



DEFICIENT LEVEL OF THE AVAILABILITY AND THE USE OF SCHOOL RESOURCE INPUTS LEADS TO THEIR WASTAGE AND THE LOWER LEVEL OF STUDENT ACHIEVEMENT: AN ISSUE OF RESOURCE MANAGEMENT

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ABSTRACT

Purpose:

This research paper investigates how the deficient level of use of resource inputs leads to their wastage and lower level of achievement. It is an issue of resource management. Resource management is an efficient and effective deployment for an organization's resources when they are needed. It is the target of every business firm or a company to maximize its benefits within the scarce resource inputs. Same is the case of schools. However, if school resource inputs are used ineffectively and wasted, the lower level of achievement is achieved. First objective of the study is to identify the availability of school resource inputs, second is to identify the extent of use of school resource inputs, third is to identify the prior achievement and academic achievement of students, fourth is to find out the relationship of school resource inputs with the academic achievement and fifth is to find out the relationship of the use of resource inputs with the academic achievement.

Design/ Methodology:

The sample of the study includes 288 secondary schools, 2880 secondary teachers and 5760 secondary students. The data were collected through a school profile proforma, a questionnaire for secondary teachers and a 'result sheet' consisting of middle level and secondary stage results of the same students. Pearson correlation was used to analyze the data.

Findings:

The study finds that the school resource inputs are misallocated and inefficiently used. Additionally, the study finds that the availability and the use of practical laboratories have positive and significant relationship with the academic achievement. However, the study

finds that the availability of basic school facilities, and the availability and the use of instructional material have the mixed effects.

Relevance/ Contribution:

The policy implication of the study is that if resource inputs are properly allocated and used at the optimal level, the student achievement may be enhanced effectively. This paper fulfils an identified information need and offers practical help to the heads of the educational institutions. This is a notable exploratory study, at least from a managerial point of view.

Keywords:

School resource inputs, prior achievement, academic achievement, relationship.

INTRODUCTION

All the resource inputs have their role in the education process. Student achievement at any point is a cumulative function of the current and the prior resource inputs including family inputs, SES, peers' effect and school resource inputs (SRIs). However, family inputs, SES and peers' effects are outside the direct control of an educationist; therefore, an educationist directly deals and controls SRIs.

The most cited report "Equality of Educational Opportunity" (Coleman Report, 1966) concluded that the SRIs have hardly any effect on student achievement but instead, SES, the family background or inputs and then peers' effect were more effective in producing student achievement. The debate continues about the school effects and whether the SRIs are consistently the important predictors of achievement (Nye, Hedges & Konstantopoulis, 2000) if effects of student background are controlled as Konstantopoulis (2005) concluded that:

In some, our findings indicated important school and teacher effects and that school factors are important predictors of student achievement net of the effects of student background. (p. 37)

The role of SRIs as a predictor of student achievement has also been controversial in the EPF studies instead of little controversy on the relationship of SES and family background with student achievement (Ross & Zuze, 2004). Hanushek conducted successive summaries of literature (Hanushek 1986; 1997; 2006) to debate on this issue and many estimates, alone or with others (Harbison & Hanushek, 1992; Hanushek & Luque, 2002) or by commenting on the implications of data aggregation (Hanushek, Rivkin & Taylor, 1996). The conclusions of all his studies and estimates were that additional SRIs did not improve educational outcomes.

On the other hand, other research studies (Hedges, Laine & Greenwald, 1994a; 1994b; Hedges & Greenwald, 1996) concluded the higher impact of SRIs on student achievement. Krueger (2003) reinforced the argument put forwarded by Hedges et al. (1996). However, Woessmann (2003; 2005a; 2005b) related the international differences in student

achievement to the institutional differences in different educational systems, not to the availability levels of SRIs. The research on the issue also expanded to the countries with very low per capita income, sometimes, put forward contexts where student achievement have a tendency to be more sensible to the availability of SRIs (Gamoran & Long, 2006).

