

How to improve government school learning outcomes? A case study of an Indian state

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Abstract

This study tries to answer the research question, “How to improve government school learning outcomes?” with the help of findings for determinants of learning outcomes based on a field survey in the state of Uttarakhand in India. The findings show that the solution lies in creating a system for management for performance in government schools and not only on logistics. The findings show that learning by rote method, usage of guide books, non correction and explanation of homework, low level of parents’ interest in children’s education, low educational level of mothers negatively correlates with the students learning outcomes. Unlike previous studies probing primary school learning outcomes, we have tried to analyze secondary school learning outcomes for reasons explained in the chapters ahead. The data for scores of students in this thesis is based on a national test used for the first time for research.

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Sincerely,

Abhilasha Bahuguna

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Chapter 1: Introduction

Education is the key to an equitable, just and sustainable society. It opens up choices to improve one's standard of living. Hence it is the best investment a developing country can make. Universalizing access to learning and emphasis on learning outcomes has been a goal world over, ever since the 1990 World Conference on "Education for All" in Jomtein.

Since the wake of independence, India has had the vision to bring free and compulsory education to the doorsteps of all children up to the age of 14 years. National Policy on Education, 1986(modified in 1992) is one such policy statement which emphasizes India's effort in elementary education for :

- " (i) universal enrolment and universal retention of children up to 14 years of age, and;
- (ii) a substantial improvement in the quality of education."

Decades since then, it seems that the primary goal has been to expand the number of schools and enrollment but without satisfactory quality of schooling. According to the DISE Report 2007-2008, "a few states are near the goal of universal primary enrolment. Over a period of time, enrolment in upper primary classes has also shown consistent increase. From a low of 37.72 million in 2004-05, it has increased to 50.91 million in 2007-08." Provision of primary education in quantitative terms is much appreciated but qualitative success is far beyond reach except in some outlier states like Kerala, Tamil Nadu and Himachal Pradesh. But does the increasing enrollment numbers really help if the learning outcome is insignificant? Not really. Hence we attempt to answer the research question, *'How to improve government school learning outcomes?'*

What makes this study novel?

Firstly, unlike previous studies probing primary school learning outcomes, we have tried to analyze secondary school learning outcomes. Why secondary school learning outcomes? Because though we encourage children to complete schooling but most of the children from poor segments of the society drop out after class 8th due to opportunity costs. Are these children equipped with cognitive skills in mathematics and science lessons that will help them in day to day lives. For those who continue, do their lessons upto 8th make a sound base for further deeper study? In this study, we try to find answer to *'How to improve government secondary school learning outcomes?'*

Also the education system of a nation, from primary until secondary level, shapes the selection, the knowledge, the attitude and aptitudes of individuals effectively entering higher education. The success in higher education and employment of people from the large poor and rural section of our country who complete education depends on the successful upper secondary education attainment, which in turn depends on successful lower secondary attainment and so forth. This suggests that a nation with low levels of quality of secondary education will have a poor pool of students available for higher education which needs to be addressed.

Secondly, studies are being conducted to analyse the qualitative and quantitative aspects of elementary education but not much literature is available on a focused study on the learning outcomes of the mountain state Uttarakhand in India, which boasts of high literacy rate. Kingdon (1996a) mentions, “given inter-state variations in the structure and organization of education in India, evidence from a single state will be illustrative but not necessarily representative.” Interactions between variables can be interpreted on the basis of their meaning within the state’s socio-economic context. In this paper, I attempt to probe and illustrate the factors determining the learning achievement of secondary school children in Uttarakhand. Learner’s achievement is considered as one of the important indicators of the quality of education.

Finally and most importantly, the data used for dependent variables in this study has not been used before and are state specific which will be able to provide us more accurate view of the state of education in the mountain state Uttarakhand. According to Pritchett (2004), other international examinations (for example Programme for International Student Assessment) cannot be trusted exclusively as they might be biased and unfairly draw a negative portrait of developing countries’ student performance. Probably they are not designed on the basis of country specific curriculum or ‘Western’ country students are skilled in taking these examinations unlike the developing country students. Also other individual private school examinations and other government school examinations may be different and hard to compare. But this examination is conducted for both government and private schools nationwide. As will be explained in detail in Chapter 3: Design of the Study, for our study we requested Azim Premji Foundation¹ to provide us with the

¹ Azim Premji Foundation is a not-for-profit organization, operational since 2001, with a vision to significantly contribute to achieve quality universal education in India.

Uttarakhand's class 8th students' Annual Examination Results 2010. These Annual Examinations are part of the Learning Guarantee Program (LGP) which is a joint initiative of the Uttarakhand Government and Azim Premji Foundation.

Why this research question for a master thesis of Economics?

Quality early education is beneficial for all socio-economic group children. It has both short and long term economic benefits to taxpayers and the society if quality early education is provided to all children, including the most deprived. Investment in early education is the one of the most cost-effective economic investment.

- Quality early schooling education helps children to perform well in higher education and become better citizens. They earn more and pay their taxes. They commit fewer crimes.
- If investment in quality early schooling is not sufficient, it shortchanges taxpayers because the investment return is bigger than other options of economic development.
- Quality early schooling is as necessary as roads or the internet. Investment in it boosts the economy.

What is the framework of this thesis?

The present study has the following layout:

- i) We have presented and compared the results of class 8th students of Government and Private schools of the complete state of Uttarakhand.
- ii) We have shown the achievement across class 8th students in the three selected districts in tabular form and discussed them.
- iii) We have compared the family background of children in both types of schools.
- iv) Finally we have presented the results of multivariate regressions to analyse the factors affecting the learning outcomes of the secondary school children in the selected three districts in the state of Uttarakhand, India and attempted to answer the question that *'How to improve government school learning outcomes?'*

Chapter 2: Literature Review

One of the reasons why development impact of education has fallen short of expectations is the low quality of education that years of schooling has raised no cognitive skills or productivity (Pritchett 2001). Gunnar Myrdal's *Asian Drama* (1975) emphasizes the importance of human capital along with physical capital in development.

The various factors affecting school education, learning outcomes and dropouts from school have been extensively studied previously.

In one such study, Michaelowa (2001), the author has evaluated education quality in francophone sub-Saharan Africa in the countries of Burkina Faso, Cameroon, Côte d'Ivoire, Madagascar and Senegal, and has quantified it on the basis of learning achievement.

The most obvious indicator of education quality is learning achievement, which is difficult to explain quantitatively. For this, standardized mathematics and French tests were conducted and information of children's socio-economic background and school variables were collected using survey questionnaire.

Extensive empirical studies have been conducted to analyse the determinants of these learning outcomes of elementary schooling. Three set of explanatory variables impact has been evaluated viz. individual and household characteristics, accessibility and quality of school and teachers and the third set includes the regional characteristics like the initial literacy rate and public expenditure on education.

From parental motivation and interest to methods of teaching and homework correction, impact of many explanatory variables has been studied extensively in existing literature. According to 'Learning without Burden' (1993)," the gravitational load of the school bag is one issue, but 'the more pernicious burden is that of non-comprehension' 'The course has to be 'covered', but nothing is to be 'discovered'. "This report stated the major flaw in "a lot is taught, but little is learnt or understood". Syllabus that cannot be covered due to time constraints is mindlessly converted into homework and this homework is seldom corrected. If corrected, it is rarely explained. The textbook's are neither used for imparting sermons nor are used for examination preparations. Local publisher's guide books are everybody's Bible.

In the PROBE Report (1999), it has been illustrated how exceptionally high level of parental motivation for education in Himachal Pradesh, India has lead to it's high performance in education. It says, "Most parents take it for granted that schooling is an essential part of every child's upbringing, and have ambitious hopes for their own children's education. The reasons for wanting children to go to school also show a broader understanding of the value of education than in other states. Many parents, for instance, perceptively explained how education helps a person to stand for panchayat elections, do bank work, travel anywhere without fear, and generally to participate with confidence in modern society." Feinstein, L & Symons, J (1999) found that parent's interest has significant impact on the achievement into adolescence. The data used for analysis was the National Child Development Study (NCDS) to find the relationship between parent's interest and children's attainment at age 16. Using achievement in reading and mathematics it was found that parent's interest in a child's education more uniquely contributed 10 per cent variation in achievement than other household characteristics.

School type² also speaks volumes about the learning outcomes. It has been identified that children in private school have higher attendance rates. They have higher test scores, even after controlling for observable family and school characteristics. Compared to public schools, private schools pay much lower teacher salaries; have lower pupil teacher ratios; and less multi-grade teaching. Private school teachers are 2 to 8 percentage points less likely to be absent than teachers in public schools.(Muralidharan, Kremer 2006) Private schools are most common in areas where government schools do not function.

However, teachers' salaries do not have a direct or indirect correlation with the learning achievement. The point tried to be made is that it is the stricter monitoring and target setting that leads to better performing schools and despite good salary given to government school teachers, their motivation level towards their job is minimal without proper monitoring. If government schools function well, there may be little scope for

² The term "government school" refers to government-funded schools that are run by the government but does not include the government-aided schools that are privately managed. The terms "public schools" and "government schools" are used interchangeably in this paper. The "private schools" referred to in the rest of this paper include both recognized and unrecognized private schools that charge fees and do not receive any financial support from the government. They do not include the "private-aided schools" which are privately managed schools that receive funding from the government, and are typically forbidden from charging user fees.

private schools, as seems to be the case in rural Himachal Pradesh (PROBE 1999). But despite poor performance we did not find any private school in Rudraprayag district to confirm this.

