

Effect of Excessive Internet Usage on the Level of Adolescents' Techno-Stress

Dheeraj Kumar Pandey

Research Scholar, Faculty of Education (Kamachchha), BHU, Varanasi, U.P., India

Abstract

In the blind race of globalization, the internet users are increasing very rapidly and with the same speed the internet users are reporting increased level of techno-stress more particularly teenagers are most vulnerable to these negative effects. This paper discusses about the objective to study the effect of excessive internet usage on the level of adolescents' techno-stress in relation to their personal variables e.g. (a.) Area; (b.) Sex; (c.) Socio-economic Status. In order to investigate, the researcher has selected 120 adolescents of 11th grade as a sample through Multi Stage Random Sampling and conducted an experiment using Pretest-Posttest Equivalent Groups Design. Further, he employed Techno-Stress Scale (TSS) for data collection and Four Way ANOVA for analyzing the data. The main findings of the study were : (a.) excessive internet usage negatively affects to the level of adolescents' techno-stress; (b.) it affects more negatively to that of rural and female adolescents in comparison to their urban and male counterparts; (c.) most to the adolescents pertaining to low (SES) and least to the adolescents of high (SES) in comparison to other (SES) counterparts; (d.) internet usage, area, sex and socio-economic status (SES) differences are interacting significantly for the techno-stress of adolescents.

KEYWORDS: Internet Usage, Techno-Stress, Adolescent, Socio-Economic Status, Area, Sex.

Education is a lifelong, continuous going on process. It makes a human being civilized, cultured, competent, and productive citizen of the nation and society from human animal by developing his inherent capacities, increasing his knowledge and skills and modifying his behaviour. But the development of his inherent capacities, increasement in his knowledge and skills and desired changes in his behaviour are not occurred accidentally or that is to say he does not become civilized, cultured, competent and a productive citizen of the nation and society from human animal at once, he achieves all of these in a desired direction and quantity step by step with special strategies and by doing very hard work in a long period. We prescribe a certain degree of the development of his inherent capacities, increasement in his knowledge and skills and desirable changes in his behaviour for each particular period of time in that he is expected to achieve the same in the concerned particular period of time dividing this long period of time in some particular periods of time i.e. pre-primary, primary, secondary, senior-secondary and higher etc.

But in the educational point of view, secondary level is of the most important among all of these levels because most of the students of this level are in adolescent age that is the most critical and hard period of time. According to Stanley Holl "Adolescent is a period of great stress, strain, storm and strike" (*Saraswat, 2007*). In this period a boy gets the totality of his physical and mental development and the level of energy is also very high in him. Therefore, the necessity of this period is that they should be provided such an environment as in that they may be mentally healthy, well-

adjusted and avoid themselves from unnecessary tension by Proper educational system provided by the society and desirable changes can be made in their behaviour sublimating their energy.

In this regard we may use Information and Communication Technology (ICT) in sublimating their energy, as many psychologists, educationists and researchers proved the great role of ICT in the educational world for helping in the development of inherent capacities of adolescents, increasment in their knowledge and skills and desired change in their behaviour. It affected not only to the educational world but also to the whole human life in such an extent as there is no aspects of life that it doesn't touch and in the current society, the modern human life can't be imagined without it. In the very little period of time, it grasps the whole human activities in its clutches in such an extent as each and every person in the world is compelled to get help of it at every walk of his life.

Many survey reports shows that the number of internet users are increasing on the world at this time by leaps and bounds and with the same speed the average amount of time spent on the internet is also increasing and the starting age of internet use is steadily decreasing. A report published by ministry of health showed that information technology increases job pressure, however mental pressure and techno-stress is global phenomenon (*Duxbury & Higgins, 2009*). Consumer Watch Dog Which released the results of its latest annual internet survey in July 2012. It revealed that more than 19 million people in the UK are online and an average the use of web for thirteen hours each week an hour longer than last year and almost one in seven people spends twenty four hours using the internet each week. The same thing is supported by *Wiederhold (2009)* that online industry analysts estimate over 85 million Americans are online with that number expected to increase by 12 million in the next year. Where on one side the usage of internet is increasing on day by day on the other hand many types of problems related to mental health are also increasing due to excessive usage of internet. Among these problems stress, anxiety, maladjustment, depression and internet addicted disorder, cyber sexual addiction and data smog are most common.

National Psychological Well Being and Distress Survey showed that approximately one in seven people experienced mental health problems such as anxiety or depression in the past years. Sixty percent of internet users who reported mental health problems had used the internet as a source of information about health issues (*Health Research Board, 2012*). Further, in its latest studies revealed that nearly six percent of 19 million of those online users suffer from internet addiction. *Kraut et al. (2002)* found that teenagers were most vulnerable to these negative effects. The increasing rate of adolescents suffering from some type of mental problems e.g. techno-stress, anxiety, maladjustment, depression, internet addicted disorder and cyber sexual addiction has stirred parents, human resource managers, educationist, cyber psychologists, technologists and policy makers and has acquired an independent status. Understanding excessive usage of internet in relation to adolescents' level of techno-stress is the focal point of the study.

Rationale of the Study :

Today, we are living in the age of science and technology that has created not only cut throat competition at global level but also new opportunities in corporate sector that needed new specialization in the each and every field. The freshers are needed new specialization while the on job employees are also needed to update their knowledge in the concerned field for their further career development. Many new courses are being launched in each and every year for fulfilling the today younger generation's need. For

getting admission or job in any institution or sector, we need to know about minimum eligibility criteria, terms and conditions of the service and all related information that is available in the internet. So the use of internet is the need of the hour. Here, the question is that to know about what are the repercussions of excessive internet usage? Whether it creates the problems related to mental health or the adolescents suffering from these problems are more likely to use internet. Some of the researches have been done in the field like- *Kraut et al. (1998)* reported that there are a lot of partly unknown factors concluding negative effects of the internet usage.

Where on one side *Wang & Tu (2008)* revealed that increased internet usage contributes to increase job stress and strain and also found that information overload and multitasking both associated with ICT : adolescents' loneliness was associated with both increased internet use and internet attitude (*Hardie & Tee , 2007*). *Young and Wiederhold (2009)* identified specific risk factors for internet addiction such as loneliness, thrill seeking behaviour and sexual compulsivity etc. : usage of internet for coping purpose related to increased level of stress, depression, social anxiety, and family cohesion more so than frequency of use (*Hardie & Tee, 2007*). And on the other side, *King (2006)* found that internet may provide a particular benefit for certain individual who have already displayed these personal and social difficulties : lonely individuals are more likely to use the internet excessively, because the internet provides an ideals social environment for lonely people to interact with others (*Whitt and McLaughlin, 2007*) and the same thing is supported by *Shaw & Gant (2002)* that increasing internet usage was associated with decreased level of loneliness and depression and increased level of social support and self-esteem : internet activities are also known to provide support information and opportunities for connection to marginalized and socially isolated groups such as same sex attracted young people (*Monat, & Lazarus, 2009*) ; Parents of disabled children (*Everly, 2009*) ; People with social anxiety (*Compel and Cumming, 2006*) and more recently *Old and Howiff (2004)* found that those who spent more time on internet were less like be lonely : none of the types of media examined was associated with depression or anxiety and more over media use acted as a protective factor for boys (*Malinconico, 2009*) ; the time spent online was not associated with dispositional or daily wellbeing (*Elisheva, Gross and Gable, 2002*); online interaction clearly provide essential social support for otherwise isolated adolescents (*Whitlock, powers and Eckeronode, 2006*). *Wang & Tu (2008)* reported that there is no significant difference between the level of stress in terms of gender and occupation (academic and non-academic staff) : male adolescents reported a higher frequency of internet usage and more loneliness than females (*Odell, Korgen, and Schumacher, 2009*); boys who spent relatively more time playing video games and watching television had the lowest levels of anxiety, especially those from alcoholic homes and opposite pattern emerged for girls (*Odell, Korgen, and Schumacher, 2009*).

Kraut et al. (1998) reported that using the internet for as little as three hours per week led to increased levels of depression and reduction in social support over the course of two years. Further he found that teenagers were most vulnerable to these negative effects. Interestingly after three years, in their later study they found that higher level of internet use was positively correlated with measures of social involvement and psychological well-being. Here, the two opposing hypotheses have been proposed to explain the relationship between internet usage and the level of stress, loneliness, depression, thrill seeking behavior, sexual compulsivity and internet addiction etc. Excessive internet usage causes loneliness versus lonely individuals is more likely to use the internet excess (*Moraham martien & Schumacher, 2009*). The

researcher found the same case with the level techno-stress of adolescents. Therefore, the following question arose in the mind of the researcher :

- ❖ Whether excessive internet usage affects the level of techno-stress of adolescents positively or negatively in relation to their personal variables?

In the light of above research question, the researcher has formulated the following objective:

- ❖ To study the effect of excessive internet usage on the level of techno-stress of adolescents in relation to their personal variables :
 - a. Area;
 - b. Sex;
 - c. Socio-economic Status;

Operational Definition of the Technical Terms Used :

- ❖ **Techno-Stress:** Techno-stress refers to the negative effect on ICT user's attitude, behaviour and on their physiology that is caused either directly or indirectly by an inability to cope with new ICTs in a healthy manner. It escalates the problem of inability to concentrate on a single issue, decreased intractability, feeling of loss of control and information overload that is colloquially called 'data smog.' For the purpose of present study, techno-stress comprises the following dimensions : (a.) Techno-overload; (b.) Techno-invasion; (c.) Techno-complexity; (d.) Techno-insecurity; (e.) Techno-uncertainty;
- ❖ **Excessive Internet Usage :** For the purpose of present study excessive internet usage refers to continuously use of only six internet facilities i.e. web surfing, instant messaging, e-mail, online games, chatting in social networks/sites and news groups etc. at least three hours per-day up to 150 days or more than it.
- ❖ **Socio-Economic Status:** Socio-economic status is obviously a blending of the two status – social and economic status. Socio-economic status would be a ranking of an individual by the society he lives in, in terms of his material belongings and cultural possessions along with the degree of respect, power and influence he wields. For the purpose of the present study, the following seven areas of SES are : (a.) Social (b.) Family (c.) Education (d.) Profession (e.) Cast (f.) Total Assets (g.) Monthly Income
- ❖ **Area :** For the purpose of present study area refers to the locality of adolescents' domicile. It comprises both urban and rural areas as defined by the Census of India (2011).
- ❖ **Sex:** For the purpose of present study sex refers to the gender of adolescents. It comprises only male and female adolescents.
- ❖ **Adolescent:** For the purpose of present study, adolescent refers to all the 11th grade regular students studying in various inter colleges run by different secondary education boards in Banda, Uttar Pradesh, India.
- ❖ **Experimental Group:** For the purpose of present study experimental group refers to the group that has been provided the treatment of internet usage 3 hours per day up to 150 days.
- ❖ **Control Group:** For the purpose of present study control group refers to the group that has been controlled or in other words that has been provided no treatment up to 150 days.

