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RESEARCH ARTICLE

STUDENTS' EFFECTIVE USE OF DIGITAL EDUCATION DURING TRANSITION ERA : ROLE OF PARENTAL INVOLVEMENT

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Abstract

The transition from blackboard to smart board has given us many opportunities in education. Children and parents of this era are the first generation learner in Digital Technology. With change in school education scenario and inclusion of digital technology in classroom, the parents are trying hard in adjust with this new change in education in home environment. In this Pandemic situation Digital Technology has become mandatory for educational purposes in maximum household. The present study was conducted to explore the relationship between middle school students' digital education and parental involvement in different socio- economic conditions. A sample of 213 middle schools children (86 girls and 127 boys; VI, VII and VIII) along with their respective parents (426= 213 fathers and 213 mothers) of Kolkata region were used in this quantitative study. Two scales were used for the collection of data. Correlation analysis, t-test and one way ANOVA were done for analysing the data as per the requirement of the objectives of the study. The tests revealed that parental mediation is needed for children's educational use of digital technology but there exists no difference between fathers' mediation and mothers' mediation in this sector in Kolkata, West Bengal, India while there exists difference among the parents in this field according to their socio - economic status.

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Introduction:-

Digital education has reshaped education in many ways. Digital technologies can enable learning anywhere and at any time, not just in the classroom and moreover easy access to the huge range of resources available on the internet to support learning (websites, apps and more). The growing popularity of digital education or e- learning is attributed to its ability to enable students to study without the constraints of time and space (Yacob, Zuriyati, Kadir, Zainudin, & Zurairah, 2012). Digital technology could be transformative for the world's most disadvantaged and vulnerable children, helping them to learn, grow and fulfill their potential (UNICEF, 2017) by which SDG-4 that is 'Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all' can be attained (Huawei, 2017).

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From the past few months of 2020, schools have closed in maximum countries in the world including India because of pandemic. Without aggressive policy action, this will have both immediate and long term impact on children's education due to closure of schools (UNESCO, 2020). Though teachers are taking virtual classes, still in this covid-19 situation parental involvement in child's education is crucial.

Parental involvement is the most influential factor for child education (Gorges and Elliott, 1995). There are controversies among researchers that whether in digital learning parental involvement is helpful or not but maximum studies found a positive impact of parental involvement on children's digital learning (Haelermans and Ghysels, 2016).

It is proved in researches like Li & Qiu (2018) that family background affects children's academic achievement. It can be also said that adult supervision and mediation are required when children are connected with internet. So an intervention programme on parental mediation to get the optimum benefit of ICT on children is also essential (Berrios, Buxarrais & Garces, 2015).

India is a country of diversity with many languages, religion, socio- economic status etc (NCERT, 2020). In this diversified structure of the Indian society, though a few researchers have found difference in parental mediation approaches on students' digital education according to the family socio- economic background (Lips, Eppel, McRae, Starkey, Sylvester, Parore, and Barlow, 2017), still deeper empirical study is needed in this field of research.

Literature Review:-

This review of the literature was done to analyze the existing literatures on students' digital education at home and parental involvement including the factor of their Socio- Economic Status.

Liu, Black, Algina, Cavanaugh, and Dawson (2010) in their quantitative research conducted in Florida, collected data from 80 parents. They adopted Hoover-Dempsey and Sandler's Parental Involvement Mechanisms Instrument. They found that parental involvement in virtual learning is very important for student's learning when they are in home environment.

Yu, Yuen and Park (2012) conducted an exploratory study in China to understand the parental influence on children's computer use at home through interview of 37 parents and students of 13-14 years old of two secondary schools. The findings suggest the existence of different parental influence in regard to students' home computer use for education.

Berrios, Buxarrais and Garces (2015) tried to explore about the habits of upper primary-age children with ICT, and children's conception about parental involvement in this sector. For this survey research a questionnaire was applied for data recollection to 422 children of private schools in Santiago de Chile of America aged between 9 and 12 years old. Researchers found a positive effect of ICT in daily life of most of these children but also found the need of parental supervision when children are connected with internet.

Livingstone, Mascheroni, Dreier, Chaudron and Lagae (2015) aimed to investigate the relation between socio-economic status as a factor of difference in parental guidance and parental mediation strategies about digital media use at home at the age of 8. Data of this qualitative research was collected from 70 European families. They found positive strategic difference among higher income, more educated families than lower income, less educated families while parents give guidance in students' digital education.

Alkan (2016) examined the factors in Internet use of children in Turkey gender wise. Two stage stratified cluster sampling technique was done for collecting data from 100 households. In this mixed method study 6-15 age group children were chosen. According to the findings, Internet has more effect on high SES families.