According to DISE (2007-08) data, the absolute number of children in public primary schools has fallen in most recent year while private schools have expanded rapidly and total enrollments have risen. But the “percentage of government and government aided schools is as high as 85.83. This shows that ninety out of every hundred schools imparting elementary education in the country are funded by the government.” This is why we are concerned about the quality of Government Schools. The poor have access to them and education is one tool which will lead them to prosperity.

In studies by Kremer et al (2004) and Devaraj, Amaidhi et al. (2005) regular monitoring and follow-up by resource persons improved attendance and overall functioning of schools. Banerji (2000) study revealed that the reason for so many children not being in school had less to do with their families economic circumstances than with the school system's short comings. In other studies [Michaelowa (2000)], the effect of GNP per capita is shown to be negligible or even negative. However the initial state of education in the country is shown to be strongly correlated and significant to the education quality. These effects are not restricted to only families but to the whole society. The inadequacy of the school system to attract and keep children is more crucial than households' economic conditions. In another study by Indian Institute of Education (2006) it was found that teachers were preoccupied with the lack of equipment and the shortage of teaching materials. Another factor that seriously limited the ability of teachers to devote themselves fully to their teaching job and to invest time in improving school functioning was the involvement of teachers in other official and other income generating activities, which led them to move out from remote areas. This was also shown by Michaelowa (2000) that the presence of associations in schools which involved external people seems to distract teachers from their primary job. These factors seem to affect the level of teacher motivation which is a known descriptor positively correlated with education quality or learning achievement of the students. It is quantified as the percentage of teachers who given a chance, will be willing to take up a teaching career again.

The Indian Institute of Education (2006) study also talked about the negative impact of the low educational level of parents. Behrman (1997) based on evidence from both the United States and some developing countries, found that a mother's educational achievement is somehow more important than a father's educational level. However he mentions that there is a considerable degree of variation across studies. Studies reveal that availability of handbooks, learning activities and a check on the appointment of teachers to perform other duties like census operations, election work, etc are also important factors. It has been shown that the presence of textbooks (suitable for learning process at a specific grade level) increases the score by two to three times while other books increase it by two to three percentage points in Michaelowa (2000).

It has been extensively studied that nutrition plays a vital role and is positively correlated with attendance and learning outcomes. A clear example of this can be Peru's vaso de lache program [Younger (2000)]. The most obvious reason appears to be reduction of malnutrition. However, free meals also seem to be an incentive to the poor parents for sending their children to school. According to Mistry et al (2006), government programmes such as the mid day meal, impacted significantly on the quality of education in the surveyed schools. The meal programme supplies approximately 300 calories and 12 gm of protein per child per day.

The UNESCO(2009) highlights individual background characteristics as major regressors to determine the learning outcomes. The EFA Global Monitoring Report offers a caution to governments, donors and the international community. Current trends indicate that universal primary education will not be achieved by 2015. Too many children are receiving an education of such poor quality that they leave school without basic literacy and numeracy skills. Deep and persistent disparities based on wealth, gender, location, ethnicity and other markers of disadvantage are acting as a major barrier to progress in education. If the world's Governments are serious about Education for All, they must get more serious about tackling inequality and improving quality of education.

A review of all this literature reveals that:

1: Absence of teachers reduces learning outcomes of education as there is no regular teaching.

2: Learning by rote method and usage of guide books in learning is negatively correlated to learning outcomes of education.

3: Lack of support from parents of pupils negatively affects learning outcomes of school education.

4: Involvement of teachers in other official chores and census survey negatively correlates to learning outcomes of school education.

5: Involvement of teachers in other income generating activities during school hours correlates negatively with learning outcomes of school education.

6: Low educational level of parents affect the learning outcomes of school education negatively.

7: Mid-day meal positively correlates with the learning outcomes of school education as it provides an incentive to the parents to send children to school to get their children atleast 2 square meals a day.

8: Higher student-teacher ratio in a class negatively correlates with the learning outcomes of education.

9: Non-correction and explanation of home-work negatively correlates with learning outcomes of school education.

10: Lack of regular monitoring and follow-up by resource persons affects the learning outcomes of education negatively.

Chapter 3: Design of the Study

The main motive of this thesis is to analyze and understand the quality of education in India at standard 8th when the students are at a stage when they should know more than basic numeracy and literacy expected from primary students. This is stepping stone to their High School studies. This study is in specific reference to the socioeconomic characteristic contexts in which the education institutions are running. This study is limited to analysing the functioning of government and private schools. The quality of school and learning is determined in the present study in a comprehensive manner in terms of infra-structure facilities, human resources, the learning process and the learning outcome.

This study has been carried out in three stages. These stages are:

- Deciding the districts to conduct the study on;
- Gathering the annual result 2010 of standard eight students;
- And after two-stage random sampling, conducting survey of the selected students to gather information about their individual, household, school characteristics;
- Analysis of data.

i) District Selection:

I chose the districts of Dehradun, Haridwar and Rudraprayag. Dehradun district housing the state capital and Haridwar being a plain terrain with most of the state's industrial development, one might expect it's households to be much aware and schools to have higher enrollment rate and higher learning outcome. If it is not so, then this is important to see what factors affect the learning outcomes for future policy making. Rudraprayag was expected to show low learning outcomes because of being a hilly terrain with teacher's not taking classes in the distant schools. Also, conducting survey in these three districts was feasible within the time-frame as they were within a radius of 200 kilometers from the capital city and my hometown Dehradun city.

ii) Getting the Annual Result 2010

For our study we requested Azim Premji Foundation to provide us with the Uttarakhand's class 8th students' Annual Examination Results 2010. These Annual Examinations are part of the Learning Guarantee Program (LGP) which is a joint initiative of the Uttarakhand Government and Azim Premji Foundation. These tests were first conducted in 2005 in two districts of Uttarakhand, viz, Uttarkashi and Udham Singh Nagar. Now it is an annual endeavour across the 13 districts of the state. They choose the participating schools of the Annual Examination through random sampling. In each of the districts, there are some rural developmental blocks and in a few districts, there are some urban blocks called "Nagar Kshetra". The inclusion of both types of blocks i.e. rural and urban is ensured. The selection of schools and children is done based on the following criteria:

1. In each sample block/urban area, two separate lists, one for government primary and another for upper primary schools, were prepared considering the criteria that the school should have at-least 10 children in each of the sample classes, that is, class III, V & VIII.
2. Further, from each list, 10 schools were identified using simple random sampling technique. From each sample school, the first 10 children from each sample class were chosen as target respondents. In Co- Ed schools, first the names of male and female children were written separately and then the first 5 children from each group i.e. male and female were selected.

iii) Survey to find the explanatory variables

A survey questionnaire was prepared after extensive literature review. See Appendix. Schools were then randomly drawn from these three districts. A survey of those randomly drawn schools' characteristics and it's class 8th students' background characteristics was conducted with the help of State Council of Educational Research & Training, Uttarakhand in the months of December-March 2011.

The questionnaires were in English and were explained to the interviewees in Hindi by the investigators. The investigators also took note of observations during the field survey. These observations enable qualitative study of the data.

A Pilot test was conducted to check the problems in the format questions were posed or some other potential questions that were left out. After minor changes in the questionnaire after the pilot test, the questionnaire was sent for the survey.

Following table I shows the number of observations.

TABLE I: Dependent Variable Data Available:

DISTRICT			
	Dehradun	Haridwar	Rudraprayag
Government	60*	60*	30*
Private	21*	19*	-

*These are the number of schools. We had 10 students result for each of these schools.

TABLE II: If we target survey of 25 schools, so sample:

DISTRICT			
	Dehradun	Haridwar	Rudraprayag
Government	$60/190*25=8$	$60/190*25=8$	$30/190*25=4$
Private	$21/190*25=3$	$19/190*25=3$	-

Total schools 26 (rounding)=> 260 observations

One student could not be found as he might have dropped out.

iv) Analysis of Data

The data was first saved in excel files and then after coding was imported to SPSS. Data was prepared for actual analysis. Labeling and further coding was done. The final analysis was conducted using SPSS software.

The following two tables show the descriptive statistics of the data collected by field survey. Variables checked for multicollinearity and variables with less variance removed. For example, multigrade, i.e. same time teacher teaching students of different grade in the same period was not found anywhere. Hence the variable multigrade was removed.