Hypotheses of the Study :

For obtaining the above research objectives, the researcher has formulated the following null hypotheses :

- H_{0.1} Excessive internet usage doesn't affect significantly to the level of techno-stress of adolescents in relation to their personal variables.
- H_{0.1.1} There is no significant difference between the mean gain scores of techno-stress of adolescents pertaining to experimental group and control group.
- H_{0.1.2} There is no significant difference between the mean gain scores of techno-stress of adolescents pertaining to urban area and rural area.
- H_{0.1.3} There is no significant difference between the mean gain scores of techno-stress of male and female adolescents.
- H_{0.1.4} There is no significant difference between the mean gain scores of techno-stress of adolescents pertaining to high, middle and low socio-economic status groups.
- H_{0.1.5} Internet usage and area differences don't interact significantly for the techno-stress of adolescents.
- H_{0.1.6} Area and sex differences don't interact significantly for the techno-stress of adolescents.
- H_{0.1.7} Sex and socio-economic status differences don't interact significantly for the techno-stress of adolescents.
- H_{0.1.8} Differences of socio-economic status and internet usage don't interact significantly for the techno-stress of adolescents.
- H_{0.1.9} Internet usage and sex differences don't interact significantly for the techno-stress of adolescents.
- H_{0.1.10} Area and socio-economic status differences don't interact significantly for the techno-stress of adolescents.
- H_{0.1.11} Internet usage, area and sex differences don't interact significantly for the techno-stress of adolescents.
- H_{0.1.12} Area, sex and socio-economic status differences don't interact significantly for the techno-stress of adolescents.
- H_{0.1.13} Differences of sex, socio-economic status and internet usage don't interact significantly for the techno-stress of adolescents.
- H_{0.1.14} Socio-economic status, internet usage and area differences don't interact significantly for the techno-stress of adolescents.
- H_{0.1.15} Internet usage, area, sex and socio-economic status differences don't interact significantly for the techno-stress of adolescents.

Research Design:

In the present study the Pretest-Posttest Equivalent Groups Design has been used. The notation of this design is as follows :

R	o ₁	X	o ₂	o ₁ , o ₃	= Pretests
R	o ₃	C	o ₄	o ₂ , o ₄	= Post tests

Research Method of the Study:

In the present study, experimental research method has been used and the researcher has conducted an experiment to examine the effect of excessive internet usage on the techno-stress level of adolescents.

Population of the Study :

Population of the present study consists of all the 11th class regular students studying in all the types of inter colleges including govt., granted, non-granted, boys, girls, co-education, boarding, non-boarding , Hindi medium and English medium run

by different secondary education boards in Banda Nagar which falls in Bundelkhand region of Uttar Pradesh, India.

Sample of the Study :

In the present research study, a sample of 120 adolescents studying in 11th class has been selected from various inter colleges through using Multi Stage Random Sampling technique in the following way :

❖ Selection of Inter Colleges:

In the present study, 12 inter colleges has been randomly selected as a sample form various type of inter colleges i.e. govt., granted, non-granted, boys, girls, co-education, Hindi medium and English medium, boarding and non-boarding etc. of Banda Nagar, Using Lottery method in the following way :

Table-I : Selected Inter Colleges of Banda Nagar Which Falls in Bundelkhand Region Pertaining to U.P., India as Sample

S. No.	Name of the Inter College	Type of the Inter College	No. of the Students that have been Selected as a Sample from Each College
1.	G.I.C., Banda	Govt., Boys, Non-boarding	12
2.	G.G.I.C., Banda	Govt., Girls, Non- boarding	12
3.	D.A.V. Inter College, Banda	Granted, Boys, Non-boarding	08
4.	Khnkah Inter College, Banda	Granted, Boys, Non-boarding	10
5.	Arya Kanya Inter College, Banda	Granted, Girls, Non-boarding	11
6.	Nagar Palika Higher Secondary Vidyalay, Banda	Granted, Girls, Non-boarding	07
7.	Swarswati Vidya Mandir Inter College, Banda	Non-granted, Co-Education, Non-boarding	09
8.	H.L. Inter College, Banda	Non-granted, Co-education, Non-boarding	04
9.	Virangana Lakshmi Bai Hihger Secondary Vidyalaya, Banda	Non-granted, Boys, Boarding	07
10.	B.P.O.B. Inter College, Banda	Non-granted, Girls, Non- boarding	16
11.	St. Mary Senior Secondary School Banda.	Pubic School, Co-education, Non-boarding	13
12.	Gura Ram Ray Senor Secondary School, Banda	Public School, Co-education, Non-Boarding	11
	Total		120

❖ Selection of Adolescents:

At first the researcher has administered Mental Health Battery (MHB), Adjustment Inventory for School Students (AISS), Techno-stress Scale (TSS) and Socio-economic Status Scale (SES) on all the 11th class regular students of all the 12

inter colleges that have been selected as a sample for the present study and selected 1200 students of average mental health, adjustment and techno-stress level in accordance to their concerned test scores. Then he divided all the students in different stratas i.e. urban and rural, male and female, high, middle and low socio-economic statuses in accordance to their area, sex and socio-economic status and randomly selected total number of 120 students as a sample form every strata in the same number. After that he randomly assigned the students in experimental and control groups. Sampling design of the present study is as follows:

Table-II : Selected Adolescents as Sample of the Study

Different Stratas	Urban						Rural						Total	
	Male			Female			Male			Female				
	High (SES)	Middle (SES)	Low (SES)	High (SES)	Middle (SES)	Low (SES)	High (SES)	Middle (SES)	Low (SES)	High (SES)	Middle (SES)	Low (SES)		
Experimental Group	5	5	5	5	5	5	5	5	5	5	5	5	5	60
Control Group	5	5	5	5	5	5	5	5	5	5	5	5	5	60
Total	10	10	10	10	10	10	10	10	10	10	10	10	10	120

Procedure of the Study :

After sampling and its randomly assignment to experimental group and control group, the researcher has provided personal computers/laptops with internet connection to the adolescents of experimental group to use continuously only six internet facilities i.e. web surfing, instant messaging, e-mail, online games, chatting in social sites and news groups etc. 3 hours per day up to 150 days while he provided personal computers/laptops without internet connection to the adolescents of control group to use continuously 3 hours per day up to 150 days. After 150 days, he got posttest scores of the adolescents of both groups administering Techno-Stress Scale (TSS). The researcher has used the techno-stress scores as pretest scores on the basis of that he selected his sample and divided them in different strata's. Then he subtracted pre-test scores from post test scores and found gain scores and examined the significance of difference between the mean values of gain scores of experimental and control groups with reference to their personal variables i.e. area, sex, socio-economic status with their interaction effect using four way ANOVA.

Tools Used in the Study :

In the present study, the researcher has used the following standardized tools :

1. Mental Health Battery (MHB), constructed and standardized by Prof. Arun Kumar Singh and Dr. Alpana Sen Gupta;
2. Adjustment Inventory for School Students (AISS), constructed and standardized by Prof. A.K.P. Sinha and Prof. R. P. Singh;
3. Techno-Stress Scale (TSS), constructed and standardized by the researcher himself;
4. Socio-Economic Status Scale (SES), constructed and standardized by Dr. R. L. Bharadwaj;

Statistical Analysis of the Data :

Objective No. 1. To study the effect of excessive internet usage on the level of techno-stress of adolescents in relation to their personal variables :

- Area;
- Sex;
- Socio-economic Status;

Table –III : Showing the Sum of Gain Scores, Sum of Squares of Gain Scores, and Mean of Gain Scores on the Variable of Adolescent's Techno-Stress Falling in Different Stages of Internet Usage, Area, Sex and Socio-economic Status