However, only the availability of the SRIs is not important until these SRIs are actually used. In this way, the usage of resource inputs in schools is an index of the efficiency of schools. Likewise, if schools are functioning effectively, then the SRIs provided to schools are an index of the higher student achievement. However, if schools are functioning inefficiently, then the SRIs provided to schools are an index of the lower student achievement. Hanushek (2006) clarified it in the words:

And, if the resource use is inefficient, the relationship between added resources and outcome is unclear. This simple observation motivates a direct investigation of the relationship between outcomes and inputs to schools. (p. 4)

It is the need to use SRIs efficiently and effectively; however, the usage level of the SRIs is very low in Pakistan. Therefore, the SRIs are inefficiently used, misused and wasted or remain unused. Resultantly, student academic achievement remains low. This study provides an overview of the current state of knowledge and investigates whether the deficient level of resource inputs leads to their wastage and the lower of achievement.

Statement of the Problem

The target of the study is to study that a deficient level of the availability and use of school resource inputs leads to their wastage and the lower level of achievement. This is an issue of resource management.

Objectives of the Study

- 1) To identify the availability of school resource inputs
- 2) To identify the extent of the use of school resource inputs
- 3) To identify the prior achievement and academic achievement of students
- 4) To find out the relationship of the availability of school resource inputs with the academic achievement
- 5) To find out the relationship of the use of school resource inputs with the academic achievement

Significance of the Study

The study is likely to guide education personnel to monitor, in a better way, the provision and the use of resource inputs in schools. Likewise, the study is likely to guide the policy makers to develop education standards for the provisions and the use of SRIs. Similarly, the study is likely to help head teachers and teachers to improve their services for the effective use of resource inputs.

Delimitations of the Study

The study is delimited to secondary stage of education in the Province of Punjab. The study is also delimited to the SRIs i.e. the basic facilities, practical laboratory (Laboratory apparatus, equipments, material and chemicals) and instructional material (textbooks, blackboard, math kit, science kit, teaching guide, science guide and audio-visual aids). The aggregate results of the SSC Annual Examination 2008 were used as the academic achievement of the students. However, mean of the results of the three classes (VI, VII & VIII) of the same students was used as the prior achievement. This prior achievement was used as an input at the secondary stage.

Limitations of the Study

Family Background, SES and Peer's Effect, tuition factor and climate are out of the scope of the study.

LITERATURE REVIEW

At the first step, it is important to discuss the provision of SRIs to schools. The Government of Pakistan has not much funds to provide all the required SRIs to the education sector as compared to that of the advanced countries. Therefore, the required resource inputs are not being provided to the institutions, but instead, ad hoc programmes such as 'public-private partnership' rather than an integrated reform programme are being offered (Bano, 2007).

Hence, the policy decision about the allocation of funds for the provisions of SRIs to and within different levels or fields of education is of much importance. However, there are many problems and issues in the country regarding the allocation and provision of SRIs. Likewise, there are many problems of the quality of SRIs such as incompetence of teachers and, over-burdening of the teachers, lack of basic facilities and delays in the supply of educational material (PILDAT, 2008). Similarly, the low investment in education in the country has given rise to a number of serious problems with which the system of education persistently suffers and as such both directly and indirectly the pattern of secondary education is also affected (Hussain, 1986).

The most required is for enhancing the quality of education is the improvement of the quantity and the quality of provision of resource inputs; therefore, a higher level of allocation is needed. It is evident from a comparison of resource inputs of the country with other developing nations that still this country is at the bottom stage of resource inputs dedication or commitment. (Government of Pakistan, 2009)

On the second step comes the use of the SRIs in the school setting. Resource inputs are important only when used for the required purpose. Therefore, the SRIs are very important only when used in the school setting. At present, SRIs are inefficiently used, misused or remain unused. Still, the standards of efficiently utilization of RIs have not been formulated in the country. The allocated funds remain unused while, mostly, fear of audit makes them un-utilized in institutions (Government of Pakistan, 2009). SRIs may contribute higher level achievement if used effectively and properly with national devotion. Utilization process of resource inputs should be improved. In the budget (2009-10) speech in the National Assembly, the minister introduced four significant reforms in education. "Improving

utilization of resources by educational institutions” is one of them. In this way, the government insists on the optimal use of the resource inputs available in the institutions.