TABLE III: Descriptive Statistics-I

Variables			Frequency	Percentage
Individual And Household characteristics	Gender	Female	159	61.4
		Male	100	38.6
	Motheduc	Did not go to school	90	34.7
		Primary School	55	21.2
		Junior School	24	9.3
		High School	6	2.3
		Inter College	22	8.5
		Graduate	22	8.5
		Post-Graduate	40	15.4
	Fatheduc	Did not go to school	46	17.8
		Primary School	47	18.1
		Junior School	39	15.1
		High School	39	15.1
		Inter College	23	8.9
		Graduate	7	2.7

		Post-Graduate	58	22.4
	Parint	Very much interested	83	32.0
		Somewhat interested	96	37.1
		Neutral	20	7.7
		Somewhat disinterested	60	23.2
	HouseholdCat	APL	60	23.2
		BPL	199	76.8
	Meals	Two meals a day atleast	251	96.9
		Once a day	8	3.1
	Studyfrom	Both	254	98.1
Copied work from classmates		5	1.9	
School Characteris- tics	Teaextrainc	Not involed	250	96.5
		Involved	9	3.5
	Hwcor	Very much corrected	109	42.1
		Somewhat corrected	150	57.9
	Hwexp	Very much explained	80	30.9
		Somewhat explained	50	19.3
		Neither	121	46.7
		Somewhat not explained	8	3.1
	Classequip	No	1	0.4
		Yes	258	99.6
Comp	No	11	4.2	
	Yes	248	95.8	
Total number of observations= 259				

Out of the total 259 observations, the individual and household statistics show that the data set has 61.4 percent female students and 38.6 percent male student respondents who appeared in the class 8th Annual examination in March, 2009-2010. 76.8 percent come from Below Poverty Line (BPL) families (HouseholdCat) and 23.2 percent come from Above Poverty Line (APL). More number of BPL in the dataset can be attributed to 199 observations from government schools where mostly children from poor families study who cannot afford the higher fees of private schools. This hypothesis will be tested in Chapter 6 of the thesis. Despite the BPL background households large proportion, 96.9 percent of respondents have meals atleast twice a day and only 3.1 percentage have their meal just once a day. Mid-day meal scheme in government schools has been proved beneficial in past literature for the growth of children and also for learning outcomes.

Only 8.5 percent mothers (Motheeduc) of the student respondents were graduate and a meagre 2.7 percent fathers (Fatheduc) were graduates. 15.4 percent mothers were post-graduates and 22.4 percent fathers were post-graduates. Mothers of 34.7 percent of student respondents did not go to school, 21.2 percent had studied only till Primary School i.e. upto class 5th, 9.3 percent mothers have studied till Junior school i.e. class 5th to class 8th, 2.3 percentage have gained education till High School i.e. class 10th and 8.5 percent student respondents' mothers have studied till class 12th Inter College. Out of 259 students' fathers 17.8 percent did not go to school, 18.1 percent studied till class 5th i.e. primary school, 15.1 percent attended school till class 8th i.e. junior school and only 15.1 percent and 8.9 percent of fathers have completed their education till class 10th and class 12th respectively.

Our descriptive statistics show that 32.0 percent student respondents reported that their parents were very much interested in their studies (Parint) and 37.1 percent students reported that their parents were somewhat interested in their education. 7.7 percent student respondents preferred not to report this question and chose to stick with a neutral response. It was found that 23.2 percent students found their parents somewhat disinterested in their education. The reason to this lack of interest may be attributed to the opportunity cost of their children's education who otherwise add to the family income by participating in unorganised sectors like labour, rag-picking, etc. This may also be attributed to ignorance about the rewards of being educated.

Data from the survey shows that 98.1 percent students reported that they study from both textbooks and guide/help books with easy notes for rote learning and 1.9 percent reported that they study from the classwork that they copy from other classmates for examination preparation. However general observation of the survey team revealed that children do not follow and study from textbooks. They are dependent on quick and short solution guide books available in the market to prepare for the examinations by rote learning method.

Now we see some school and teacher characteristics. Almost all schools have computer and other class equipments like desks, chairs and blackboards. 95.8 percent students reported that computer was available in their school but 4.2 percentage said that their schools did not have computer. 99.6 percent had all the necessary class equipments (Classequip). Only 1 student reported lack of all required class equipments.

96.5 percent students' teachers were found not to be involved in other income generating activities during school hours. For example activities like selling insurance policies and other products etcetera. Whereas 3.5 percent students' teachers were reported to be involved in such activities during school hours.

Homework was very much corrected according to 42.1 percent students and very much explained according to 30.9 percent students. 57.9 percent students reported that their homework was somewhat corrected and 19.3 percent confirmed that their homework was somewhat explained. 46.7 percent students chose not to take sides and replied with a 'Neither' on the scale for explanation of homework and only 3.1 percent students confirmed with a somewhat not explained.

In the following table, we see the mean, minimum and maximum for our other variables. Monthdaysabs shows that students were absent on an average for two days in a month. Some were always present and the maximum leave that a student took was for 15 days. Stunum shows the number of students in a class with 15 students minimum, 127 maximum and 35 students on average. Inspect is the variable depicting how many times a co-ordinator/school inspector visits the school in a month. The data shows minimum is not even once and maximum 15 times. On an average a school inspector visits school twice a month. Our survey shows that private schools have no co-ordinators/school

inspectors. Hence the minimum of zero days inspection in a month is from private school student respondents.

TABLE IV: Descriptive Statistics-II

Variables	Minimum	Maximum	Average
Monthdaysabs	0.0	15.0	2.0
Stunum	15.0	127.0	35.0
Inspect	0.0	15.0	2.0
Sciencepercent	0.0	89.0	44.5
Mathpercent	0.0	94.4	45.1
MathsDur(in %)	14.3	100.0	87.0
ScienceDur(in %)	66.7	100.0	87.0
MathLeave	6.0	190.0	36.7
ScienceLeave	6.0	100.0	48.0
Age	11.0	19.0	14.0

Students have scored 44.5 percent in Science subject on average with a minimum of 0.0 percent and maximum 89 percent. Similarly the students scored 45.1 percent on average in Mathematics subject with minimum 0.0 percent and 94.4 percent as highest.

The MathsDur variable shows how much percentage of the total period of 35 minutes does the mathematics teacher actually teach her student. Likewise, ScienceDur is how much percentage of the total period of 35 minutes does the science teacher actually teach the student. 66.7 percent is the minimum for the variable ScienceDur and 14.3 percent is the minimum for MathsDur. 100 percent is maximum for both the variables and 87 percent is the mean for them both. It was found that the mathematics teacher took 6 days leave in the academic year/total number of working days. An academic year in different schools consists of a minimum of 183 days and a maximum of 234 days. The maximum

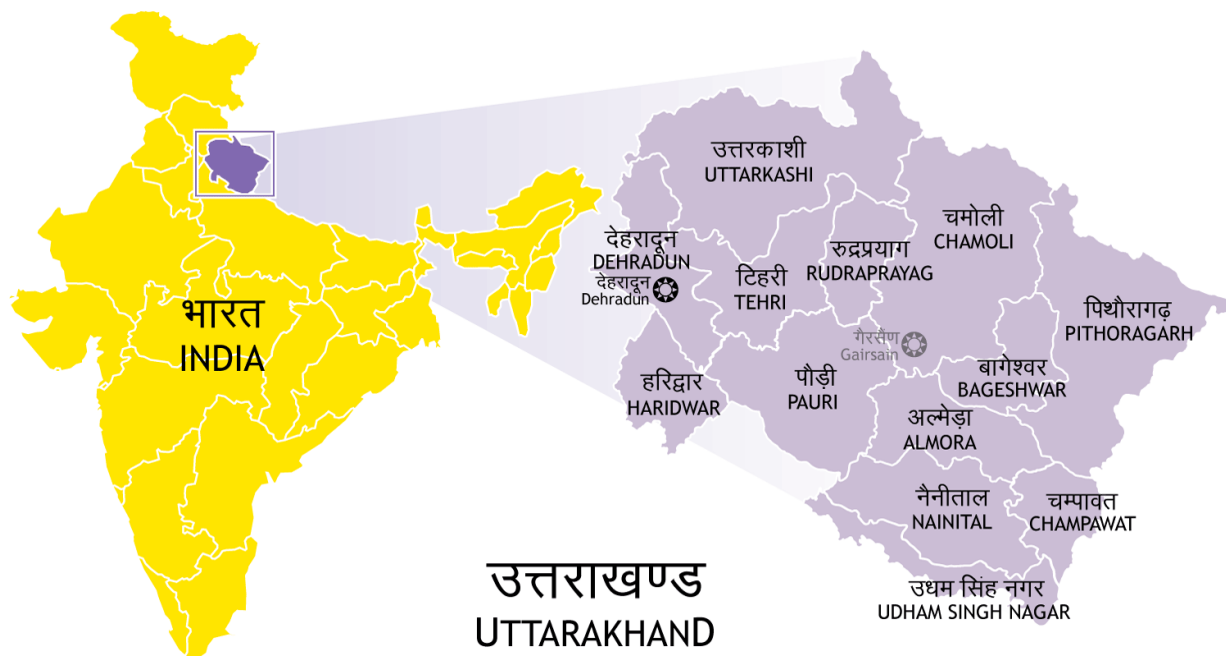
days out of these working days that a mathematics teacher took leave is 190 days. Similarly is the minimum and maximum number of leave days for science teacher. This can be explained by the numerous days teachers are away on fake medical certificates, and/or on official chores like election duty, census surveys etcetera. A mathematics teacher takes 37 days leave in an academic year on an average and a science teacher takes 48 days leave on an average in an academic year.

Finally our statistics shows that the minimum age of students who appeared in class 8th annual examination in 2010 was 11 years while the highest was 19 years. These students age on average was 14 years.

All this data was analysed using multivariate regression tool in SPSS 17.0 and the results are discussed in Chapter 6.