Factors and Its Stages		Different Stages of Factor B (Area)												Σ	
		B ₁ (Urban Area)						B ₂ (Rural Area)							
		Different Stages of Factor C (Sex)						Different Stages of Factor C (Sex)							
		C ₁ (Boys)			C ₂ (Girls)			C ₁ (Boys)			C ₂ (Girls)				
		Different Stages of Factor D (Socio-economic Status)			Different Stages of Factor D (Socio-economic Status)			Different Stages of Factor D (Socio-economic Status)			Different Stages of Factor D (Socio-economic Status)				
		D ₁ High (SES)	D ₁ Middle (SES)	D ₁ Low (SES)	D ₁ High (SES)	D ₁ Middle (SES)	D ₁ Low (SES)	D ₁ High (SES)	D ₁ Middle (SES)	D ₁ Low (SES)	D ₁ High (SES)	D ₁ Middle (SES)	D ₁ Low (SES)		
Different Stages of Factor A (Internet Usage)	A ₁ (Experimental Group)	N=5	N=5	N=5	N=5	N=5	N=5	N=5	N=5	N=5	N=5	N=5	N=5	N=60	
		$\Sigma x=37$	$\Sigma x=43$	$\Sigma x=47$	$\Sigma x=32$	$\Sigma x=51$	$\Sigma x=50$	$\Sigma x=54$	$\Sigma x=50$	$\Sigma x=58$	$\Sigma x=51$	$\Sigma x=56$	$\Sigma x=67$	$\Sigma x=596$	
		$\Sigma x^2=321$	$\Sigma x^2=621$	$\Sigma x^2=653$	$\Sigma x^2=314$	$\Sigma x^2=723$	$\Sigma x^2=730$	$\Sigma x^2=654$	$\Sigma x^2=574$	$\Sigma x^2=954$	$\Sigma x^2=679$	$\Sigma x^2=826$	$\Sigma x^2=1037$	$\Sigma x^2=8086$	
		M=7.4	M= 8.6	M=9.4	M=6.4	M=10.2	M=10	M=10.8	M=10	M=11.6	M=10.2	M=11.2	M=13.4	M=9.933	
	A ₀ (Control Group)	N=5	N=5	N=5	N=5	N=5	N=5	N=5	N=5	N=5	N=5	N=5	N=5	N=60	
		$\Sigma x=-40$	$\Sigma x=0$	$\Sigma x=+4$	$\Sigma x=+9$	$\Sigma x=-31$	$\Sigma x=16$	$\Sigma x=+8$	$\Sigma x=-15$	$\Sigma x=-12$	$\Sigma x=-18$	$\Sigma x=-38$	$\Sigma x=+24$	$\Sigma x=-93$	
		$\Sigma x^2=1656$	$\Sigma x^2=1042$	$\Sigma x^2=170$	$\Sigma x^2=229$	$\Sigma x^2=927$	$\Sigma x^2=554$	$\Sigma x^2=236$	$\Sigma x^2=719$	$\Sigma x^2=658$	$\Sigma x^2=432$	$\Sigma x^2=832$	$\Sigma x^2=216$	$\Sigma x^2=7671$	
		M=-8.0	M=0	M=0.8	M= 1.8	M=-6.2	M= 3.2	M=1.6	M=-3.0	M=-2.4	M=-3.6	M=-7.6	M=4.8	M=-1.55	
Σ	N=10	N=10	N=10	N=10	N=10	N=10	N=10	N=10	N=10	N=10	N=10	N=10	N=120		
	$\Sigma x=-3$	$\Sigma x=43$	$\Sigma x=+51$	$\Sigma x=41$	$\Sigma x=20$	$\Sigma x=66$	$\Sigma x=62$	$\Sigma x=35$	$\Sigma x=46$	$\Sigma x=33$	$\Sigma x=18$	$\Sigma x=91$	$\Sigma x=503$		
	$\Sigma x^2=1977$	$\Sigma x^2=1663$	$\Sigma x^2=823$	$\Sigma x^2=543$	$\Sigma x^2=1650$	$\Sigma x^2=1284$	$\Sigma x^2=890$	$\Sigma x^2=1293$	$\Sigma x^2=1612$	$\Sigma x^2=1111$	$\Sigma x^2=1658$	$\Sigma x^2=1253$	$\Sigma x^2=15757$		
	M=-0.3	M=4.3	M=5.1	M=4.1	M=2.0	M=6.6	M=6.2	M=3.5	M=4.6	M=3.3	M=1.8	M=9.1	M=4.191		

Table- IV : Summary Table of Four Way Analysis of Variance of the Gain Scores of Adolescents' Techno-Stress at Different Stages of Internet Usage, Area, Sex and Socio-economic Status

Source	df	SS	MS	F	Level of Significance
Main Effect					
Factor A (Internet Usage)	1	5842.16	5842.16	65.962	.01
Factor B (Area)	1	1923.66	1923.66	21.70	.01
Factor C (sex)	1	1889.79	1889.79	21.32	.01
Factor D (Socio-economic Status)	2	2169.36	1084.68	12.23	.01
Two Way Interaction					
A x B	1	-1825.95	-1825.95	20.60	.01
B x C	1	-1868.19	-1868.19	21.08	.01
C x D	2	-1754.16	-877.08	9.89	.01
D x A	2	-1767.63	-883.81	9.97	.01
A x C	1	-1879.49	-1879.49	21.20	.01
B x D	2	-1829.93	914.96	10.32	.01

Three Way Interaction					
A x B x C	1	1899.50	1899.50	21.43	.01
B x C x D	2	2024.81	1012.40	11.42	.01
C x D x A	2	6021.01	3010.50	33.97	.01
D x A x B	2	1892.87	946.43	10.67	.01
Four Way Interaction					
A x B x C x D	2	-5710.76	2855.38	32.22	.01
Error	96	8507.79	88.62		
Total	119	15534.84			

Table value of F-ratio at ($df = 1, 96$) is $F_{.05} = 3.94$ and $F_{.01} = 6.90$;

Table value of F-ratio at ($df = 2, 96$) is $F_{.05} = 3.09$ and $F_{.01} = 4.82$;

The above Table-IV denotes that four way analysis of variance has been applied to the gain scores of adolescents' techno-stress at different stages of internet usage, area, sex and socio-economic status. The gain scores of adolescents' techno-stress have been divided in the different groups in accordance to their Internet usage, area, sex and socio-economic status. The results of the four way analysis of variance shows that:

The calculated value of $F(1, 96) = 65.92$ ($P < .01$) for the main effect of Factor A (Internet usage) far exceeds the critical value ($F_{.01} = 6.90$), therefore F-ratio is significant at .01 level. Therefore null hypothesis is rejected and research hypothesis that is the mean gain scores of techno-stress of adolescents pertaining to experimental group is significantly different from that of control group, is accepted.

The calculated value of $F(1, 96) = 21.70$ ($P < .01$) for the main effect of Factor B (Area) for exceeds the critical value ($F_{.01} = 6.90$), therefore F-ratio is significant at .01 level, that is why, null hypothesis is rejected and research hypothesis that is the mean gain scores of techno-stress of adolescents pertaining to urban area is significantly different from that of rural area is accepted.

The calculated value of $F(1, 96) = 21.32$ ($P < .01$) for the main effect of Factor C (sex) far exceeds the critical value ($F_{.01} = 6.90$), therefore F-ratio is significant at .01 level. Therefore null hypothesis is rejected and research hypothesis that is the mean gain scores of techno-stress of male adolescents is significantly different from that of female adolescents is accepted.

The calculated value of $F(2, 96) = 12.23$ ($P < .01$) for the main effect of Factor D (Socio-economic status) for exceeds the critical value ($F_{.01} = 4.82$), therefore F-ratio is significant at .01 level. Therefore, null hypothesis is rejected and the research hypothesis that is the mean gain scores of techno-stress of adolescents is significantly different in high, middle and low socio-economic status groups is accepted.

The calculated value of $F(1, 96) = 20.60$ ($P < .01$) for the interaction effect of Factor A and Factor B for exceeds the critical value ($F_{.01} = 6.90$), therefore F-ratio is significant at .01 level. Therefore, null hypothesis is rejected and research hypothesis that is internet usage and area differences interact significantly for the techno-stress of adolescents is accepted.

The calculated value of $F(1, 96) = 21.08$ ($P < .01$) for the interaction effect of Factor B and Factor C, far exceeds the critical value ($F_{.01} = 6.90$), therefore F-ratio is significant at .01 level. Therefore, null hypothesis is rejected and research hypothesis that is area and sex differences interact significantly for the techno-stress of adolescents is accepted.

The calculated value of $F(2, 96) = 9.89$ ($P < .01$) for the interaction effect of Factor C and Factor D, far exceeds the critical value ($F_{.01} = 4.82$), therefore F-ratio is significant at .01 level. Therefore, null hypothesis is rejected and research hypothesis that is sex and socio-economic status differences interact significantly for the techno-stress of adolescents is accepted.

The critical value of $F(2, 96) = 9.97$ ($P < .01$) for the interaction effect of Factor D and Factor A, far exceeds the critical value ($F_{.01} = 4.82$), therefore F-ratio is significant at .01 level. Therefore, null hypothesis is rejected and research hypothesis that is socio-economic status and internet usage differences interact significantly for the techno-stress of adolescents is accepted.

The calculated value of $F(1, 96) = 21.20$ ($P < .01$) for the interaction effect of Factor A and Factor C far exceeds the critical value ($F_{.01} = 6.90$), therefore F-ratio is significant at .01 level. Therefore, null hypothesis is rejected and the research hypothesis that is internet usage and sex differences interact significantly for the techno-stress of adolescents is accepted.

The calculated value of $F(2, 96) = 10.32$ ($P < .01$) for the interaction effect of Factor B and Factor D far exceeds the critical value ($F_{.01} = 4.82$), therefore, F-ratio is significant at .01 level. Therefore, null hypothesis is rejected and the research hypothesis that is area and socio-economic status differences interact significantly for the techno-stress of adolescents is accepted.

The calculated value of $F(1, 96) = 21.43$ ($P < .01$) for the interaction effect of Factor A, Factor B and Factor C far exceeds the critical value ($F_{.01} = 6.90$) therefore, F-ratio is significant at .01 level. Therefore, null hypothesis is rejected and the research hypothesis that is internet usage, area, and sex differences interact significantly for the techno-stress of adolescents is accepted.

The calculated value of $F(2, 96) = 11.42$ ($P < .01$) for the interaction effect of factor B Factor C and Factor D for exceed the critical value ($F_{.01} = 4.82$), therefore F-ratio is significant at .01 level. Therefore, null hypothesis is rejected and the research hypothesis that is area, sex and socio-economic status differences interact significantly for the techno-stress of adolescents is accepted.

The calculated value of $F(2, 96) = 33.97$ ($P < .01$) for the interaction effect of Factor C, Factor D, and Factor A for exceeds the critical value ($F_{.01} = 4.82$), therefore F-ratio is significant at .01 level. Therefore, null hypothesis is rejected and the research hypothesis that is sex, socio-economic status and internet usage differences interact significantly for the techno-stress of adolescents is accepted.