Kur, Kolo, and Iorpagher (2019) in their quantitative research wanted to explore about awareness, attitudes, use and perceptual effectiveness of parental controls on bad and good effect of media on their children in Nigeria. A sample of 262 parents was collected for the study. The findings revealed low awareness, negative attitude, and low use of parental controls. After conducting the study they suggested for further research to find out the factors about the low level of awareness.

Although the need of parental involvement on child's digital education has been documented in the literature, very few studies have attempted to explore the relative links between socio-economic status as a factor of difference in parental involvement on their children's media use on educational purpose. In the country like India, where there is a huge socio-economical difference in the society, internet is increasingly used in the daily life of everyone. The basic aim of this study is to determine that if there is any impact of parental mediation according to socio-economic factors on children's effective use of digital education.

Significance Of The Study:

Globally India holds the second position in online market after China (Vijayan, 2019). The education sector has a wide spread use of digital technology. But technology has some negative impact as children may view some contents inappropriate for their age, so parents need to be cautious in this matter. Their nascent minds may be scared by some graphic illustrations. Here comes the role of parental involvement so as to ensure safe digital education. So, the problem under concern is that, in Indian context whether parental involvement is related to students' effective use of digital education. In this scenario the researcher realized the significance of conducting the study.

Objectives and hypotheses of the study

Objectives of the study:

1. To find out the relationship between parental involvement and their children's educational use of digital technology.
 - 1a. To find out the relationship between fathers' involvement and their children's educational use of digital technology.
 - 1b. To find out the relationship between mothers' involvement and their children's educational use of digital technology.
2. To find out if there is any difference between fathers' involvement compared to mothers' involvement towards their children's educational use of digital technology.
3. To find out if there is any difference between socio-economic status of parents with their involvement towards children's educational use of digital technology.
 - 3a. To find out if there is any difference between socio-economic status of parents with fathers' involvement towards children's educational use of digital technology.
 - 3b. To find out if there is any difference between socio-economic status of parents with mothers' involvement towards children's educational use of digital technology.

Hypotheses Of The Study:

- H_{01} : There is no significant relationship between parental involvement and their children's educational use of digital technology.
- H_{01a} : There is no significant relationship between fathers' involvement and their children's educational use of digital technology.
- H_{01b} : There is no significant relationship between mothers' involvement and their children's educational use of digital technology.
- H_{02} There is no significant difference between fathers' involvement compared to mothers' involvement towards their children's educational use of digital technology.
- H_{03} There is no significant difference between socio-economic status of parents with their involvement towards children's educational use of digital technology.
- H_{03a} . There is no significant difference between socio-economic status of parents with fathers' involvement towards children's educational use of digital technology.
- H_{03b} . There is no significant difference between socio-economic status of parents with mothers' involvement towards children's educational use of digital technology.

Materials & Method:-

Sample:

For this correlational study a sample of 213 sixth, seventh and eighth grade students and 426 father- mother dyads were taken as sample for the study. Three co-educational schools in Kolkata were randomly selected in the year of 2018. The age of students ranged from 12-15 years. The schools were Private Higher Secondary schools and followed English as a medium of instruction.

Table1:- Nature of the total sample.

Sample	Category	N = 213	N in %
Gender of children	Boys	127	59.62%
	Girls	86	40.37%
Grade of children	VI	75	35.21%
	VII	66	30.98%
	VIII	72	33.80%
Socio-economic status	Upper	83	38.96%
	Upper middle	77	36.15%
	Lower middle	38	17.84%
	Upper Lower	15	7.04%

Tools Used:**Tools Adapted:****Socio- Economic Status:**

For collection of Socio-Economic Status details the researcher used modified Kuppusswamy scale (Singh, Sharma and Nagesh, 2017). The scale provided information regarding income, education and occupation of parents.

Parental involvement:

To measure parental involvement the researcher constructed a self report 6 point Likert scale containing 19- items adapted from Parental Involvement Mechanisms Measurement (Liu, Black, Algina, Cavanaugh, and Dawson, 2010) and from an interview schedule (Rideout, 2014). The scale has answer choices- not at all true (1), a little bit true (2), somewhat true (3), often true (4), mostly true (5), completely true (6) with higher score indicating more parental involvement. For measuring the reliability of the adopted parental scale (PAICEUDTS- Parental Awareness and Involvement for Child's Educational Use of Digital Technology Scale) the researcher have done Cronbach Alpha test on around 25% of the parental data (Father= Mother= 78). Cronbach alpha for the adopted full scale were .916 for fathers and .902 for mothers.