Chapter 4: District Profiles

Uttarakhand is a relatively new state which came into existence on the 9th of November 2000 and constituted the 27th state of the Republic of India. It is present in the Northern India and at 53,483 sq km; it occupies 17.3% of India's total land area and 1.67% of the total area of India. As per the 2001 census, the total population of Uttaranchal was 8.49 million with a population density of 159 persons per square kilometer. It is broadly divided into 2 main divisions, namely Garhwal and Kumaoun and 13 major districts, namely Uttarkashi, Dehradun, Rudraprayag, Tehri Garhwal, Haridwar, Pauri Garhwal, Chamoli, Bageshwar, Pithoragarh, Almora, Nainital, Champawat and Udham Singh Nagar. The decadal growth rate of the state between 1991 and 2001 was 19.2 percent with substantial inter district variations. Uttaranchal is predominantly rural with about 74 percent of the population living in 16,414 rural settlements.



Small-sized, sparsely located, scattered villages without road connectivity pose a major challenge to the administration. Hill districts are at an apparent disadvantage compared with districts in the plain areas. Contrary to the conditions thus depicted about the state, the literacy rate in Uttaranchal is amongst the highest in the country. About 73 percent of the population in the state is literate and the literacy rate is comparatively better in the hill districts than in the plains. Eighty-four percent of males are literate compared with 60 percent of females. (Source: <http://gov.ua.ac.in>)

The administration has taken various measures against the problems mentioned above which include quality parameters like need-based teacher training specially in area of language, science, math, motivation, Gender sensitization etc; universalization of pre-school education facility across the state of Uttarakhand, ensure teacher accountability, external assessment of child achievement through different standardized monitoring tools.

Three districts of the thirteen with contrasting developmental characteristics, ranging from a developed urban zone to a hilly rural area are selected for in-depth analysis of the functioning of upper primary schools, and the results produced in terms of acquisition of basic cognitive skills in science and mathematics by the learner.

The registered infant mortality rate for Uttarakhand is 41 (2003) which is very low as compared to the pan-India figure of 63 (2002), there is a wide divergence in the rural (62) and urban (21) rates, thereby indicating the extremely uneven pattern of development in the health sector as well. Moreover, there are issues related to women's health and nutrition, particularly in the remote hilly areas where access to basic health facilities is denied that need to be addressed.

Of the three chosen districts, Dehradun, Haridwar, and Rudraprayag (written in order of decreasing area), the plains of Haridwar has the highest population density of 613/km² followed by Dehradun, with 418/km² and finally the hilly Rudraprayag, the least populated district with a population density of 120/km². The demographic and other characteristics of the selected districts are given in the following tables. The dominant religion in all three districts is Hinduism. The other two sizeable religions are Islam and Sikhism. Haridwar has the most number of Scheduled Caste whereas Dehradun has noticeable number of Scheduled Tribe.

Dehradun

Dehradun, in the north-west corner of the state, is one of the oldest cities of India and the provisional capital of Uttarakhand. Surrounded by mighty Himalayan mountain ranges, the district is named after its chief city Dehra Dun.

Haridwar

Haridwar district is headquartered at its largest city Haridwar. The district is surrounded by the districts Dehradun in the north and east, Pauri Garhwal in the east and the Uttar Pradesh districts of Muzaffarnagar and Bijnor in the south and Saharanpur in the west.

Rudraprayag

Rudraprayag district occupies an area of 2439 km² bounded by Uttarkashi District on the north, Chamoli District on the east, Pauri Garhwal District on the south, and Tehri Garhwal District on the south. Rudraprayag town is the administrative headquarters of the district.

TABLE V: Demographic Characteristics, 2001

	Dehradun	Haridwar	Rudraprayag
Population (in millions)	1,282,143	1,447,187	227,439
Rural	603,401	1,000,912	224,707
Urban	678,742	446,275	2,732
Scheduled Caste(%)	13.53 %	21.70 %	17.72 %
Scheduled Tribe(%)	7.75 %	0.22 %	0.08 %
Religion			
Hindu(%)	84.7 %	65.3 %	99.2 %
Non-Hindu(%)	15.3 %	34.7 %	00.8 %
Density (per sq.km.)	418	613	120

Source: Census of India 2001

The following Table VI shows the literacy rate of the three districts with Dehradun having the highest literacy rate at 78.98% followed by Rudraprayag at 73.65% and Haridwar at 63.75%. The difference between male and female literacy rates is sizeable.

TABLE VI: Literacy Rate, 2001³

	Dehradun %	Haridwar %	Rudraprayag %
Total	78.98	63.75	73.65
Male	85.87	73.83	89.81
Female	71.20	52.10	59.57

Source: Census of India, 2001

Although Uttarakhand has been successful in attaining relatively high level of literacy in comparison to other states of the country with 72 % literacy rate, it remains the ninth worst state in the country with respect to gender gap in literacy. 60% female literacy is observed in comparison with 84% male, and this gap is more pronounced in the hill districts of the state.

It is estimated that nearly 40 per cent of population in the state lives below the poverty line, which is 12 percentage points higher as compared to the national average making Uttarakhand the fifth poorest state in India. In comparison to its neighbouring states, the percentage of poor is very high, it bring as low as 10 per cent in Himachal and only 5.4 per cent in Jammu and Kashmir (61 Round Survey results of NSSO)

Labour Force Participation Rates in the selected districts is given in the following table VII. As can be seen from the table, labour force participation rates are higher in hilly district of Rudraprayag followed by Dehradun and Haridwar.

³ For the purpose of census 2001, a person aged seven and above, who can both read and write with understanding in any language, is treated as literate. A person, who can only read but cannot write, is not literate.

TABLE VII: Labour Force Participation Rates, 2001

	Dehradun %	Haridwar %	Rudraprayag %
Total	31.23	29.38	44.86
Main*	26.24	24.43	33.44
Marginal*	04.98	04.95	11.41
* Main workers in the Indian Census mean those who had worked for the major part of the year, namely six months (183 days) or more. Marginal workers are those who had not worked for the major part of the year i.e. those who had worked for less than six months (183 days) in the year			

Source: Census of India, 2001

In the first five years after its inception in 2000, Uttarakhand showed a spur in increase in its gross state domestic product (GSDP) of over 11.6 per cent per annum.

TABLE VIII: Growth of Per Capita GSDP, 1993-94 to 2004-05 (At 1993-94 Prices)

State	Per Capita GSDP (Rs.)			Growth Rate	
	1993-94	1999-00	2004-05	1994-95	2000-05
Uttarakhand	7674	12967	22425	9.14	11.58
Himachal	8857	20410	30880	14.93	8.63
J & K	7545	14180	18768	11.09	5.77
UP	5745	10287	13179	10.20	7.84
Source: uic.gov.in What ails Uttarakhand's Economic Development? R.S.Tolia					

These statistics seem to indicate that the separation from Uttar Pradesh has certainly boosted Uttarakhand to positive growth within a short period of five years wherein, the secondary sector registered a 14 % compound annual growth rate.

- 1) State achieved 98% accessibility for primary level and 98% of upper primary schooling facility and almost 99% enrolment of 6-14 age groups children but expected level of learning is still a matter of concerns at both levels.
- 2) Drop out of girls after level V, in case of unavailability of upper primary in the sparsely populated areas.

- 3) Identification system of children with special needs is major issue and Physical disability becoming more severe in the habitations falling in hill districts.
 - 4) Out-migration of men-folk still brings substantial workload on girls.
 - 5) Migrant families and children with rapid industrialization.
 - 6) Electricity and IT connectivity issues remain in hilly areas.
 - 7) Lesser opportunities of employment in the hill areas.
 - 8) Migration of children and families from within and outside state to plain districts and urban areas in search of employment resulting into congestion of urban areas.
 - 9) Scattered habitation in hilly area which are not covered by schooling facility within the norms.
 - 10) Unrecognized slums areas and deprived group of children in these areas.
- Universalization of elementary education in forest areas due to unavailability of lands.

State goals for 2011-12

Keeping SSA goals in the light of above-mentioned context and fact the State has formulated some of important annual goals for year 2011-12 to achieve quality universalization of education which are described as follows:

Physical parameters:

- Reduction of Education Guarantee Scheme centres after critically analyzing the viability and need of them. Besides this, up gradation of all eligible EGS centers into Primary school and to saturate upper primary schooling in a ratio of 1:2, as far as, possible.
- Ensure all spill over civil works would be completed by 31st July 2012.
- 100% access at primary and upper primary levels introducing various interventions as stipulated in Right of children To free and compulsory Education.
- 100% enrolment at primary and upper primary levels.
- Rationalization/ redeployment of teachers up to the norms.
- Special focus innovative programmer for urban deprived and migrant children.

- Survey for identification of Children With Special Needs and Out Of School Care in urban areas.

The state is approaching towards saturating civil works demand, issues of access and basic minimum facilities in all villages with the close linkages with other line departments.

Quality parameters:

- Institutionalizing pupil assessment through the induction of Continuous and Comprehensive Evaluation since last two academic years.
- Ensuring that all children at grade I and II acquire basic reading and mathematical skills by end of 2015. With a sustainable achievement level by 20%.
- Improvement in learning outcomes in class V by 20% against baseline.

Chapter 5: The Debate: Government versus Private

Though one of the objectives of primary school education in India is to increase the resources and government run schools coverage, more and more awakened and ambitious households prefer sending their children to private schools than the government schools.