The calculated value of $F(2, 96) = 10.67$ ($P < .01$) for the interaction effect of Factor D, Factor A, and Factor B, for exceeds the critical value ($F_{.01} = 4.82$), therefore F-ratio is significant at .01 level. That is why null hypothesis is rejected and the research hypothesis that is socio-economic status, internet usage, and area differences interact significantly for the techno-stress of adolescents is accepted.

The critical value of $F(2, 96) = 32.22$ ($P < .01$) for the interaction effect of Factor A, Factor B, Factor C and Factor D, for exceeds the critical value ($F_{.01} = 4.82$), therefore F-ratio is significant at .01 level. That is why null hypothesis is rejected and the research hypothesis that is internet usage, area, sex and socio-economic status differences interact significantly for the techno-stress of adolescents is accepted.

Table-V : Mean Value of the Gain Scores of Adolescents' Techno-stress at Different Stages of Internet Usage, Area, Sex, and Socio-economic Status

Factors and Its Stages		Different Stages of Factor B (Area)											
		B ₁ (Urban Area)						B ₂ (Rural Area)					
		Different Stages of Factor C (Sex)						Different Stages of Factor C (Sex)					
		C ₁ (Male Adolescents)			C ₂ (Female Adolescents)			C ₁ (Male Adolescents)			C ₂ (Female Adolescents)		
		Different Stages of Factor D (Socio-economic Status)			Different Stages of Factor D (Socio-economic Status)			Different Stages of Factor D (Socio-economic Status)			Different Stages of Factor D (Socio-economic Status)		
		D ₁ High (SES)	D ₂ Middle (SES)	D ₃ Low (SES)	D ₁ High (SES)	D ₂ Middle (SES)	D ₃ Low (SES)	D ₁ High (SES)	D ₂ Middle (SES)	D ₃ Low (SES)	D ₁ High (SES)	D ₂ Middle (SES)	D ₃ Low (SES)
Different Stages of Factor A (Internet usage)	A ₁ (Experimental Group)	7.4	8.6	9.4	6.4	10.2	10.0	10.8	10.0	11.6	10.2	11.2	13.4
	A ₂ (Control Group)	-8.0	0	+0.8	+1.8	-6.2	+3.2	+1.6	-3.0	-2.4	-1.6	-7.6	+4.8

Figure 1. Showing the Mean Values of Gain Techno-Stress Scores of Adolescents Pertaining to Experimental Group at Different Stages of Area, Sex and Socio-Economic Status (SES)

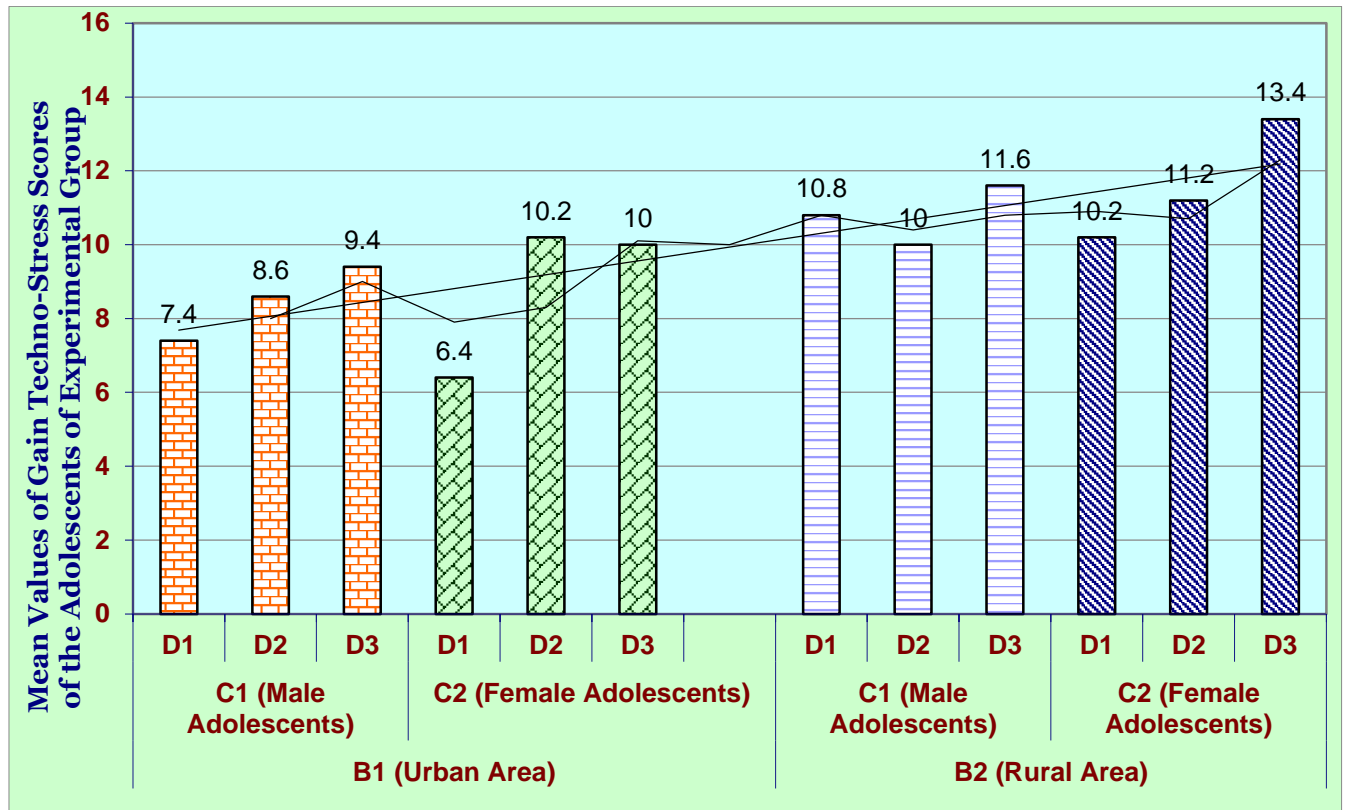


Figure 2. Showing the Mean Values of Gain Techno-Stress Scores of Adolescents Pertaining to Control Group at Different Stages of Area, Sex and Socio-Economic Status (SES)

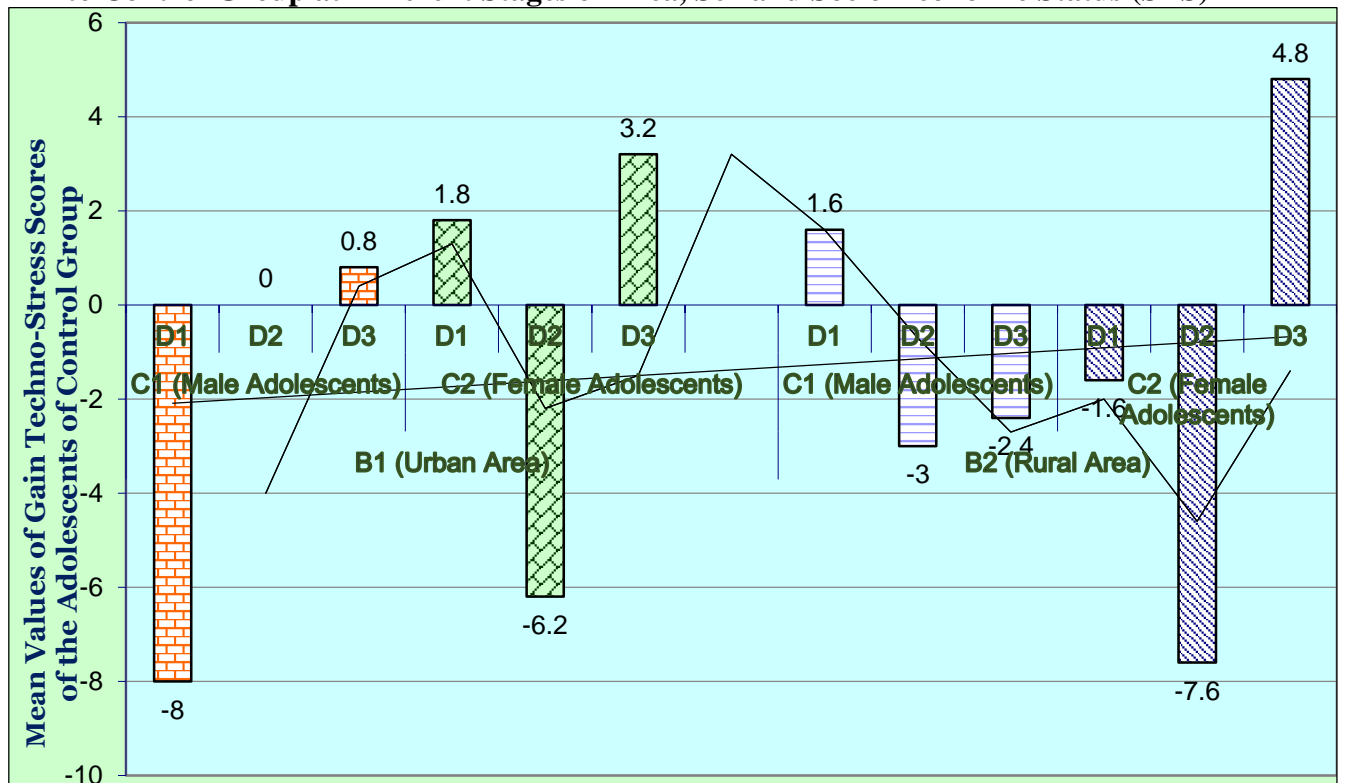


Figure 3. Showing the Interaction among Factor A (Internet Usage), Factor B (Area), Factor C (Sex) and Factor D (Socio-Economic Status) at Different Stages of them on the Mean Gain Scores of Adolescents' Techno-Stress