Tools developed:**Child's educational use of digital technology:**

The final version of 'Child's Educational Use of Digital Technology Scale' (CEUDTS) has been finalized on the basis of past researches to measure the child's educational use of digital technology in home context. The 5 point scale contained 14- items which examined the areas like educational video, blog, web-sites, educational apps, e-book etc has answer choices- Strongly disagree (1), Disagree (2), Neither agree nor disagree (3), Agree (4), Strongly agree (5) with higher score indicating more child's educational use of digital technology. For assessing the validity of the developed child scale (CEUDTS- Child's Educational Use of Digital Technology Scale) the researcher has done Item-Total correlation on a sample of 78 children data. The Item- Total correlation range was 0.433 - 0.731 and the Item- Item Correlation range was 0.078- 0.789 ($p < .01$). For checking the reliability of the scale Cronbach alpha method was done on 78 children data. The reliability coefficient for the entire scale was found to be .864.

Procedure:

After receiving prior permission from school principals, researchers were asked to choose sections from grade sixth, seventh and eighth. Before starting the data collection the researcher gave a brief talk on the study, and then students were provided 30 minutes to fill the scale during curriculum time in front of the researchers. In case any difficulty arose the researchers clarified the items. The students who participated in the survey were provided with two sets of questionnaires of their parents which they returned to school after filling it up from home. After collection the data was analyzed statistically and results were interpreted.

Analysis and findings:**Verification of first hypothesis**

To know the influence of parents on children's educational use of digital technology two correlations were done separately (father and mother).

Table 2:- Correlation analysis results between the score of PAICEUDTS- Father and the score of CEUDTS.

	Correlation coefficient (r)	
	CEUDTS	PAICEUDTS (Father)
CEUDTS	1	.240**
PAICEUDTS (Father)	.240	1

** p < .01

Table 3:- Correlation analysis results between the score of PAICEUDTS- Mother and the score of CEUDTS.

	Correlation coefficient (r)	
	CEUDTS	PAICEUDTS (Mother)
CEUDTS	1	.237**
PAICEUDTS (Mother)	.237**	1

** p < .01.

The results of table 2 and table 3 indicated that parental involvement and their children's educational use of digital technology were significantly positively correlated (father- $r = 0.240$, $p < 0.01$, mother- $r = 0.237$, $p < 0.01$). From the above results and interpretations, the first Hypothesis of this Study which is divided into two parts i.e., (H_{01a}) there is no significant relationship between father's involvement and their children's educational use of digital technology and (H_{01b}) there is no significant relationship between mother's involvement and their children's educational use of digital technology was rejected. As a result it can be said that if parents involve in their children's educational use of digital technology, they learn better from digital media.

Verification Of Second Hypothesis

For comparing father's and mother's involvement Independent sample t-test was done and the results are presented in table 4. As the Sig. (p) value of Levene's test is .929 that is > 0.05 , so, the 'Equal variances assumed' row should be taken for t-test result.

Table 4:- Independent sample T-test results between PAICEUDTS- (Father) and PAICEUDTS (Mother).

Scale	Parents (N=426)	Mean	S.D.	"t" value	df	P value
PAICEUDTS	Father (N=213)	66.87	21.086	.324	424	.746
	Mother (N= 213)	66.22	20.720			

The above results of t- test analysis (table 4) shows that there is no significant difference with respect to Father & Mother in parental involvement towards their children's use of digital technology. Thus the null hypothesis (H_{02}) is accepted and it can be concluded that both parents are important for mediating digital technology to the children's education.

Verification Of Third Hypothesis

One way ANOVA were done twice (Father and mother) to see if there is any significant difference between socio-economic status of parents and parental involvement (table 5a & 5b).

One-Way ANOVA results between the score of Parental Awareness and Involvement for Child's Educational Use of Digital Technology Scale (PAICEUDTS) (father) and Socio Economic status scale.

The F value for Levene's test is 2.115 with a Sig. (p) value of .099. Because the Sig. Value is greater than alpha of .05 ($p > .05$), so the assumption of homogeneity of variance is met.

Table 5a:- Descriptive Statistics _ PAICEUDTS (Father) _SES.

	N	Mean	Std. Deviation	Std. Error
Upper	83	72.89	21.038	2.309
Upper middle	77	62.82	22.134	2.522
Lower middle	38	65.00	18.029	2.925
Upper lower	15	59.13	15.579	4.022
Total	213	66.87	21.086	1.445

Table 5b:- ANOVA_PAICEUDTS (Father) _SES.