As Muralidharan and Kremer(2006) find out that the salary of private school teachers is much less than government school teachers. Private schools have less teacher to students ratio and very less multi-grade teaching. Teachers and staff of private schools take very less leaves in a month. The authors find out that the teachers of the private school are 2 to 8 percentage points less probable to be absent than government schools' teachers. They are also 6 to 9 percentage points more probable to be involved in teaching activities at any point in time. Private school teachers are more probable to have a college degree unlike the teachers of government schools. But private school teachers seldom have a formal teacher training certificate. Private school students have higher attendance rates and higher learning outcomes, even when observable household and school characteristics are controlled.

The following Table IX shows the Uttarakhand state's overall mean percentage scored by the students of standard 3rd, 5th and 8th of government and private schools in the subjects Maths, Science and India's national language Hindi in the Annual Examinations 2009-2010.⁴ Not much difference in the mean percentage scored by government school students and private school students of standard 3rd, 5th and 8th in Science subject. They have scored 44.5 percentage and 50.6 percentage on an average respectively. Though there is a difference of almost 20 in the mean percentage scored by government and private school students in Mathematics and Hindi language respectively. Private school students scored a mean of 66.2 percentage in Mathematics, whereas government school students scored only 44.2 percentage on an average. In Hindi language, government and private school students scored 38.7 percentage and 57.9 percentage respectively.

⁴ The Private school observations are 2591 and the government school observations are 27935 for the whole state. The difference in the number of observations is due to the varying number of government and private schools in the state. The Annual examinations are the joint initiative of the State Government of Uttarakhand and Azim Premji Foundation under the learning guarantee programme.

Table IX

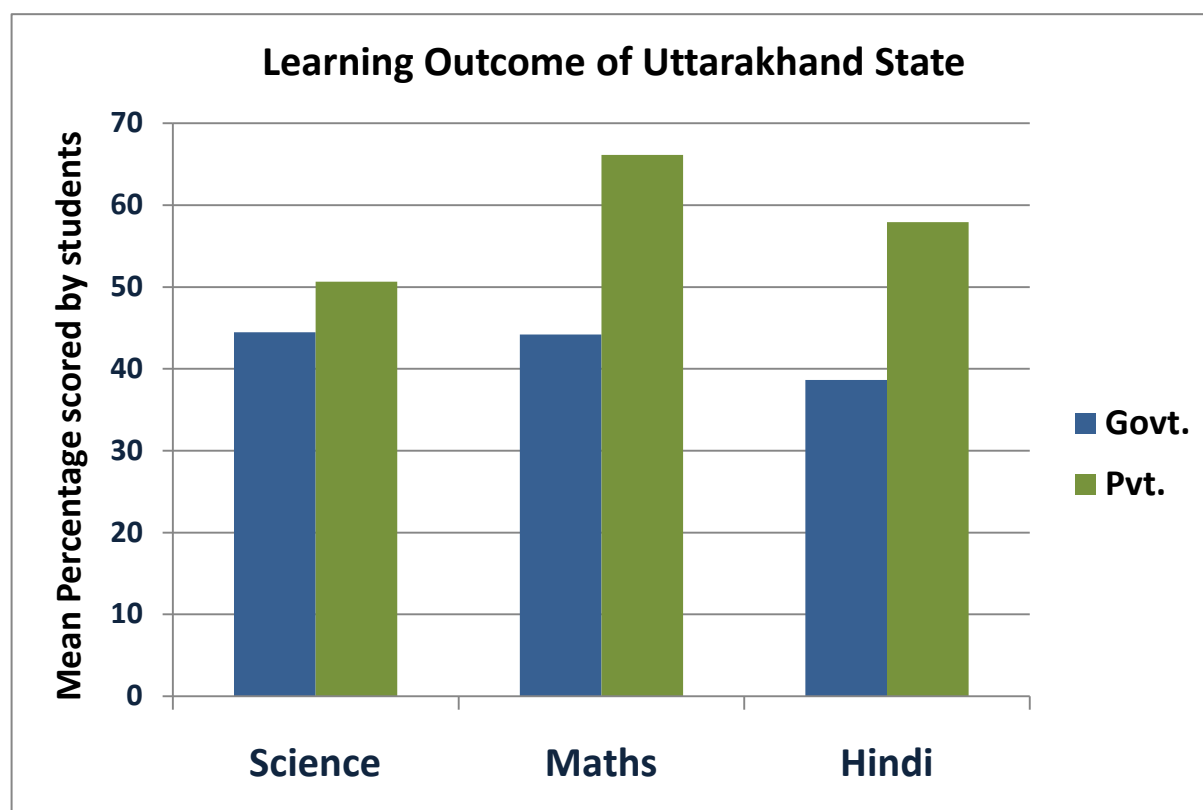


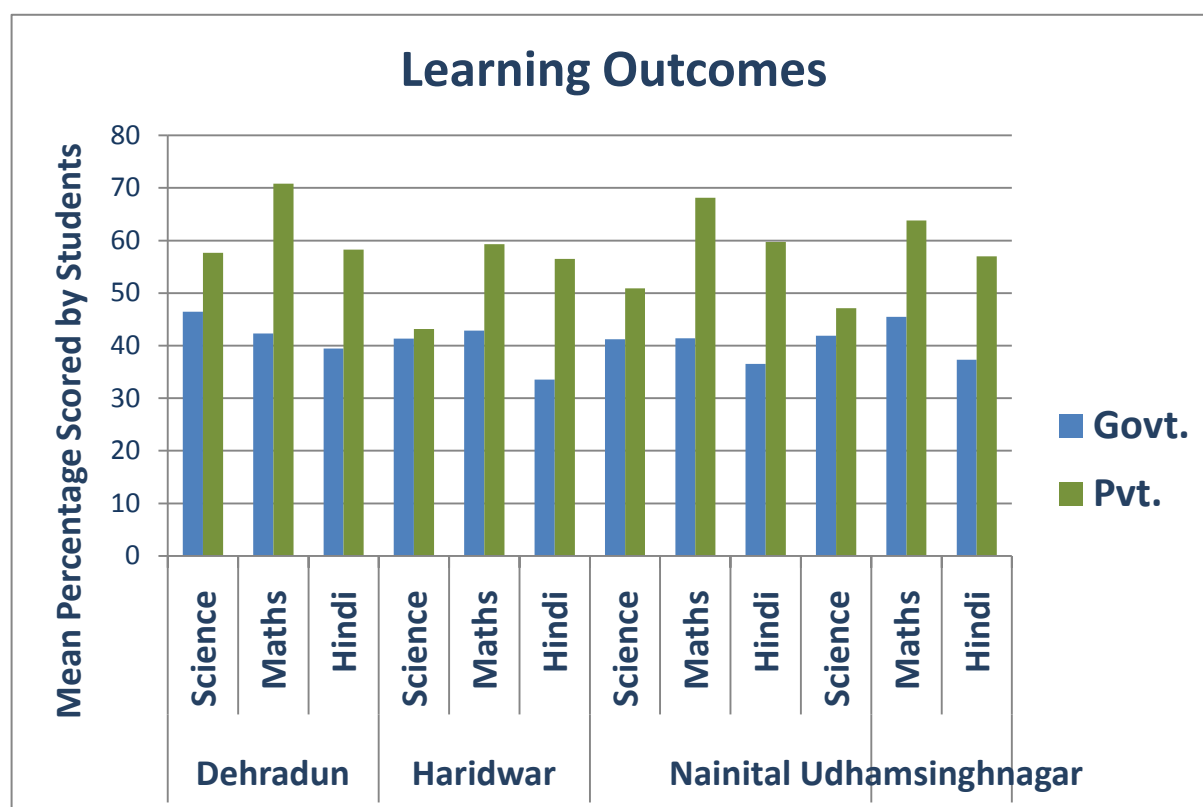
Table X shows the district wise comparison of government and private school performance for the districts for which private school data was available. The private school data is available for only the four out of thirteen districts of Dehradun, Haridwar, Nainital and Udham Singh Nagar as these are semi-mountainous and plain districts of the state. Reachable in layman's language. Hence they have private schools. The other districts either do not have private schools or have negligible number of private schools.

We see in Table X that private school students of 3rd, 5th and 8th standard students score better than the government school students of the same classes. In district Dehradun the science mean percentage scored by government and private school students is 46.4 and 57.6 respectively. For mathematics it is 42.3 percentage and 70.8 percentage respectively and for hindi language it is 39.4 percentage for government school students and 58.3 percentage for private school students. In Haridwar district, government school students scored 41.4 percentage in science, 42.8 percentage in mathematics and 33.5 percentage in hindi whereas private school students did not do any better in science with 43.2

percentage but scored more in mathematics and hindi language with 59.2 percentage and 56.5 percentage respectively.

Government school students in Nainital district scored 41.2 percentage in science, 41.4 percentage in mathematics and 36.5 percentage in hindi language. Whereas private school students of the same district scored 50.9 percentage, 68.2 percentage and 60 percentage respectively on an average. In the fourth district of Udham Singh Nagar, government and private school students scored similarly in science with a mean of 41.9 percentage and 47.1 percentage respectively. However private school students did better in mathematics and hindi language with 63.8 percentage and 57 percentage respectively. Whereas government school students' mean percentage in mathematics was 46 percentage and 37.3 percentage in hindi language.