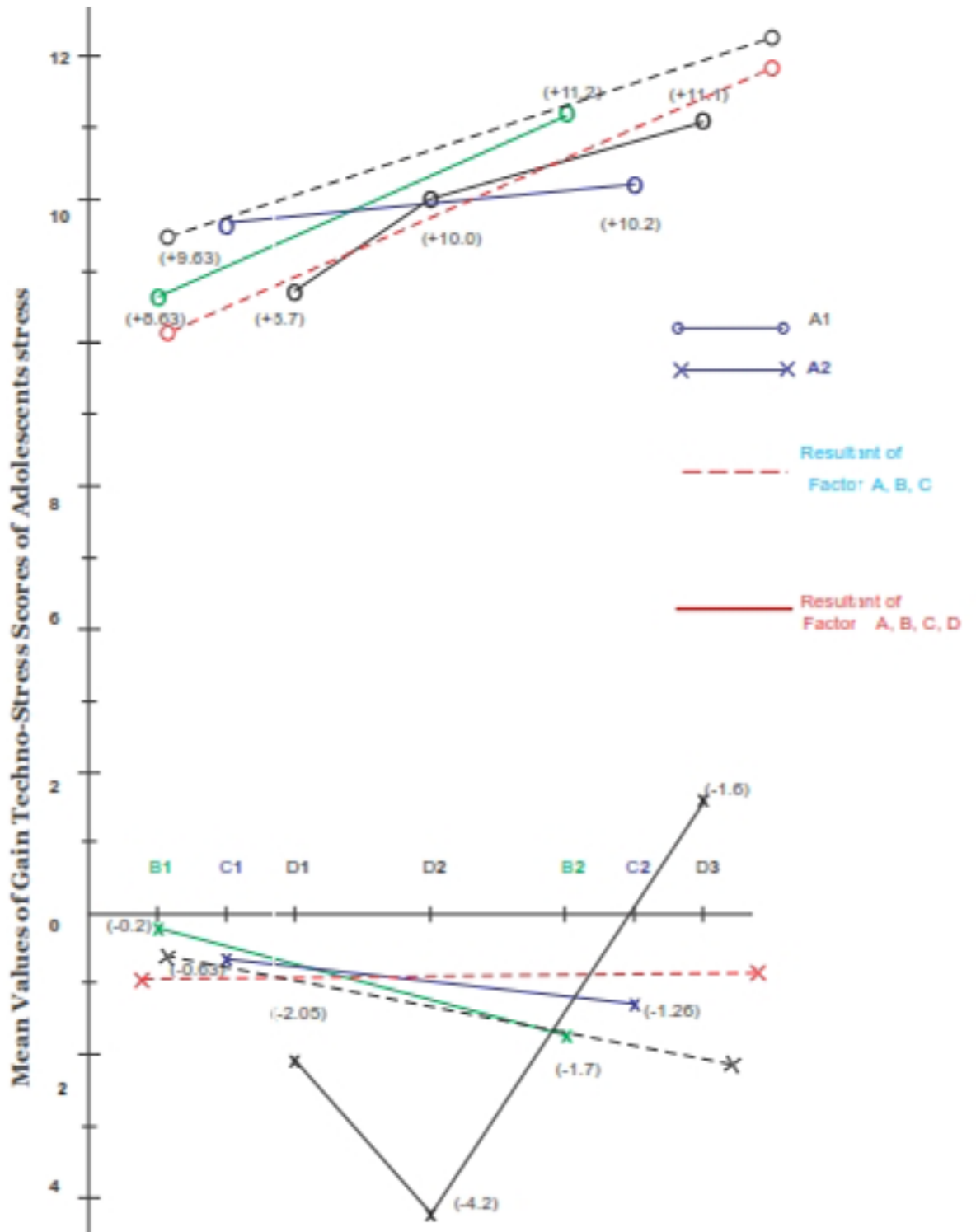


Figure 4. Showing the Interaction among Factor B (Area), Factor C (Sex), Factor D (Socio-Economic Status) and Factor A (Internet Usage) at Different Stages of them on the Gain Scores of Adolescents' Techno-Stress

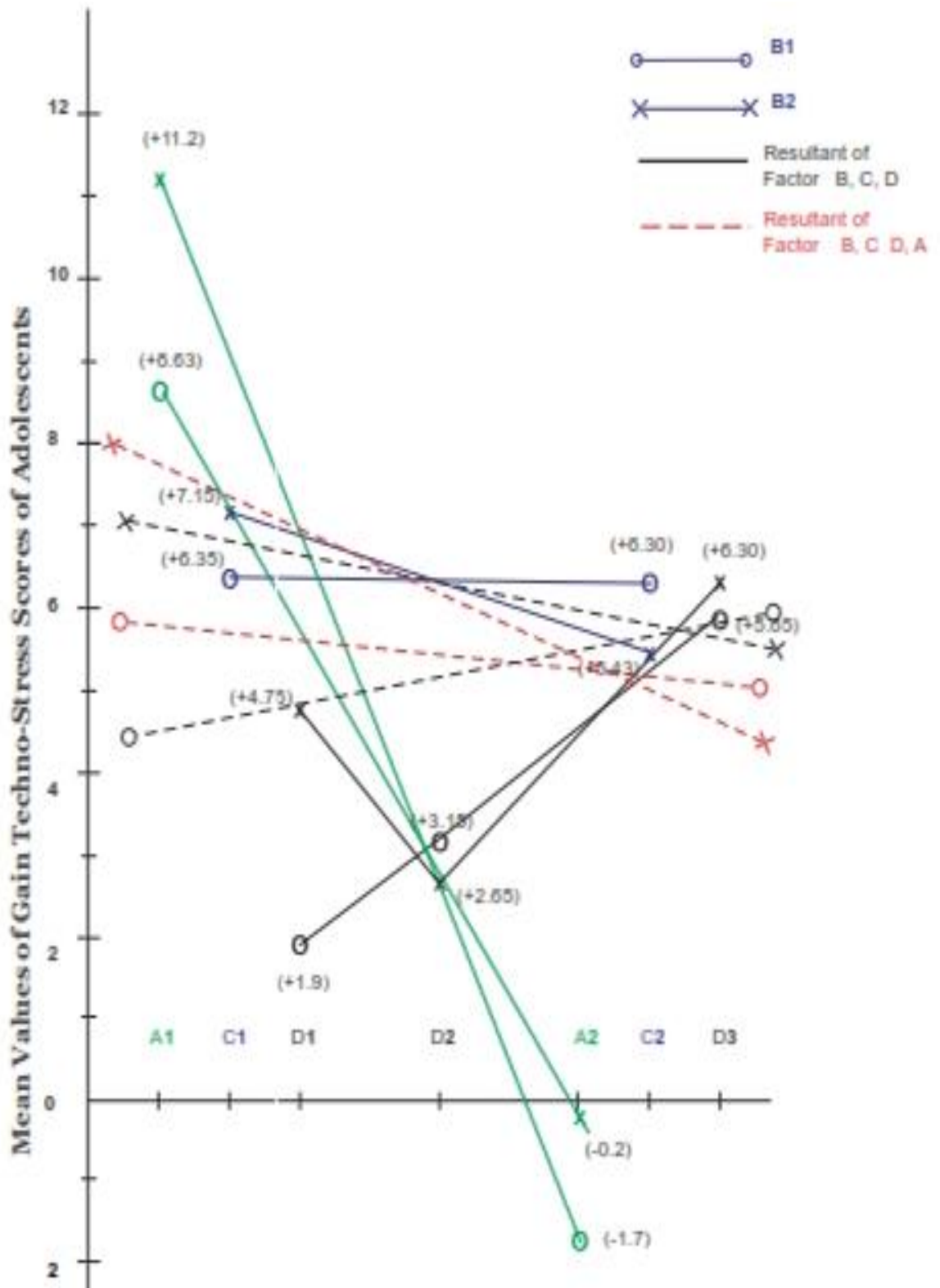


Figure 5. Showing the Interaction among Factor C (Sex), Factor D (Socio-Economic Status), Factor A (Internet Usage) and Factor B (Area) at Different Stages of them on the Gain Scores of Adolescents' Techno-Stress