Research in the United States of America

The discussion about the impact of SRIs started from the Coleman Report (1966). That report concluded that SES background rather than the schools were the most important resource inputs in achieving student achievement. Review of research shows that there are three groups of research studies with reference to the findings. First group (Coleman Report, 1966; Hanushek 1989; 2006; Lee & Barro, 1998; Hanushek & Kimko, 2000; Betts, 1995; 2001; Rivkin et al., 2000; Iida et al., 2000) found that SRIs did not matter in student achievement. Second group of studies (Hedges, Laine & Greenwald, 1994a; 1994b; Greenwald, Hedges & Laine, 1996; Goldhaber & Brewer, 1997; Card & Krueger, 1996a; 1996b; 1998; Krueger, 2003; Rockoff, 2004; Konstantopolous, 2005; Tow, 2006; Goldhaber, 2007) has the point of view that SRIs have the larger effects on the student achievement. However, Rivkin, Hanushek & Kain (2005) showed the mixed effects. Still, the researchers do not agree on a single point of view whether SRIs have effects on student achievement or not, smaller or larger. Furthermore, these studies differ in the sample size and the methodologies that also affect the effect size. Most of the studies used cross-sectional data at a single point of time. Similarly, they did not include the prior achievement or the prior ability of the students as a resource input variable in their analyses.

Research in Europe and the Developing Countries

The education system and the school environment or setting of the developing countries is very similar to those of Pakistan. Therefore, this review may be very useful for research developments in Pakistan. Glewwe (2002) critically discussed and summarized a number of studies in the developing countries. However, this study highlighted four conventional studies completed in the early to mid 1990s. Glewwe (2002) criticized the methodologies, sample size, number of variables and analysis techniques of these four studies. The study critically discussed how these factors made the results biased in these studies. However, Glewwe (2002) advised to use the value-added method with a large sample size, and a large number of school variables. The studies criticized by Glewwe (2002) have different results. The study Harbison & Hanushek (1992) found greater effects, but other three studies i.e. Glewwe & Jacoby (1993), Glewwe et al. (1995) and Kingdon (1996) found the mixed effects of school and teacher quality variables on student achievement. Woessmann (2003; 2005a; 2005b) linked the international differences in student achievement to the institutional differences rather than to the levels of resource inputs. The studies Lai et al. (2006; 2008) concluded that school did matter for the test score. However, Anderson (2007) found that the increased SRIs did not affect the average student achievement with the increased measures of SRIs. For the students with weaker SES, with low educated parents and weaker academic background, academic achievement is more responsive to the increased SRIs.

Research in Pakistan

Some studies were conducted with a few variables of SRIs; whereas, their results were not the same. Ahmad (1993) found that the scholastic factors were subjected to a significant correlation with the examination results. If appropriate conditions were created in relation to these factors, a positive effect on the educational standard could be obtained. Khan & Shah (2002), Habib et al. (2004), Shami & Hussain (2005), Iqbal (2005) and Khurshid (2008) concluded positive impacts of TQ and some SRIs variables. However, Alderman, Orazem & Paterno (2001), Un-Nisa (2003) and Government of Pakistan (2005), found some varied and mixed effects of SRIs and TQ on the student achievement. These are very conventional studies. Most of the above studies were conducted to find out the impact of the availability of the SRIs on the academic achievement of students. However, the mechanism of the use of SRIs was not discussed. Furthermore, there are issues of sample size, methodology and analysis techniques in all the previous studies. They used only the cross-sectional data at one point and neglected the prior achievement (PA) or the prior ability of the students.

Dahar, Dahar, Iqbal & Faize (2010) and Dahar, Faize, Niwaz, Hussain and Zaman (2010) used the better research plan. They used the larger sample size, the cross-sectional data at three points of time and the prior achievement (PA) or the prior ability of the students. Both of the studies concluded that the less provided SRIs are inefficiently and ineffectively used in the educational institutions. The first study also concluded that SRIs are very less provided to schools and furthermore, these less provided SRIS are misallocated, misused and remain unused. These studies concluded that if SRIs are used effectively and optimally, the academic achievement might be achieved at the higher level.

METHODOLOGY

This is a correlational and empirical study. All the secondary and higher secondary schools, secondary teachers and secondary students of the session 2006-2008 in Punjab were the population of the study. The sample of the study was selected at three stages. At the first stage, nine districts were randomly selected out of 36 districts of Punjab. At the second stage, 32 schools were selected from each district. These schools were selected from urban and rural areas based on proportionate random sampling. In this way, the total numbers of schools selected were 288. At the third stage, 20 students and 10 secondary teachers were randomly selected from each school. Three instruments i.e. school profile proforma, questionnaire for teachers and result sheet were used for the study. The data were analyzed first at school level. Afterwards, the study used Pearson Correlation to find out the relationship (association) of the availability and the use of SRIs with academic achievement.