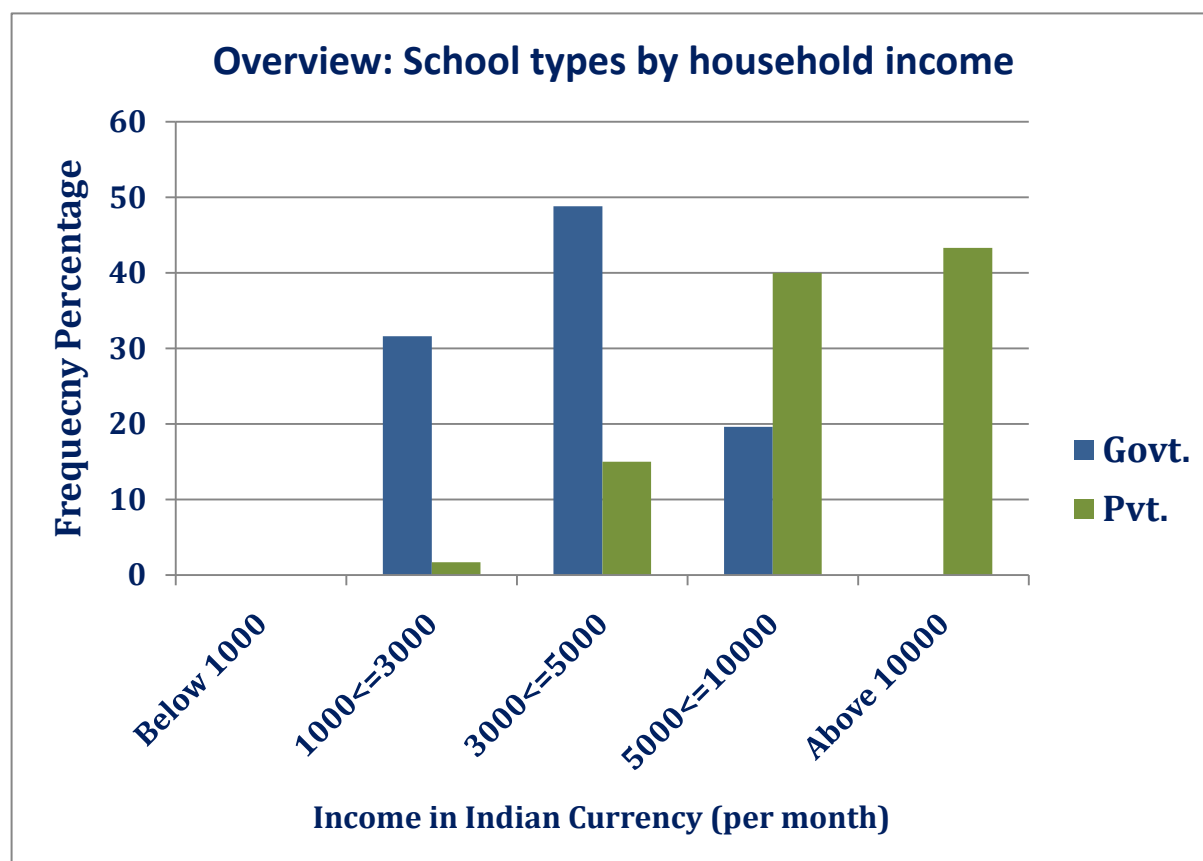
Table X



Though government and private school students have faired similarly in Science subject, the overall comparisons underscore the belief that private school education is better than government school education. But private school education is not accessible and affordable to all. I have already discussed the demographic profile of the the regions in

Chapter IV. In the following table XI, we see that only the households earning well can afford private school education.

Table XI



Source: Field survey. Number of observations 259.

In Table 3 we see that 31.6 percentage of students studying in government schools have a household income of INR 1000 to INR 3000 per month. 48.8 percentage government school children's household income is between INR 3000 and INR 5000 per month. Whereas the rest 19.6 percentage of government school children's household income is in the income slab of INR 5000 and INR 10000 per month.

However, 43.3 percentage of private school children come from household having an income above INR 10000 per month. 40 percentage come from the households with income between INR 5000 and INR 10000 per month, 15 percentage belong to INR 3000 to INR 5000 per month income category and only 1.7 percentage come from families with income between INR 1000 and INR 3000 per month.

According to DISE (2007-08) data, “percentage of government and government aided schools is as high as 85.83. This shows that ninety out of every hundred schools imparting elementary education in the country are funded by the government.” This is why we are concerned about the quality of Government Schools. The poor have access to them and education is one tool which will lead them to prosperity.

Chapter 6: Major Findings & Conclusions

Results of Multiple Regression Analysis

$$Y_{\text{percent}} = \beta + \beta_1 \text{Age} + \beta_2 \text{Gender} + \beta_3 \text{Type} + \beta_4 \text{HouseholdCat} + \beta_5 \text{Meals} + \beta_6 \text{Motheeduc} + \beta_7 \text{Parint} + \beta_8 \text{Monthdaysabs} + \beta_9 \text{Studyfrom} + \beta_{10} \text{Stunum} + \beta_{11} \text{Classequip} + \beta_{12} \text{Comp} + \beta_{13} \text{Hwcor} + \beta_{14} \text{Hwexp} + \beta_{15} \text{Teaextrinc} + \beta_{16} Y_{\text{Leave}} + \beta_{17} Y_{\text{Dur}} + \beta_{18} \text{Inspect} + \mu$$

Where Y = Science or Math in the two multivariate analysis.

The results of the multivariate regression analysis of the above model determining a student's performance is given in the following tables. The model that tries to answer the question that **how secondary school learning outcomes can be improved?** High collinearity between Household Category and Father's Education level was found. Hence the independent variable Fatheduc was removed from the regressors. Also, mother's education has more impact on the learning achievements of children than father's education according to previous literature. This is plausible as in most countries mother spends much time with children at home contributing more to the overall development of the children than the education of fathers.

The results of the multivariate regression analysis of factors that determine a student's percentage scored in the Science subject is given in the following table XII. The coefficient of determination indicates that 45.9 per cent of the variation in the Science percentage scored by class 8th students is explained by the variation in the independent variables in the model. Loop of causality between dependent variable and independent variables can be denied.

Type variable has the largest beta coefficient -12.142 but the significant level is not less than 0.05. Hence we cannot conclude that the type of school: Government or Private make a unique significant impact in explaining the dependent variable Science percentage scored by class 8th students. This may be due to overlap with other independent variables in the model. For example Mother's education and Household Category. From our data's descriptive statistics we see that all 60 private school children belonged to Above Poverty Line Household Category and the students studying in government schools came from Below Poverty Line Household Category. Also, the parents of private school students had higher learning attainments than the parents of the government school students. Perhaps these independent variables are overlapping with the Type of school variable. Hence Type is not making a significant contribution in the Science percentage scored by students

unlike the graphical comparison of government and private school learning outcomes in the whole state in Chapter V. But we cannot deny the fact that variable **Type** explains 12 per cent variance in the Science per cent. The most significant contribution in explaining the dependent variable Science percentage is made by the variables Motheduc, Parint, Monthdaysabs, Hwcor, Hwexp, ScienceDur and Inspect at less than 0.05 significance level.

TABLE XII: Results of Multivariate Regression: Dependent variable Science percentage

Independent Variables	Beta	Standard Error	T test	Sig.
Age	-.772	.675	-1.144	.254
Gender	.668	1.448	.462	.645
Type	-12.142*	8.524	-1.424	.156
HouseholdCat	-2.277	8.081	-.282	.778
Meals	-1.390	4.238	-.328	.743
Motheduc	3.781*	.694	5.451	.000
Parint	-2.078*	.920	-2.258	.025
Monthdaysabs	-1.485*	.501	2.966	.003
Studyfrom	6.990*	6.025	1.160	.247
Stunum	.006	.041	.158	.875
Classequip	-7.228	12.092	-.598	.551
Comp	3.408	4.903	.695	.488
Hwcor	-7.400*	2.605	-2.841	.005
Hwexp	-6.000*	1.556	-3.857	.000
Teaextrinc	1.118	4.039	.277	.782
ScienceLeave	-.007	.035	-.190	.849
ScienceDur	.321*	.088	3.631	.000
Inspect	-3.004*	.889	-3.342	.001
(Constant)	26.967	33.495	.805	.422
Dependent Variable:	Sciencepercent	Adjusted R²:	.459	

With each one unit increase in **mother's education level** i.e. from did not go to school, to primary education level attainment, to junior school learning attainment to the post graduation level (as mentioned in descriptive statistics in Chapter 3) there is a 3.78 per cent increase in the Science percentage of the child having all other variables constant. This is in line with the Indian Institute of Education (2006) study according to which lower educational attainment of parents negatively affects children's education. It is argued that educated mothers spend more time than fathers and make comparatively more quantitative and qualitative inputs into the production function of the cognitive attainments of their children. According to another study of Haveman and Wolfe (1995: 1855) , 'the human capital of the mother is usually more closely related to the attainment of the child than is that of the father' . Behrman (1997) based on evidence from both the United States and some developing countries, found that a mother's educational achievement is somehow more important than a father's educational level. However he mentions that there is a considerable degree of variation across studies.