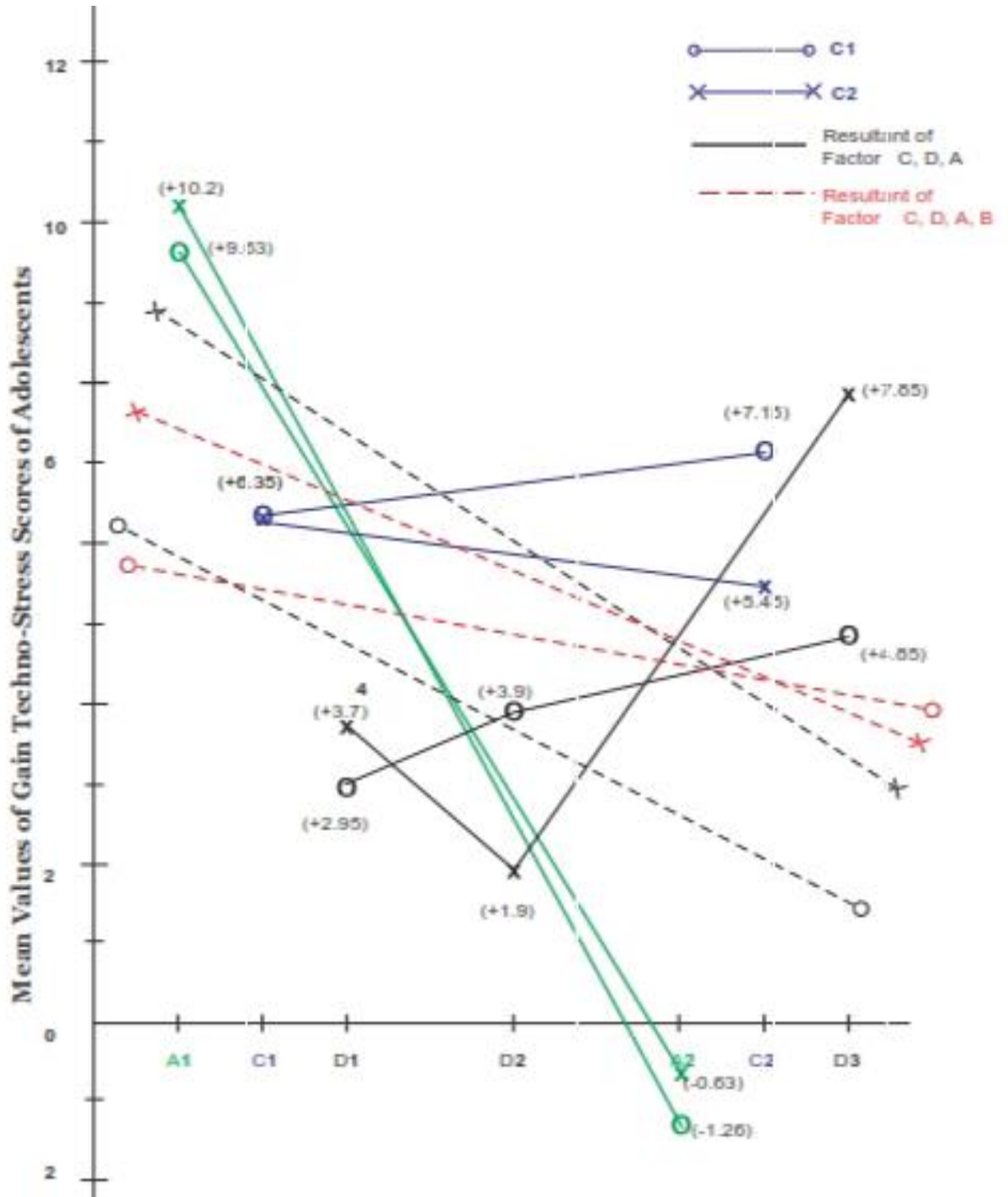
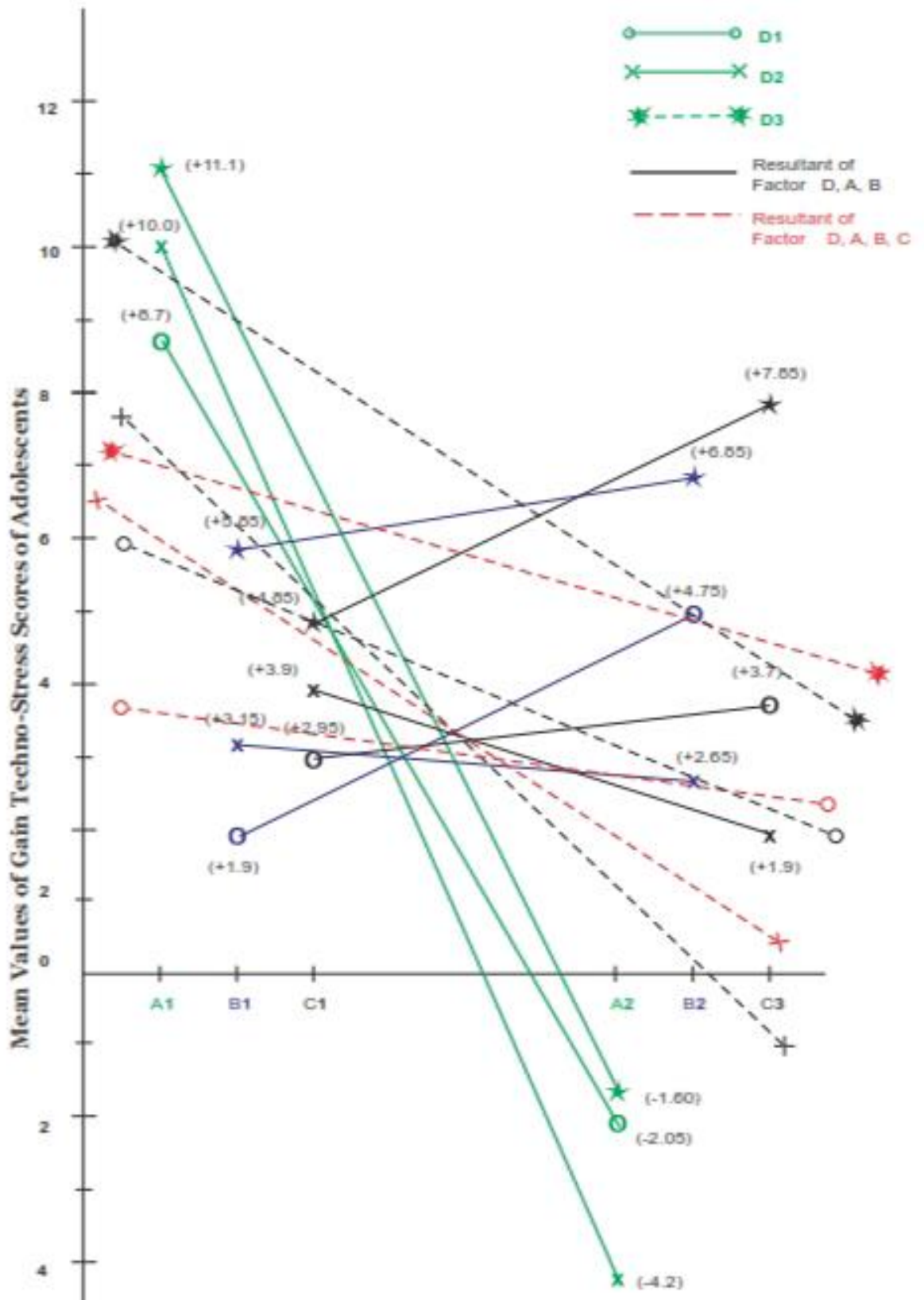


Figure 6. Showing the Interaction among Factor D (Socio-Economic Status), Factor A (Internet Usage), Factor B (Area) and Factor C (Sex) at Different Stages of them on the Gain Scores of Adolescents' Techno-Stress



The above Table- V and Figure- I to VI indicate that:

- I. Mean gain scores on adolescents' techno-stress (a.) in experimental group are higher than that of control group which shows that internet usage negatively affected to the level of adolescents' techno-stress (b.) in rural area group are higher than that of urban area group which shows that internet usage affected more negatively to the rural area group than that of urban area group (c.) in boys' group are less than that of girls' group which shows that internet usage affected more negatively to the girls' group than that of boys' group and (d.) in low SES group are higher than that of high and middle SES groups, in middle SES group are higher than that of high SES group and less than that of low SES group and in high SES group are the least of middle and low SES groups which shows that internet usage affected more negatively to low SES group in comparison to high and middle SES groups and less to the high SES group in comparison to middle and low SES groups.
- II. Two way interactions- (a.) internet usage and area differences; (b.) area and sex differences; (c.) sex and socio-economic status (SES) differences; (d.) socio-economic status (SES) and internet usage differences; (e.) internet usage and sex differences; (f.) area and socio-economic status (SES) differences; are interacting significantly with each other for the adolescents' techno-stress.
- III. Three way interactions- (a.) internet usage, area and sex differences; (b.) area, sex and socio-economic status (SES) differences; (c.) sex, socio-economic status (SES) and internet usage differences; (d.) socio-economic status (SES), internet usage and area differences are interacting significantly with one another for the adolescents' techno-stress.
- IV. Four way interactions- internet usage, area, sex and socio-economic status (SES) differences are interacting significantly with one another for the adolescents' techno-stress.

Findings and its Interpretation :

After analyzing the above data, the findings are as follows :

1. The mean gain score of adolescents' techno-stress is higher in experimental group than that of control group which shows that excessive internet usage negatively affects to the level of adolescents' techno-stress. The possible reasons may be that excessive usage of internet (i.e. three hours per day up to 150 days or more than it) displaces face to face interactive social activities. The adolescents who are spending so much time in online, it places them in the virtual world instead of real world phenomena and after one month, they feel a day by day increasing and unknown type of information overload on themselves and after three or four months, they find themselves almost totally cut off from the main stream of their daily to daily life and also the increased level of anxiety, techno-stress, feeling of insecurity, emotional instability and internet addiction etc. The same thing *Kraut et al. (2002)* supports that although there are a lot of partly unknown factors concluding negative effects of the internet use but two main factors are –(a.) displacement of social activities; (b.) displacement of ties. Another study *Baumister and Leary (2009)* describes the need to form and maintain strong interpersonal bounds a fundamental need. Further, *See Hartup (1996)* reports that peer relationship problems such as peer rejection and a lack of close friends are among the strongest predictors of depression and negative self-views.
2. The mean value of the gain scores of adolescents' techno-stress is less in urban area group than that of rural area group indicates that excessive internet usage

affects more negatively to the level of techno-stress of rural adolescents in comparison to that of urban adolescents. The possible reason may be that urban adolescents are fully benefited with the ICT resources but the rural adolescents are almost totally deprived of it. Urban adolescents have more and more chance to use it therefore, they become habitual of using it but the condition is quite different with rural adolescents among whom most of them are even not well familiar with the new ICT resources and in some of them are suffering from Technophobia. As some of the researches in the field like *Hardie & Tee (2007)* found that the usage of internet for coping purpose related to depression, social anxiety and family cohesion more so than frequency of use. *Pandey & Gore (2008)* found that 35% secondary students belonging to rural area and 57% secondary students belonging to SC/ST community were suffering from Technophobia and the same thing *Dwivedi (2004)* found that there is significant difference between urban and rural graduate students in their attitudes towards ICT.

