under study was the "effect of fictitious statements on the educational attainment of students".

OBJECTIVE OF THE STUDY

Following were the objectives of the study: -

i. To investigate the effects of fictitious statements on the educational attainment of students.
ii. To know about consistency in scores achieved by the students at different examinations.

SIGNIFICANCE OF THE STUDY

Following were the significances of the study: -

1. This study will be helpful in restricting the mood of the examiner at the time of setting paper and also marking the paper.
2. This study will help in planning our future by enabling to anticipate our behavior in future situation in responsible certainty.
3. This study will enable the teacher to know that how self awareness develops and to determine the factors that influence achievement of students.
4. This study will prove helpful in controlling the malevolence practice of fictitious statements indicating failure which is hindering the performance of students at the time of different examinations.

HYPOTHESIS

H_0: There is no significant effect of fictitious statement on the educational attainment of students.

H_1: There is significant effect of fictitious statement on the educational attainment of students.

EXPLANATION OF TERMS AND ABBREVIATIONS

Terms and Abbreviations used in the study are as under: -

a.	**α**	Level of significance.
b.	**d.f**	Degree of freedom.
c.	**C.V**	Coefficient of variation.
d.	**S.D**	Standard deviation.

REVIEW OF RELATED LITERATURE

Cast, Stets and Burke (1999) people who are seen as believable or well-informed have more influence on others self-perceptions. They used married couples in their study to see if the higher status spouse had more influence on how the lower status spouse supposed themselves. They found that in married couples, the higher status spouse's views on their significant other had an effect on their significant other's self-perception. It was less likely that the spouse's self-

perceptions would be changed by their spouse's views if the couple was equal in status.

Baron (1992) says that individual find himself in a state of increase self awareness which can interfere with actual performance, so that the individual makes error.

Baumeiste (1990) Due to false statements students are less competent and adverse. These false statements increase self awareness. This of course generates strong negative effect. In order to try to avoid these unhappy feelings individuals enter a state of cognitive deconstruction. Student think in less sophisticated way, focusing on present rather then the future and on concrete rather than abstract issues along with this go reduced interest in searching for higher level meaning. When this practice is repeated finally it becomes too difficult for such students to do away with disturbing thoughts and negative feelings. So students make error actually do worse.

Kapoor G (2007) says that some counterfeit statements passed on individuals these statements affect the personality of the individuals in wrong direction and also effect on intelligence. So we can say that self awareness play a very important role in the performance of the individuals.

Baron et al (1992) According to these reports that once we focus our attention on ourselves, we compare our current state with important goals and values into large, we make adjustments in our behavior to move closer to these desired states. Thus in this way self awareness is an important component in the self regulation of our own behavior. Negative feedback about performance has put the students in risky condition, as a result they failed.

Singh K (2009) discussed that false statements not only affect the academic performance of the individuals but it also effect the behavior, intelligence and attitude of the individuals, so due to this the individual makes mistake.

Swann (1987) discusses that we can increase the performance of anybody, when some real statements are passed on them similarly we can decrease the performance of anybody, when some fictitious statements are passed on them. Self awareness plays a very important role in the personality.

Lowery (1997) discussed the factors that when some false statements passed on individuals these statements effect the personality in wrong direction and also effect on intelligence. In another place the author explain that majority of research has consisted of people participating in a personality test,

waiting for their score, receiving an interpretation based on that score and analyzing the accuracy of the description about them.

Gabler (1980) showed that behavior can be affected by false feed back indicating failure. Because while doing some thing we focus our attention on ourselves, we compare our current stat with goals is too large, we make adjustment in our behavior to move closer to the desired state.

Present study supports this report because it explain that students of experimental group when receive slip of paper indicating under the stress of failure, even quite able students performed less effectively consequently children in the experimental group tended to regard themselves less a highly, tended to believe that they were as highly regarded by significant others in their lives, and showed a decrement in intellectual productivity. The negative effect of failure manifest in the measured cognitive function.