RESULTS AND DISCUSSION

From the summary statistics, it is evident that the mean score of all the items of the availability and the use of PL (practical laboratory), basic facilities and instructional material is very less. This very less mean score means the deficient level of the availability and the use of the SRIs in school setting. The deficient level (mean score) of the availability and the use of SRIs is much below the full level. The gap between the deficient level and the full level is the wastage of resource inputs.

The relationship of the availability of PL (practical laboratory) equipments, apparatus or material and chemicals (the indexed item) with academic achievement is positively significant. The relationship of the use of PL with academic achievement is negative for the item 7 that is used for the misuse and wastage of Equipments, Apparatus or Material. However, the relationship for all the other items of the use of PL is positive. Furthermore, the relationship of items 1, 3, 4, 5, 6 and 7 is significant; however, the relationship of items 2 and 8 is insignificant. The items 1, 2, 3, 4, 5 and 6 represent the use of PL. Relationship of most of the items of the use of PL is positively and significantly correlated with the academic achievement. However, the items 7 and 8 represent the misuse or wastage of the SRIs. Furthermore, the summary tables show that there are very lower scores for the availability and the use of PL. The lower scores indicate that the items of PL are very less provided and very less used. The findings of the study about practical laboratory support Harbison & Hanushek (1992), Hedges, Laine & Greenwald (1994a; 1994b), Greenwald, Hedges & Laine (1996), Goldhaber & Brewer (1997), Card & Krueger (1996a; 1996b; 1998), Khan & Shah (2002), Krueger (2003), Habib et al. (2004), Rockoff (2004), Iqbal (2005), Konstantopolous (2005), Shami & Hussain (2005), Tow (2006), Goldhaber (2007), and Khurshid (2008) that SRIs have positive impacts on the academic achievement.

The results about the basic school facilities show the mixed effects. The relationship between the availability of the appropriate furniture seats per student and academic achievement is positively insignificant for both types of students. The availability of appropriate classrooms/building has the positively insignificant relationship with academic achievement for both types of students. The relationship of the availability of computers, library books, and appropriate drinking water with academic achievement is insignificant for both types of students. However, the relationship is positive for library books and negative for computers and appropriate drinking water. The relationship between the appropriate toilet or latrines and academic achievement is negatively insignificant for both types of students. The relationship of the availability of electricity for lighting and fanning with academic achievement is positively insignificant for arts students. However, the relationship is positively significant for science students. The relationship between the availability of gas and academic achievement is insignificant for arts students and significant for science students. However, the relationship is positive for both types of students. The availability of playgrounds and sports material has insignificant relationship with academic achievement for both types of students. The relationship is positive except for the availability of playgrounds for arts students. The relationship is positively insignificant for the availability of boundary wall for both types of students. Furthermore, the mean scores of the availability of all these SRIs are very less.

Furthermore, the results about the availability and the use of instructional material also show the mixed effects. The use of textbooks has a positively significant relationship with academic achievement for both types of students. The relationship between the availability of chalkboard and academic achievement is positively insignificant for both types of arts students. The relationship between the use of chalkboard and academic achievement is significant for science students; however, the relationship is insignificant for arts students. The relationship between the availability of math kit and academic achievement is

significant for science students. However, the relationship is insignificant for arts the student. Furthermore, the relationship is positively significant for the use of math kit. The value of relationship between the availability of science kit and academic achievement is positively insignificant. However, the relationship is positively significant for the use of science kit. The availability and the use of teaching guide have the positively significant relationship with academic achievement for science students. However, the relationship is positively insignificant for arts students. The relationship between the availability of science guide and academic achievement is positively insignificant. However, the relationship between the use of science guide and academic achievement is positively significant. Furthermore, the mean scores of the availability and the use of all these SRIs are very less.