3. The mean value of the gain scores of adolescents' techno-stress is comparatively higher in girls' group than that of boys' group indicates that internet usage affects more negatively to the level of techno-stress of female adolescents in comparison to that of male adolescents. The possible reasons may be that the girls have to face so many restrictions in going out of home alone to use ICT resources in cyber cafes. Particularly, in more backwards areas like Bundelkhand where most of the residents are living below poverty line and are unable to provide personal computer/laptop to their kids, specially the condition with the girls is very adverse. Therefore the girls have comparatively very less opportunities to use ICT resources either in home or in cyber cafes and are also more sensitive in the use of ICT. Some of the studies in the area also supports the same thing as : *Odell, Korgen and Schumacher (2009)* concludes that Turkish adolescents' loneliness was associated with increased internet use, internet attitude and with their sex and the male adolescents reported a higher frequency of internet usage than females and *Devid (2003)* found that male adolescents have more positive towards ICT in comparison to that of female adolescents.
4. The mean value of the gain scores of adolescents' techno-stress is significantly different in high, middle and low SES groups. It means excessive internet usage differently affects to the level of adolescents' techno-stress pertaining to different SES groups. The possible reasons may be that there is a great disparity existed among the adolescents belonging to different SES in the opportunities of using ICT resources. Where on one side, the adolescents belonging to high SES have more opportunities to use ICT resources and therefore, they have more positive attitude towards new ICT resources while on the other side, the adolescents belonging to low SES have very less opportunities to use it and have more negative attitude towards it. Most of them think that it is new technology that has displaces a lot of people from the employment. Consequently internet usage affects more negatively to the level of techno-stress of low SES group in comparison to that of high and middle SES groups and less to the high SES group in comparison to middle and low SES groups. In their study *Odell, Korgen and Schumacher (2009)* reported that Turkish adolescents' loneliness was associated with their internet attitude and *Kraut et al. (1998)* found that using the internet for as little as three hours per week led to increased levels of depression and reduction in social support over the course of two years. Results

showed that teenagers are the most vulnerable to these negative effects and three years after in their later study they found that higher level of internet use was positively correlated with measures of social involvement and psychological well-being (*Kraut et al 2002*).

5. It is found that internet usage and area differences are interacting significantly with each other for the techno-stress of adolescents.
6. It is found that area and sex differences are interacting significantly with each other for the techno-stress of adolescents.
7. It is found that sex and SES differences are interacting significantly with each other for the techno-stress of adolescents.
8. It is found that SES and internet usage differences are interacting significantly with each other for the techno-stress of adolescents.
9. It is found that internet usage and sex differences are interacting significantly with each other for the techno-stress of adolescents.
10. It is found that area and SES differences are interacting significantly with each other for the techno-stress of adolescents.
11. It is found that internet usage, area, and sex differences are interacting significantly with one another for the techno-stress of adolescents.
12. It is found that area, sex and SES differences are interacting significantly with one another for the techno-stress of adolescents.
13. It is found that sex, SES and internet usage differences are interacting significantly with one another for the techno-stress of adolescents.
14. It is found that SES, internet usage and area differences are interacting significantly with one another for the techno-stress of adolescents.
15. It is found that internet usage, area, sex and SES differences are interacting significantly with one another for the stress of adolescents.

Conclusion:

In contemporary society, the number of internet users are increasing on the world by leaps and bounds and with the same speed the internet users are reporting many types of problems related to mental health among these problems techno-stress, anxiety, maladjustment, depression, internet addicted disorder and cyber sexual addition are most common and more particularly the teenagers are the most vulnerable to these negative effects. Excessive internet usage negatively affects to the level of adolescents' techno-stress. It affects more negatively to the rural and female adolescents in comparison to their urban and male counterparts. Further, it affects most negatively to the adolescents pertaining to low socio-economic status in comparison to their high and middle (SES) counterparts and least negatively to the adolescents pertaining to high (SES) in comparison to their middle and low (SES) counterparts. Internet usage, area, sex and socio-economic status (SES) differences combindly affect to the level of adolescents' techno-stress.

Potential Contribution of the Study:

Every research work ought to have some educational implications. The present study may be helpful in :

1. Making the adolescents aware towards the repercussions of the excessive internet usage.
2. Providing the knowledge of some practical techniques of effective stress/techno-stress management.

3. Developing the insight in adolescents how to cope with techno-stress and in parents/guardians/teachers how to help the adolescents in coping with techno-stress.
4. Making the adolescents mentally healthy, well-adjusted and stress/techno-stress free through making them independent to solve their problems related to the increased level of techno-stress.
5. Providing some insight to the cyber psychologists and technology creators to create student friendly technology and to human resource managers, educationists, service providers and policy makers to frame policy keeping in the view of the repercussions of its excessive usage.

Possible Causes of Stress/Techno-Stress:

- ❖ Techno-overload (high pressure of to cope up with information overload) ;
- ❖ Techno-complexity (the complexity of new ICTs that makes users to feel incompetent) ;
- ❖ Techno-insecurity (feeling of insecurity to do comparatively better performance);
- ❖ Techno-uncertainty (the constant changes, upgrades and bug fixes in ICT hardware and software impose stress on the users);
- ❖ Techno-invasion (unnecessary interference of technology in personal life) ;
- ❖ Lack of reliable and user friendly software and hardware;
- ❖ High pressure of meeting to the expectations of parents ;
- ❖ Physiological changes due to their adolescent age;
- ❖ Development of negative self-concept;
- ❖ Setting up unrealistic goals;
- ❖ Worrying about upcoming exams;
- ❖ Selection of subjects/stream/course of study ;
- ❖ One-sided love relationship;
- ❖ Maladjustment due to – (a.) changing of schools; (b.) monotonous environment of school; (c.) cumbersome homework; (d.) unnecessary extra co-curricular activities; (e.) high norms of school/institutions; (f.) rejection by his friends and peer group;
- ❖ Feeling of insecurity due to -(a.) death/separation/divorce of his parents; (b.) financial problem; (c.) unwanted quarrel between parents; (d.) concern about a new part time job; (e.) chronic/severe illness;

Symptoms of the Stressed/Techno-Stressed Adolescents :

- ❖ Feeling difficulty in concentrating at his study/homework;
- ❖ Sudden fall in school performance;
- ❖ Withdrawn from friends, family members and daily to daily life activities;
- ❖ Low level of confidence and life satisfaction;
- ❖ Negative feeling like personal life is disrupted by preoccupation with to do lists, calls, errands and memos etc.;
- ❖ Multitasking Madness and suffering from Information Fatigue Syndrome with more information and outright rejection of the technology;
- ❖ Outburst of negative emotions e.g. aggression, fright, anxiety, shame, guilt, sadness, jealousy, disgust, irritation, frustration, low self-esteem, getting fed up with work and feeling of helplessness etc.;

- ❖ Physiological symptoms like feeling of headache, sleeplessness, nausea or upset stomach, cardiac problems, hypertension, nightmare, trembling, sweating and skin eruptions etc.;

Suggestions for the Adolescents to Cope with Stress/Techno-Stress:

Adolescence is the age of great stress, strain, storm and strike and most of the time they are always afflicted with some type of stress. It is not necessary that stress is always only harmful but sometimes it is necessary for the progress of our life like other needs and it sets our life in motion. Where on one side the positive use of stress maintains the energy and ability of achieving good results at competitions and providing the best shape to our work till the last moment and roles significantly for getting mastery over conflicts and avoiding us from being careless, on the other side the negative effects of increased level of stress create various types of mental and physical problems like maladjustment, lack of confidence, frustration, irritation and feeling of insecurity etc. For effective management of stress/techno-stress, the following practical steps may be helpful for the adolescents :

❖ Must 'Do' These Things :

- Use appropriate and user friendly softwares;
- Get Stress Inoculation Training (SIT) if possible;
- Improve your knowledge and skills to cope with rapid changing technology;
- Focus only on the information that you really needed. Think critically and separate the gems from the dross;
- Keep a sense of humour and share your feelings to parents and to some good friends and don't make communication gap with them;
- Create a network of good friends and stay in touch with the people who can provide you emotional and other support in coping with stress/techno-stress;
- Learn some practical coping skills e.g. (a.) be assertive and learn how to say 'no'; (b.) prioritise your every days to do list and get organised; (c.) look and visualise only brighter aspects of life; (e.) eat healthy food and get enough sleep; (f.) give up your bad habits; (g.) be compromising and forgive to others mistakes; (h.) set aside relaxation time; (i.) break a larger and cumbersome task into some smaller and easier pieces; (j.) set limits to use ICT.
- Take a break from stressful situation and involve yourself in the activities like – playing the piano, listen to music, watching a movie, talking to a friend, playing with pets etc.
- Do regular exercise more particularly to the neuromuscular relaxation exercises e.g. yoga, meditation, long breathing, mindfulness and go for a morning walk etc.
- Do some creative and enjoyable work e.g. work in the garden, reading good and interesting books and self-expression etc.
- Express your feelings e.g. talk, laugh, cry, and anger instead of bottling them up;
- Set realistic and attainable goals and make yourself safer with the alternatives to frustrated goals;
- Try to control over your environment if possible otherwise avoid them;

- See a school counsellor. A school counsellor can give you ways to reduce your stress or manage it better.

❖ **Must 'Avoid' These Things :**

- Changing ICT devices within a short period of time;
- Staying on with ICT devices for a longer time;
- Excess intake of sugar, caffeine, drugs, alcohol, tobacco and smoke etc.;
- Negative self-talk and dwelling on with unnecessary problems;
- Being so caught up in the hustle and bustle of life that makes you forget to take care of yourself;
- The people and hot button topics that make you stressed;
- Aspiring for perfection and trying to control over uncontrollable things.