Hwcor and **Hwexp** also significantly contribute in the explanation of the percentage scored in the Science subject by class 8th students. With one unit increase on the scale of correction from 'homework very much corrected', 'somewhat corrected', 'neither', 'somewhat not corrected' to 'very much not corrected', the percentage scored in Science subject decreases by 7.4 per cent. On a similar scale with one unit increase of homework not being explained after correction leads to 6 per cent decrease in the Science percentage scored by students.

These two variables Hwcor and Hwexp have not been tested in previous studies. After pilot test and field observations, it was felt that these variables very much explain the performance of students. Teachers have a sole motivation to complete the syllabus by rote learning method without making efforts to make students understand the content of the syllabus. When it is not possible to cover the complete syllabus, it was observed that the work was given as homework and often not corrected. On occasions when the homework was found to be corrected, the mistakes were seldom explained by the teacher to the student. Mistakes not corrected and explained makes the students repeat them. With basics unclear, the performance in the examination is bound to show negative results.

With each percent increase in the **ScienceDur**, the duration of the period a teacher actually teaches out of the scheduled teaching period, increases the percentage scored by the student in Science by 0.32 per cent at less than 0.05 significance level. This explanatory variable is also not quantitatively tested in previous literature but qualitative observations have been made in the past and also during our field observations in the pilot test that teachers of government schools were found evading their teaching periods. The teachers were found chatting in groups, knitting and leave children on their own. It was learnt that some teach for some 20 minutes in a period of 40 minutes. Hence this independent variable was included to test how much this determines the performance of students.

With one unit increase in our variable **Inspect**, which stands for how many times in a month a school inspector visits the school, the percentage scored by students in Science subject decreases by 3 per cent. This is quite contrary to popular belief and general observations that regular inspection tightens the functioning of school and improves performance. The result is also contradictory to previous literature like the studies by Kremer et al (2004) and Devaraj, Amaidhi et al. (2005) according to which “regular monitoring and follow-up by resource persons improved attendance and overall functioning of schools.” This may be explained by the fact that private schools have no provision of school inspector in general in the region and the owner/managing body plays the monitoring role. So in our data set, private schools do not have formal inspections by school inspector or coordinators as in government schools. Whereas our data statistics show that the performance of private school students is better.

Previous literature shows how parents interest and role in children’s education is important. Research has shown the influence of parent’s interest in children’s educational performance. It is beneficial for children, teachers and schools. Feinstein, L & Symons, J (1999) found that parent’s interest has significant impact on the achievement into adolescence. The data used for analysis was the National Child Development Study (NCDS) to find the relationship between parent’s interest and children’s attainment at age 16. Using achievement in reading and mathematics it was found that parent’s interest in a child’s education more uniquely contributed 10 per cent variation in achievement than other household characteristics. Douglas, J.W.B (1964) showed that parents who showed high level of interest in their children’s education had higher test scores and vice versa.

Our result is also in line with these conclusions. With every one unit increase in **Parint** on a scale ranging from 'parents very much interested', 'somewhat interested' to 'parents very much disinterested in children's education', the percentage scored by the student in Science decreases by 2 per cent on a significance level less than 0.05. The variable **Monthdaysabs** explains 1.48 per cent variation in the Science percentage at 0.05 significance level. With each increasing number of days in a month a student takes leave from school, her per cent decreases by 1.48 per cent. With not a conducive environment of learning in government schools and lack of strictness and monitoring, the students tend to take more leave which affects their performance but it is also possible that lazy students might be cutting classes more often, and being lazy might be the main reason for the observed effect of being absent. This problem is stemming from the fact that we cannot measure laziness in our surveys. I do not consider endogeneity in the model.

When we tested the Mathematics percentage Mathpercent as the dependent variable we found the variables Motheduc, Parint and Monthdaysabs making significant contributions in explaining the mathematics percentage variation similar to the science percentage. Studyfrom and Comp variables are also explaining the variance of mathematics percentage in this multivariate model. With every unit increase in the **Motheduc** on the scale mentioned for previous table, the mathematics percentage of students increase by 5.49 per cent. **Parint** explains 4.345 per cent variance in the mathematics percentage scored by 8th students and **Mothdaysabs** explains 2.82 per cent variance significantly.

Two more variables not explaining the dependent variable science percentage in previous multivariate regression but explaining the variance in mathematics percentage are **Studyfrom** and **Comp**. Studyfrom variable shows what does a student study from for the examination preparation and general reading, textbook, local publisher cheat notes/guidebook or both. The results show that the percentage in mathematics decreases by 10.38 per cent when a student studies from not the main course textbook but uses guidebook. The availability and functioning of computers, Comp variable explained 21 per cent variance in the percentage scored by class 8th students.

TABLE XIII: Result of Multivariate Regression: Dependent Variable Math percentage

Independent Variables	Unstandardized Beta	Standard Error	T test	Sig.
Age	.329	.963	.341	.733
Gender	1.941	2.078	.934	.351
Type	6.741	12.060	.559	.577
HouseholdCat	1.905	11.516	.165	.869
Meals	10.035	6.080	1.651	.100
Motheduc	5.493*	.995	5.522	.000
Parint	-4.345*	1.345	-3.231	.001
Monthdaysabs	-2.821*	.718	-3.930	.000
Studyfrom	-10.386*	8.815	-1.178	.240
Stunum	.053	.049	1.078	.282
Classequip	28.686	17.058	1.682	.094
Comp	-21.232*	7.028	-3.021	.003
Hwcor	3.267	3.581	.912	.362
Hwexp	.309	2.282	.135	.893
Teaextrinc	5.921	5.961	.993	.322
MathLeave	.021	.031	.672	.502
MathsDur	-.051	.068	-.748	.455
Inspect	1.063	1.312	.810	.419
(Constant)	19.381	47.395	.409	.683
Dependent Variable: Mathpercent		Adjusted R²:	.456	

General Observations From Field⁵

‘Uttarakhand Sabhi Ke Liye Siksha Parishad’ (Education for All Programme) has been established to improve the quality and extent of primary schooling by Uttarakhand

⁵ These general observations are not based on any empirical evidence but on observations from field which were taken note of by the field investigators, informal talks with various stakeholders and also which I had observed during my previous study, ‘Why are children still out of school? A case study of urban slums in Dehradun, India’, Man and Development, volume XXXII, June 2010.

Government. This programme aims to improve the infrastructure and facilities as well as the human resources in government schools. Construction of new seminar halls, classrooms, toilettes has been sanctioned in this project. Also, recruitment of atleast two more teachers in each school has been approved. To fulfil the quality needs, teacher training and instructions in computer aided learning are carried out regularly. All the efforts have helped improve the primary school enrolment rates but the qualitative study of our survey at the grassroots level reveals that:

- The infrastructure and other facilities in government schools have improved a lot. The school buildings are properly constructed with cement, gravel and sand. Pure drinking water facilities and clean toilettes have been provided. Drinking water facilities and toilettes were found best in the district of Rudraprayag whereas in the worst form in Haridwar district. These facilities were normal in Dehradun district.
- Efforts have been made to make the classrooms of the districts of Rudraprayag and Dehradun child friendly. Classrooms have been decorated with neat and attractive images and learning materials. Such efforts could not be seen in Haridwar district. The energy levels were found to be low in this district.
- Computer laboratories were found in all government schools during the survey. Though these computer rooms looked attractive and tidy, they were not functional. Although the teachers are given computer training at DIET, computer aided classroom teaching was not found.
- Primary school teachers told us that they have to actively participate in a twenty days teacher training workshop annually. However the implementation of the training at class room level was rarely found.
- Government schools are accessible to children as they are opened in close proximity to small geographical units. But still the teachers are not punctual which hinders the creation of healthy school environment.
- This is also true that the involvement of primary school teachers in other government chores like census surveys of population, livestock, children etcetera hinders proper functioning of schools. Also, teachers shirk their teaching responsibility in the name of such government assignments at times.

- There also exists an influential union of teachers. This teacher union seems to be negatively affecting the proper functioning of schools by spending teaching hours in union meetings and connecting with other teachers for different income generating activities.
- It was noticed during the survey that first generation learners are studying in government schools. Mostly these government school students hail from Below Poverty Line (BPL) households. Due to the Mid-Day Meal Programme and educational awareness, this section of the society has become interested in their children's education.
- Despite the free distribution of textbooks by the government, almost all teachers and students use guide books and short notes for learning and teaching. Rote learning method of solved questions is widely prevalent. Despite all the teacher training modules, teachers themselves are encouraging the rote learning method so that children are atleast able to answer examination question papers.
- Minimum learning levels in language and mathematics were found at elementary school level. Children were uncomfortable in reading, writing and solving problems of addition, subtraction, multiplication and division. When teachers are questioned about this unsatisfactory learning outcomes of children, they blame the household environment of these children and their parents' lack of interest in their education.
- According to the Right to Education Amendment Act 2009, all children in the age group 6 to 14 years have to be enrolled in classes according to their age. Also, they should not be demoted to avoid discouraging them from continuing studies. But this has also affected negatively as it has developed lethargy among teachers and the attitude that all children would be promoted to the higher classes even if they do not teach well.
- In the past two years, to encourage stress free evaluation system, a child friendly examination pattern has been introduced. Questions of this pattern are based on analysis and understanding of the syllabus instead of answers from rote learning. Neither the teachers nor the students have been able to understand and prepare their

teaching and learning according to this pattern. Marks are freely given to students to promote them to higher classes.