The relationship of the availability of audio-visual aids with academic achievement is significant for science students but insignificant for arts students. However, the relationship is positive for both types of students. The relationship between the use of maps, models and charts, and academic achievement is positively significant for both types of students. The mean score of the availability and the use of audio-visual aids is very less.

The findings of the study about the basic facilities and instructional material support Rivkin, Hanushek & Kain (2005), Harbison & Hanushek (1992), Glewwe & Jacoby (1993), Glewwe et al. (1995), Kingdon (1996), Alderman, Orazem & Paterno (2001), Un-Nisa (2003) and Government of Pakistan (2005) that these SRIs have mixed effects.

CONCLUSIONS AND RECOMMENDATIONS

The study concluded that practical laboratories (PLs) have positive and significant relationship with the academic achievement. Likewise, it is also concluded that if PLs are better provided and used efficiently and effectively, PLs may have larger effects. However, it is concluded that the school basic facilities and instructional material have mixed effects on the academic achievement. It is also concluded that if the school basic facilities and instructional material are better provided and used efficiently and effectively, they may have larger effects.

The summary tables (Appendices) show that the mean scores of the availability and the use of SRIs are very low. The individual data for schools show that SRIs are misallocated to schools and there is much variation in the provision of per student or per school SRIs. Likewise, there are issues in the use of SRIs. The lower level of scores of the use shows that the available SRIs are deficiently and inefficiently used in schools. This deficient and inefficient use of SRIs leads to the wastage or the misuse of SRIs. These are the discrepancies that are the causes for the lower academic achievement within the available education provisions.

It is concluded that the deficient level of the availability and the use of the SRIs leads to: the wastage of SRIs and the lower level of academic achievement. However, if the less provided SRIs are effectively utilized, academic achievement may be produced comparatively at the higher level. Furthermore, if SRIs are better provided and effectively used, academic achievement may be achieved comparatively at the highest level. This study was conducted

at the secondary level; however, it is concluded that it has the equal importance for all the levels of education in Pakistan.

It is recommended that education standards for the availability and the use of resource inputs should be developed and implemented at all the levels of education in Pakistan. These education standards should include the quantity and the quality of resource inputs as well as that of output or outcome. Likewise, standards for the whole process of education should also be developed and implemented.

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APPENDICES

Table 1: Summary Statistics 1

Name of the Variable	Total Sample			Urban Areas			Rural Areas		
	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean
Classrooms	1.00	.40	.92	1.00	.50	.88	1.00	.40	.96
Furniture	1.00	.40	0.78	1.00	.40	0.81	1.00	.50	0.74
Computers	0.25	0	0.03	.24	0	.037	0.198	.00	0.015
Toilets	.03	0	0.01	.011	.001	.00052	.0253	.0026	.0008
Playgrounds	5	0	0.88	5	0	1.02	2	0	.729
Library Books	12	.25	1.73	4	.25	1.61	12	.50	1.84
Boundary Wall (%)	100	0	93	100	60	98	100	0	86
Chalkboard	1	0	0.68	1	.34	.71	1	0	.64
Math Kit	2	0	.66	2	0	.89	1	0	.39
Science Kit	1	0	.59	1	0	.72	1	0	.45
Teaching Guide	25	0	7	20	0	9.79	25	0	4.29
Science Guide	20	0	3.82	12	0	5.08	20	0	2.56

Table 2: Summary Statistics 2

Name of the Variables	Combined Sample				Urban Areas				Rural Areas			
	S	T	Ins	N	S	T	Ins	N	S	T	Ins	N
Physics Eq.& Ap.	96	105	86	21	72	69	0	3	24	36	66	18
Chemistry Eq. & Ap.	72	99	96	21	60	63	18	3	12	36	78	18
Biology Material	60	117	86	24	54	78	9	3	6	39	78	21
Chemicals	18	84	147	39	12	63	66	3	6	21	81	36
Maps	55	108	120	127	33	78	27	6	0	30	93	21
Models	36	99	105	48	36	69	33	6	0	30	72	42
Charts	3	120	114	51	105	39	0	0	18	72	51	0
Drinking Water	57	213	18	0	42	87	15	0	15	126	3	0
Electricity for Lighting	162	111	56	0	114	30	0	0	48	81	15	0
Electricity for Fanning	153	129	6	0	93	51	0	0	60	78	6	0
Sports material	6	69	192	21	6	54	69	15	0	15	123	6
Gas	0	0	42	246	0	0	42	102	0	0	0	0