Suggestions for Further Researches :

- The researcher may study the effect of excessive internet usage on adolescents' self-concept, memory and emotional maturity.
- A study can be further elaborated to study the effect of mobile usage on children/adolescents' mental health, memory, emotional intelligence etc.
- A study can be done to see the effect of online games on children/adolescents' mental health, memory, adjustment, emotional maturity, self-concept etc.
- A study can be done to see the effect of yoga on adolescents' mental health, adjustment, memory, emotional maturity, self-concept etc.
- A cross sectional study can also be made to investigate the effect of yoga on mental health, memory, adjustment, emotional maturity of the persons of different age groups.
- A comparative study can be made to see the effect of mobile and internet usage on children's/adolescents' mental health, adjustment, emotional maturity and on the level of their techno-stress.
- A study can also be made to see the comparative effect of different facilities that internet provides i.e. online games, instant messaging, wave surfing, news groups, chatting etc. on adolescents' mental health, adjustment, emotional maturity and their techno-stress etc.
- A cross sectional study can be made to examine the effect of internet usage on mental health, adjustment, techno-stress, emotional maturity and self-concept of the persons of different age groups.

Reference :

- Baumister, N. and Leary, C. (2009). The Strength of Strong Ties; the Importance of Philos in Organizations. In Nohria, N. (Eds.). *Networks and Organization : Its Structure, Form and Action*. Bostan, MA : Haward Business School Press, P.721.
- Beard, K.W. (2002). Internet Addiction: Current Status and Implications for Employees. *Journal of Emplo-Counseling*, 39 (2), P. 2-11.
- Bharadwaj, R.L. (2009). *Socio-Economic Status Scale (SES)*. India, Agra, Kacheri Ghat : National Psychological Corporation.

- Bonebrake, K. (2002). College Students' Internet Use, Relationship Formation and Personality Correlates. *Cyber Psychology and Behaviour*, 45 (1), P. 551-557.
- Brod, Craig (1984). *Techno-Stress: the Human Cost of the Computer Revolution*. Reading, MA: Addison-Wesley, P. 11 – 13.
- Campbell, A. J., Cumming, C.R. and Hughes, I. (2006). Internet Use by the Socially Fearful and Addiction. *Cyber Psychology and Behaviour*, 63(3), P. 69-81.
- Census of India (2011). Ministry of Home Affairs : Govt. of India. Retrieved on Sep. 17, 2013 from <http://censusindia.gov.in>
- Clark, Katie & Kalin, Sally (1996). Techno-stressed Out? How to Cope in the Digital Age. *Library Journal*, 121(12), P. 30-32.
- Consumer Watch Dog (2012). Annual Survey Report of Internet Users. Retrieved on Feb. 13, 2013 from <http://www.which.co.uk>.
- Devid, K. (2003). Adolescents' Attitude Towards Information Communication Technology (ICT), Socio-economic Status, Age Group and Personality Correlates. In Singh, J. K. (Ed.). *B. Ed. Mahavidyalayon Ke Vidyarthiyon Ki Dharmanirpekshata, Samajik Ewam Sanskritik Adhunikata Ke Papariprekshya Me Unaki Shaikshik Nawacharon Ke Prati Abhivritti(1st Ed.)*. Mehasana, Gujarat, India : RET International Academic Publishing, P. 154.
- Drever, J. (1964). *A Dictionary of Psychology*. London : Penguin Book, P. 354.
- Duxbury, L. E. & Higgins, C. A. (2003). Work-Life Conflict in Canada in the New Millennium : A Status Report. Health Canada : Population and Public Health Branch, P. 562, Retrieved on May 25, 2009 from <http://www.mentalhealth.com>
- Dwivedi, S. (2004). Snatak Star Par Adhyayanrat Shahari Ewam Gramin Vidyarthiyon Ke Pariwarik Watawaran Ke Sandarbh Me Unake Adhunik Soochana Ewam Sanchar Pradyogiki (ICT) Ke Prati Drishtikon Ka Adhyayan. In Singh, J. K. (Ed.). *B. Ed. Mahavidyalayon Ke Vidyarthiyon Ki Dharmanirpekshata, Samajik Ewam Sanskritik Adhunikata Ke Papariprekshya Me Unaki Shaikshik Nawacharon Ke Prati Abhivritti(1st Ed.)*. Mehasana, Gujarat, India : RET International Academic Publishing, P. 154.
- Engelberg, E. & Sjoberg, L. (2004). Internet Use, Social Skills and Adjustment. *Cyber Psychology and Behaviour*, 53 (1), P. 41.
- Everly, George S. (2009). *A Clinical Guide to the Treatment of the Human Stress Response*. New York: Plenum Press, P. 482-498.
- Griffiths, M. (2008). Internet Addiction: Does It Really Exist? In J. Gackenbach (Ed.). *Psychology and the Internet : Interpersonal and Transpersonal Implication*. Sang Diego : Academic Press, P. 61-75.

- Gross, E.F., Juvonen, J. & Gable, S.L. (2002). Internet Use and Well-being in Adolescents. *The Society for Psychological Study of Social Issues*, 58 (1), P. 75-90.
- Hamburger, Y. & Ben Artzi, E. (2003). Loneliness and Internet Use. *Computers in Human Behaviour*, 12 (4), P. 71.
- Hardie, E. & Tee, M.Y. (2007). Excessive Internet Use : the Role of Personality, Loneliness and Social Support Network in Internet Addiction. *Australian Journal of Emerging Technologies and Society*, 5 (1), P. 34-47.
- Hartup, See (1996). The Identification of Psychological and Social Correlates of Internet Use in Children and Teenagers. Doctoral Dissertation, Department of Computer Science, Alliant International University, California, USA, P. 102. Retrieved on Feb. 12, 2009 from <http://www.alternatiementalhealth.com>
- Health Research Board (2012). National Psychological Well Being and Distress Survey. Retrieved on Feb. 13, 2013 from <http://www.hrb.i.e/publications>
- Helode, R. D. & Ghosh, M. (1995). Socio-economic Inequalities and Reactions to Frustration. *Indian Journal of Psychology*, 70 (3), P. 11-15.
- Holingshed, N. and Redlich, B. (1958). *Social Class and Mental Illness*. New York: Wiley, P. 321.
- Hurlock, E.B. (1955). *Adolescent Development (2nd Ed.)*. New York: McGraw Hill Book Co., P. 373.
- King, S.A. (2006). Is the Internet Addictive or are Addicts Using the Internet? Retrieved on March 03, 2009 from <http://www.concentric.net>
- Kraut et al. (1998). Internet Paradox : A Psychology that Reduces Social Involvement and Psychological Well-Being? *American Psychologist*, 53 (4), P. 1017-1031.
- Kraut et al. (2002). Internet Paradox (Revisited). *Journal of Social Issues*, 58 (1), P. 49-74.
- Lazarus, Richard S. (1966). *Psychological Stress and the Coping Process*. New York: McGraw-Hill, P. 543.
- Malinconico, S. M. (2009). Technology and the Academic Workplace. *Library Administration & Management*, 5 (3), P. 25-28.
- Monat, A. & Lazarus, R.S. (2009). Stress and Coping : Some Current Issues and Controversies. In Alan Monat & Richard S. Lazarus (Eds.). *Stress and Coping (3rd Ed.)*. New York: Columbia University Press, P. 1-15.

- Moody, E. J. (2001). Internet Use and its Relationship to Loneliness. *Cyber Psychology and Behaviour*, 42 (2), P. 393-401.
- Morahan Martin, J. & Schumacher, P. (2009). Loneliness and Social Uses of the Internet. *Computers in Human Behaviour*, 35(3), P. 659-671.
- Odell, P.M., Korgen, K.O. & Schumacher, P. (2009). Internet Use among Female and Male College Students. *Cyber Psychology and Behaviour*, 74(2), P. 855-862.
- Oldfield, B. & Howitt, D. (2004). Loneliness, Social Support and Internet Use. Paper Presented at the Conference on Internet Research, Ubiquity, Sussex, U.K. Retrieved on Jan. 4, 2009 from <http://www.depression.org.uk>
- Pandey, D. & Gore, Rashmi (2008). Bundelkhand Ke Chitrakootdham Mandal Ke Madhyamik Star Par Adhyayanrat Vidyarthiyon Ke Mansik Swasthya Ke Sandarbh Me Unake Adhunik Soochana Ewam Sanchar Pradyogiki (ICT) Ke Prati Jagarukata Ka Adhyayan. In Singh, J. K. (Ed.). *B. Ed. Mahavidyalayon Ke Vidyarthiyon Ki Dharmanirpekshata, Samajik Ewam Sanskritik Adhunikata Ke Papariprekshya Me Unaki Shaikshik Nawacharon Ke Prati Abhivritti(1st Ed.)*. Mehasana, Gujarat, India : RET International Academic Publishing, P. 153.
- Saraswat, Malati (2007). *Shiksha Manovigyan Ki Ruprekha*. Aminabad, Lucknow : Aloka Prakashan, P. 167.
- Shaw, L. H. & Gant, L.M. (2002). In Defence of the Internet : the Relationship between Internet Communication, Depression, Loneliness, Self-Esteem and Perceived Social Support. *Cyber Psychology and Behaviour*, 45 (1), P. 157-171.
- Singh, A.K. & Gupta, A.S. (2008). *Mental Health Battery (MHB)*. India, Agra, Kacheri Ghat : National Psychological Corporation.
- Sinha, A.K.P. & Singh, R.P. (2009). *Adjustment Inventory for School Students (AISS)*. India, Agra, Kacheri Ghat : National Psychological Corporation.
- Wang, K., Shu, Q. & Tu, Q. (2008). Techno-stress under Different Organizational Environments: An Empirical Investigation. *Computers in Human Behaviour*, 32(4), P. 755.
- Whitt, Y. and Maclauphlin, S. (2007). Loneliness and Internet Use. *Computers in Human Behaviour*, 25(1), P. 372-75.
- Young, K. & Wiederhold, M. (2009). Human-Computer Interactions : are there Adverse Health Consequences? *Computers in Human Behaviour*, 34(2), P. 134-146.