METHODOLOGY OF THE STUDY

POPULATION

The population of the study consisted of all students of 9th class in district Dera Ismail Khan.

SAMPLE

10 Students each of 9th class from three randomly selected schools in district Dera Ismail Khan constituted the sample, so total 30 students were selected as a sample.

PROCEDURE

Researcher himself visited the schools and collected the data. Those students from class 9th who were never failed in the examination were divided into two equal groups i.e. control and experimental group. Both the groups were administered with a test. There was no significance difference in scores of both the groups. Few days later both groups were again tested, but just before the test, members of experimental group were given slips of paper indicating that they had failed in the previous test, the score of control and experimental group were then compared.

STATISTICAL ANALYSIS

In order to measure the significant effect of fictitious statements on the educational attainments of students, t-test discussed by Cronbach (1970) was used.

With reference to Chaudhary (1996), "The co-efficient of variation was also used to compare the performance of two candidates" (p.106).

Alam (2000), "Consistency or stability in the variables is used as terms opposite to variation or dispersion. A data is considered more stable if it has less variation and likewise it is less stable if variation is more". (p.151)

The applied formulae of test were as under:

$$t = \frac{(\bar{x}_1 - \bar{x}_2) - (\mu_1 - \mu_2)}{S_p\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}} \qquad \text{With} \nu = n_1 + n_2 - 2 \text{ d.f}$$

$$\text{Where } \bar{X}_1 = \frac{\Sigma f_1 x_1}{\Sigma f_1} \qquad \bar{X}_2 = \frac{\Sigma f_2 x_2}{\Sigma f_2}$$

$$S_P^2 = \frac{(n_1 - 1)S_1^2 + (n_2 - 1)S_2^2}{n_1 + n_2 - 2}$$

$$\text{Where } S_1^2 = \frac{1}{n_1 - 1}\Sigma(X_{1i} - \bar{X}_1)^2 \text{ And } S_2^2 = \frac{1}{n_2 - 1}\Sigma(X_{2i} - \bar{X}_2)^2$$

$$\text{Co-efficient of Variation} = C.V = \frac{S}{\bar{X}} \times 100$$

$$\text{Where } S = \text{standard deviation and } \bar{X} = \text{Mean}$$

The analysis and interpretation of data is presented in tabular form and given below.

Group	n	Mean	S.D	C.V	d.f	Level of Significance	t-tabulated	t-calculated
Control Group	15	27.55	13.61	49.40	28	0.05	1.47	2.97
Experimental Group	15	20.97	11.05	52.69				

RESULTS

The above table indicates that the mean of both the groups (controlled and experimental) were 27.55 and 20.97 respectively, S.D in the scores of two samples i.e. controlled and experimental was 13.61 and 11.05 respectively. The obtained t-calculated value 2.97 is greater than the t-tabulated 1.47 at 0.05 level of significance (α) so we reject H_0 and accept H_1 and concludes that there is significant effect of fictitious statement on the educational attainment of students. The difference was in the favor of controlled group. The co-efficient of variation (C.V) of controlled and experimental group is 49.40 and 52.69 respectively. Since C.V of controlled group is less than the experimental group so there is consistency in the performance of controlled group.

CONCLUSIONS

It was concluded that fictitious statements about performance put the students in threatening condition and as a result they loose their performance and fail to compare their current state with their goals and the gape between realities; consequently their goals become too large. It was also concluded that they fail to adjust their behaviors to move closer to desired states; as a result they make errors. The study further revealed that the fictitious

statements about performance can lower self concept and damage later performance.

RECOMMENDATIONS

(i) Teacher may provide honest appraisal and perfect evaluation for student success.

(ii) Students may be provided with valid educational experiences because fictitious statements affect the academic performance of students.

(iii) Student may be invited to see themselves in positive ways and to reach beyond their present performance then students are more likely to have clear picture of their potential as human being and to realize what they can achieve.

(iv) Individual attention may be given to each and every student by organizing guidance and counseling services with in a school system.

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