- To improve the quality of learning in primary government schools, extensive evaluation and analysis is being carried out. But because these evaluations are not considering in depth the classroom learning process, these government evaluation efforts cannot be considered truly impactful and insightful.
- Homework is given to students but is not corrected. When it is corrected, mistakes are hardly explained. Generally the syllabus which could not be covered in class is given as homework to meet the completion of syllabus as soon as possible.
- The science subject is taught within environment science subject from class first to fifth. General science is taught in classes sixth to eight. Generally, students are more inclined towards science than mathematics. On finding the reason, it was learnt that science subject content is familiar to students from everyday living and also interests them. Whereas only two to three students in a class are able to understand mathematics. Rest of the students copy the solutions of mathematics problems from these students' notebooks. It is necessary that these problems of mathematics are solved by giving examples in context with situations and objects from surroundings. Government school teachers were not found involving students in solving the mathematics problems. They solve questions on the blackboard which the students obediently and without understanding copy in their notebooks.
- In government schools in cities, teaching hours are disrupted by street vendors (cloth vendors for example) and other marketing/sales men and women who sell their products to school teachers and staff. Such trespassing and disturbance should be checked.
- Haridwar district schools were found to be using old curriculum textbooks inspite of the improved curriculum books that were freely distributed by the government.
- Personal tuitions was found to be a prevalent practice among private school students in cities.

- Educational policy makers and those that implement these policies do not share a healthy rapport with each other. At district education department level, Education Officers and teachers blame each other for the failures of educational policies. Lack of mutual respect was felt among these during the study. All these factors negatively affect the educational environment.

Conclusion and Policy Implications

The key findings of this thesis emphasizes more on providing the right healthy environment and approach to study to children, be it in the form of involvement of parents in children's educational attainment, studying from the appropriate textbooks, or the explanation of homework and syllabus by teachers. These are the findings not much talked about in previous studies which only discussed the facilities, household characteristics, teacher qualification and dedication. Having tested the hypothesis we derived from previous literature and from field observations, based on our survey data, we conclude that:

- 1:** Learning by rote method and usage of guide books in learning is negatively correlated to learning outcomes of education.
- 2:** Parents' interest and encouragement positively affects the learning outcomes of school education.
- 3:** Low educational level of mothers affect the learning outcomes of children's school education negatively.
- 4:** Non-correction and explanation of home-work negatively correlates with learning outcomes of school education.
- 5:** Though, unlike previous literature and general notion, our data does not show negative relationship between lack of monitoring and inspection and better learning outcomes, but our study shows that the teaching for the complete scheduled period positively correlates with higher learning outcomes. We can conclude that monitoring and self-dedication is required for teachers.
- 6:** The number of days a student is absent from school in a month negatively correlates with learning outcomes.

We show in our paper that irrespective of the household background it is the parents' interest in their children's education that encourages students to perform well. Poor educational attainment can trickle down into generations. It is very important to enhance the learning outcomes and attainment of the present generation and the coming ones to break this trap of deprivation. Parents often cite the upbringing of other younger children, lack of time due to work as hurdle for showing interest in their children's educational attainment. They also find the opportunity cost of their children studying too much. If not studying, the children could have helped in other chores or in gaining vocational skills or in contributing to the house's income. Parents who are keen to see their children educated and doing well in organized sector jobs are not able to pay much attention because of lack of their own basic education skills. In a study by Basic Skills Agency, it was found that 34 per cent parents could not read their children's book. 18 per cent found it difficult to recognize numbers. The government must undertake capacity building programmes for the poor families. Adult education and child education should work hand in hand.

Parents have to make to realize that it is possible and realistic to rise above their present standard of living by giving proper education to their children. This realization can be promoted by making the role models known to them, person who have broken the poverty cycle of their families by competing and excelling in various Civil Service professions, Medical and Engineering to name a few. They have to be given examples of people from their cultural, ethnic, and economic backgrounds and motivating them to motivate their children.

It will be also beneficial if the teachers conduct home visits, if children's parents are comfortable. This will enable the teachers to learn from families about children's home environments and suitable learning styles.

The fault also very much lies with the schooling system where teachers are not inspired enough for their job role and do not realize the importance of their role. The children are either unable to grasp what they are taught, or the teachers do not take their responsibilities seriously. Homework if given should be corrected and explained. The sole purpose of the teacher should not be complete the syllabus and promote the students to next standard without achieving the knowledge of the previous class. According to the

new state law passed, no student can be demoted until class 8th so that it does not discourage students from continuing studies. I propose that external examiners can conduct oral examinations-cum-interactive sessions with students every quarter to check the standard of teaching. When the quality of learning is not satisfactory, it can be taken note of in the teacher's report of performance which can be linked with some financial loss in the salary annually. But this proposal is a long way upto implementation. With political and teacher union playing major role in its implementation.

As a short term process, social policy campaigns can be taken up spreading the importance of providing quality education in government schools with answers like that it is good economic stewardship, good for the nation and that it is not a private matter but a public good. Early quality education helps in building more civilized society giving better boundaries to children from the poorest segment of the society, making them better behaved. It will enhance their socialization and instruct them how to be a part of a community and the country on the whole. People and teachers have to be motivated to undertake their job role responsibly because the financial increment given to Primary and Secondary teachers in the basic salary according to a new bill has not made any difference in their attitude.

Above all, literacy and numeracy skills have to be given priority in primary school. Poor performance in secondary school level shows the weak educational foundation being laid in government schools. The time spent on learning has to be maximized as we saw that how teachers shirk their duty and try to teach for as less time as possible in class. I would not like to recommend again like previous literature to give teachers remedial training in effective instruction as teachers are being given these training already by the best educationists for a fortnight every year. What is lacking is their implementation in the classrooms. Teachers have to be motivated and supported. The teachers performance should be assessed regularly based on student's achievement of quarterly learning targets by external examiners. The system should be made more transparent by involving local community and parents to do away with corruption, i.e. teachers bribing senior officials or school inspectors and external examiners to show better learning outcomes on the record. To correct the harm already done to the students who have reached secondary level of schooling without gaining primary school skills, 'Balsakhi'⁶ can be introduced.

⁶ 'Bal' means a child and 'Sakhi' means a friend in Hindi language.

Banerjee et al(2005) in a remedial education program, employed young women to help students lagging in basic literacy and numeracy skills in two randomized experiments in India. The program was a success and the targeted students showed marked improvement in learning outcome after a year.

Pritchett (2004) says that there is no framework for managing for performance within the public sector. It is an input-driven system with logistical targets. “Was money spent? Were schools constructed? Are bodies in place?” Many times these input targets are also not in place. It is high time that **a system for management for performance** is created.

To boost parent’s interest and also to build required life and labour market skills, the link between post-primary education and labour market skills has to be improved. Analytical thinking and communication skills should be worked upon. Clear learning targets should be set which should be monitored regularly and early. All the stakeholders have to be involved in the learning process of a child making the environment conducive to higher learning outcomes.

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Appendix

STUDENT DATA FORM NO _____

Investigator		Date	
District		School code	

Type of School (Tick)

Government		Private	
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I.Student Characteristics

1) Student Name _____

2) D.O.B _____ 3) Gender _____

3) Regular Meals (Tick)

Breakfast		Lunch		Dinner	
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4) Did you repeat class 8? If yes, how many times? (Tick)

1		2		3		4		5	
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5) i) Did you repeat any class before class 8th? YES/NO

1		2		3		4		5	
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6) Are you currently enrolled in class 9th? YES/NO

7) Parent's Education Level

Mother's Education Level	Father's education level
Did not go to school	Did not go to school
Primary 1-5	Primary 1-5
Junior School 6-8	Junior School 6-8
High School 9-10	High School 9-10
Inter 11-12	Inter 11-12
Graduate	Graduate
Post-graduate	Post-graduate

8) i) Family Income(monthly)

Below 1000	1000<=3000	3000<=5000	5000-10000	Above 10000
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ii) APL/BPL(Tick)

iii) House is owned/rented by parents(Tick)

iv) Number of Members in the household _____

9) Your parents take interest in your education.

	Very much	somewhat	neither	somewhat	Very much	
interested						disinterested

10) Do you have required textbooks? Maths() Science() Tick

11)How long does it take you to get to the school? In minutes_____

12)How do you travel to school? 1.Walk 2.Bicycle 3.Other specify_____

13) i)Do you own TV? Yes/No

ii)What do you watch most?

Cartoon network	National Channel	News and Discovery	Music & Movies	Serials
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14) How many days are you absent from school in a month due to illness?_____

II. School Characteristics

1)Number of days the teacher was absent in the academic year_____

2)Number of days teacher went out for official chores, census surveys in the academic year?

3)Teacher involved in other income generating activity during school hours? Yes/NO

Specify_____

4)Are you given homework? YES?NO

If yes, It is corrected.

	Very Much	Somewhat	Neither	Somewhat	Very Much	
Corrected						Not Corrected
Explained						Not Explained

5)Class Equipment Availability (Tick)

Desk & Chair	Blackboard	Chalk	Books	Computer
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6)Number of students in class_____

7)At the same time, teaching children of different grade levels in same class? YES/NO

8)Number of times in a month a School Inspector/Coordinator visits.

0	1	2	3	4	5
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