Table 3: Summary Statistics 3

Name of the Variable	Mean of the Total Sample	Urban Areas			Rural Areas		
		Max.	Min.	Mean	Max.	Min.	Mean
The availability of PL (Indexed Item)	1.68	3.00	0	2.14	3	0	1.23
Instructional Material (Audio-visual aids)	1.74	3	0.67	2.21	2.33	.67	1.25
Electricity (Indexed Item)	2.51	3	2	2.72	3	1	2.30

Table 4: Summary Statistics 4

	Questionnaire Items										
Items	22	23	24	25	26	27	28	29	30	31	32
Rural Areas	2.5	2	1.15	1.40	1.23	0.167	0.79	0.63	0.94	0.77	0.73
Urban Areas	3.27	2.94	2.46	2.06	2.08	0.81	1.67	1.23	1.79	1.54	1.65

Table 5: Summary Statistics 5

Name of the Variable		Total Sample			Urban Areas			Rural Areas		
		Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
Prior Achievement	Science Students	687	347	556	681	465	580	687	347	523
	Arts Students	660	320	488	660	357	503	630	320	469
Academic Achievement	Science Students	643	347	506	639	411	530	643	347	473
	Arts Students	611	291	422	611	300	436	567	291	406

SCHOOL PROFILE

Please write down how many School Resource Inputs are available (usable and usable)? Also mention how many more the School Resource Inputs are required.

School Resource Inputs At Secondary Stage (Classes IX & X)		Availability of the Required			More Required No. (%)
		Usable No. (%)	Unusable No. (%)	Total No. (%)	
Practical Laboratories	Laboratory Rooms				
School Facilities	Chairs/ Desks/ Benches for Students				
	Classrooms				
	Computers				
	Library Books				
	Toilets				
	Playgrounds				
	Boundary Wall				
Instructional Material	Textbooks				
	Chalkboard/ Blackboards				
	Math Kits				
	Science Kits				
	Teaching Guides				
	Science Guides				
	Overhead Projectors				

Please mark (✓) how much School Resource Inputs are available?

School Resource Inputs At Secondary Level (Classes IX & X)		Availability of School Resource Inputs				
		Sufficient	To Some Extent	Insufficient	Not at All	
Practical Laboratories	Physics Equipments & Apparatus					
	Chemistry Equipments & Apparatus					
	Biology Equipments & Material					
	Chemicals					
	Technical Subjects Equipments & Material					
School Facilities	Sports Material					
	Drinking Water					
	Gas for Heating					
	Electricity	Lighting				
		Fanning				
Instructional Material	Teaching Aids	Maps				
		Models				
		Maps				

Signature: ----- Headmaster/Headmistress

Questionnaire for Teachers

Please rate each statement at the given 5-point scale. Mark (✓) the most appropriate one against each statement. A = Always, F = Frequently, S = Some times, R = Rarely, N = Never

Sr. No	Item	A	F	S	R	N
Practical Laboratories						
1	Practical laboratories are used only near to the examination.					
2	Are used in the school	Laboratory Rooms				
3		Equipments, Apparatus or Material				
4		Chemicals				
5	Teachers facilitate the students to do only the selected experiments.					
6	Teachers have to manage time for experiments with in the theory period.					
7	Are misused or wasted in the school	Equipments, Apparatus or Material				
8		Chemicals				
Instructional Material						
9	Teachers use in the classroom effectively	Textbook				
10		Chalkboard				
11		Charts				
12		Maps				
13		Models				
14		Overhead Projector				
15		Math Kit				
16		Science Kit				
17		Teaching Guide				
18		Science Guide				

Signature: ----- Secondary Teacher

RESULT SHEET

Government High School (Boys/Girls): -----District: -----

Locality (Urban/ Rural): -----

Name of the Head Teacher (Headmaster/ Headmistress): -----

Sr. No	Roll No. for Annual SSC Examination 2008	Student Name	A: Prior Result Marks			B: Result: SSC Annual Examination 2008 Marks	
			Class VI	Class VII	Class VIII	Aggregate Marks of Science Students	Aggregate Marks of Arts Students
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

Signature: -----Headmaster/Headmistress