(PAICEUDTS) Fathers	Sum of Squares	df	Mean Square	F	Sig
Between Groups	5304.365	3	1768.122	4.154	.007**
Within Groups	88951.212	209	425.604		
Total	94255.577	212			

** p < .01.

The F value for Levene's test is 2.269 with a Sig. (p) value of .082. Because the Sig. Value is greater than alpha of .05 (p>.05), so the assumption of homogeneity of variance is met.

Table 6a:- Descriptive Statistics_PAICEUDTS (Mother) _SES.

	N	Mean	Std. Deviation	Std. Error
Upper	83	71.71	20.829	2.286
Upper middle	77	62.18	21.743	2.478
Lower middle	38	65.58	17.102	2.774
Upper lower	15	58.13	16.758	4.327
Total	213	66.22	20.720	1.420

Table 6b:- ANOVA_PAICEUDTS (Mother) _SES.

(PAICEUDTS) Mothers	Sum of Squares	df	Mean Square	F	Sig
Between Groups	4754.554	3	1584.851	3.840	.010**
Within Groups	86259.511	209	412.725		
Total	91014.066	212			

** p < .01.

The above tables 5a, 5b, 6a and 6b show that in case of comparing the scores of PAICEUDTS (Fathers) & SES level, the F(3, 209) value is 4.154 and 'p' value is .007 (p<0.01). Hence, F is found significant at 0.01 level and that in case of comparing the scores of PAICEUDTS (Mothers) & SES level, the F(3, 209) value is 412.725 and 'p' value is .01 (p<0.01). Hence, F is found significant at 0.01 level. Therefore the H₀₃ is rejected. So, it can be said that there exists significant difference in the scores of socio economic status dimension & Parental Awareness and Involvement for Child's Educational Use of Digital Technology Scale (PAICEUDTS) scores. According to the mean values, the fathers belonging to higher SES that means Upper SES families (M = 72.89) were found to be more involved in children's educational use of digital technology than the fathers of Upper lower SES family (M = 59.13) as the lower SES family data was not found in sample data. According to the mean values, the mothers belonging to higher SES that means Upper SES families (M = 71.71) were found to be more involved in children's educational use of digital technology than the mothers of Upper lower SES family (M = 58.13) as the lower SES family data was not found in sample data.

Discussion:-

It was known to all that when parents are involved in children's education, they can achieve higher grades, have better social skills and show improved good behavior (Ntekane, 2018) and the results of the study explored beyond that about e-learning with parental involvement. The researcher revealed as supported in the past literatures that there are positive effect of parental involvement on children's educational use of digital technology. According to the past researches, Berrios, Buxarrais & Garces, 2015 has shown 9-12 years school children's use of digital technology was significantly positively correlated with parental involvement. So, it can be said that like the other sectors (Li & Qiu, 2018) of children's life, they learn better through digital technology when their parents mediate their learning.

Father and mother both have great influence on overall development of a child. Further Azumah, Krampah, & Nachinaab, 2018 extended that, there was no significant difference in relationship between children from single-parent and two parent families and academic performance. In the current research the researcher also found that it doesn't matter whether father or mother guides the child but the manner in which they provide guidance is of prime importance also in the sector of digital learning.

The study found significant difference between socio-economic status with parental involvement towards their children's educational use of digital technology. Literature review supported that parents from high SES families can support their children better in learning through media than low SES families (Nikken and Schols, 2013; Livingstone, Mascheroni, Dreier, Chaudron and Lagae, 2015), though opposite results have found in past researches (Haelermans and Ghysels, 2016). So the probable reason may be the exposure that higher socio-economic group parents have & the information they receive about good parenting at digital era through their societal circle compared to the lower group.

Recommendations:-

The researcher chose the population of research of age group early teenage (11- 13years) when their curious minds want to explore the new world and it revealed that with parental mediation teenagers can reach their goal easily. So, more awareness and programmes are needed to help the parents in this sector. The present study also revealed that the parents of higher SES families have better involvement which may help the society to understand the importance of education and economy which can be changed through policy.

Conclusion:-

After reviewing the past literatures and analyzing the data it can be concluded that there is a need for parental guidance in every sector of child's life and that is why parents also needed some guidance in this field. Though the study has revealed many positive findings, it is not free from the limitation. Firstly, there is no suggestion for parental intervention programme and secondly, there is no solution to mitigate the gap between different socio-economic statuses. So, at this point the results suggest for further research to design an intervention programme and to plan for the improvement of socio-economic status.

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