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CONTENTS

Editor's Note

In 1964–66, the Education Commission recommended the establishment of a common school system for all children irrespective of their class, caste, religious or linguistic background. However, till date, we have not been able to implement this recommendation and have generally two types of schools — government-funded public schools and private schools. Earlier, private schools were accessible to only a few children coming from the elite group, but gradually, even common people started preferring private schools for quality education. Consequently, a large number of private schools (both high and low-fee charging) became operational in India. Har Simrat Kaur explores whether low-fee private schools really provide quality education. The paper also highlights the concern that crop up with the objective of achieving cost-efficiency in the education sector.

School readiness, a component of Early Childhood Education (ECE), is linked to learning, school completion, acquisition of academic competencies and lifelong success. Children, who enter school 'ready to learn', are more likely to learn and succeed in school. Reetu Chandra presents a review of researches on school readiness in the global and the Indian context to understand different perspectives of the subject.

Ram Murti Sharma and Alex M. George in their paper write a critique of secondary teacher education (B.Ed.) programme in India, highlighting its stagnation.

As recommended by various policies and commissions, Continuing Professional Development (CPD) of school teachers is institutionalised to a certain extent. But CPD of college teachers is not well structured in India. Chandra B.P. Singh analyses the dimensions of CPD of university teachers. He reveals that university teachers had strong beliefs in CPD but, in practice they did not show it.

Despite mathematics being a part of every culture, we generally believe that culture is not something that should be integrated and applied to teaching of the subject. The National Curriculum Framework (NCF)–2005 suggests that mathematical knowledge should be connected with the sociocultural context of children. Charu Gupta discusses that there is a need to prepare teachers and teacher-educators to teach mathematics in culturally responsive ways. The paper also argues a deeper engagement with equity and social justice issues in mathematics teacher education programme.

Mamta Singhal, in her paper, examines the pre-service teacher education programme (B.Ed.) of three universities of Delhi for representation of various

aspects of the Nature of Science (NOS). She concludes that there was lack of adequate referencing on NOS in the syllabi of all three universities.

English language is an integral component of school curriculum in India right from Class I. The demand for English-medium schools is increasing even in rural and remote areas. Ramanujam Meghanathan presents the perceptions of learners and teachers of two government-run schools in Tamil Nadu on various aspects of English language education. The paper concludes that there is a need to provide an environment for the learning of English in schools.

Kuheli Mondal and K. Chellamani speak about the prevalence of some neuromyths in the minds of teachers and teacher-trainees. The paper suggests to incorporate neuroscience courses in the initial teacher education programme in order to eradicate these neuromyths.

We are promoting inclusive education at various levels of education. But only a few students with disability have access to higher education. Nageswara Rao Ambati explores the learning experiences of visually-impaired students enrolled in three universities of Andhra Pradesh.

For conducting research in social sciences and humanities, we use both qualitative and quantitative methods. Sonika Kaushik tries to answer in her paper whether it is alright to mix qualitative and quantitative methods of research.

Academic Editor

Implications of 'Low-cost, High-quality' Education

A Study of Low-fee Private Schools in Delhi

Har Simrat Kaur*

Abstract

The enactment of the Right of Children to Free and Compulsory Education Act, 2009, strengthens the commitment of the Government of India towards universalisation of elementary education. Additionally, India has witnessed a considerable progress with respect to access and enrolment in recent years. There has also been a rapid growth in alternate modes of private provision in the form of low-cost/low-fee private schools. Of late, low-fee private schools are being projected as a preferred choice for poor and disadvantaged families, who ignore government services and rather pay private schools, which offer cost-efficient education. This paper discusses the reason for low-fee private schools' existence and finds if they provide low-cost, high-quality education. It empirically examines the implications of cost-efficiency in education with respect to two low-fee private schools in Delhi. First, it investigates the motivation for setting up these schools, their financial structure and second, whether these schools are able to meet the norms and standards necessary for delivering quality education as listed in the RTE Act, 2009. The paper highlights the concerns that crop up due to the low-cost provision in the private schooling sector. It argues that the underlying motivation driving these schools have direct implications on what is being offered by low-fee private schools.

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Introduction

India has made considerable progress in achieving the universalisation of elementary education. A number of initiatives has resulted in the expansion of elementary schools in the country, narrowing down the gender gap and increasing the percentage of enrolled children belonging to Scheduled Castes and Scheduled Tribes. Despite this, elementary education continues to face challenges[1]. The implementation of the Right of Children to Free and Compulsory Education (RTE) Act, 2009, further strengthens the commitment of the Government of India of fulfill the goals of universalisation of elementary education. Alongside these developments, there has been a significant increase in the variety of private schools getting accessed by both the rich and the poor. As per the latest official estimates, the private unaided sector accounts 37 per cent of the total enrolment and 22 per cent of all schools at the elementary[2] level (Flash Statistics, 2014). The growth of private school has been accompanied by a rise in low-fee private schooling sector. Evidences (Tooley and Dixon, 2007, Murlidharan and Kremer, 2007, and Jain and Dholakia, 2009) suggest that low-fee private schools are the preferred choice for poor and disadvantaged families, who ignore government services and rather pay low fee to private schools, which offer cost-efficient education.

An indispensible part that motivates to understand low-fee private sector in school education comes from the literature. While the literature (Tooley and Dixon, 2007; Ramachandran, 2009; Srivastava 2007; Jain and Dholakia, 2009; Sarangapani and Winch, 2010; and Nambissan 2012) brings forth the dynamics revolving around the sector, there is a silent and uncritical acceptance that low-fee private schools are ubiquitous efficient in delivering education. Additionally, policy-makers are legitimising the entry of a broad set of private actors with different motives, including low-fee private schools as partners in education under the common benchmark that private sector is cost-efficient in service delivery. Therefore, it raises important questions, like do low-fee private schools really provide low-cost, high-quality education?

Additionally, in the Indian context, the implementation of

[1]Challenges persist to higher levels of dropouts in general and, in particular, belonging to the disadvantaged and weaker sections of the society, low levels of attendance and poor levels of learning achievement.

[2]There are three types of schools in India— government, aided and unaided. Schools run by Central, State or local governments are referred to as 'government schools'. Schools run by private management but funded largely by government grant-in-aid are known as 'private aided' or 'aided'. Then, there are schools run under private management and receive no grant-in-aid. They are known as 'private unaided schools'. The private unaided schools can be classified further into two types — recognised and unrecognised. To run a private recognised school, the authorities need to obtain a certificate of recognition upon fulfilling certain conditions.

the Right of Children to Free and Compulsory Education (RTE[3]) Act, 2009, holds a significant impact on the functioning of low-fee private schools. Particularly, as per Sections 18 and 19 of the Act, it becomes mandatory for all private schools to seek recognition by fulfilling various norms and standards as listed in the Model Rules to function. Schools that are not able to comply with the provisions within the stipulated timeframe shall cease to function with penalties. Since low-fee private schools mostly fall under the category of unrecognised private schooling, they receive a lot of support from private sector schools' association, advocating relaxation of different provisions. However, this would definitely require them to rework their strategy to meet the law. So, it becomes even more critical to understand the schools' viewpoint on the RTE Act, their provisions and what steps are they taking to fulfil them.

Therefore, this paper firstly, explores the motivation of school owners for opening low-fee private schools. Secondly, it looks into the implications of low-fee private schools on the cost incurred and the quality offered by exploring their financial structure vis-à-vis sources of expenditure on various inputs and sources of income through the collection of fee, etc. Finally, to gauge the implications of cost on the quality of education offered, the study explores the quality of schooling provided in these schools through norms and standards as listed under the RTE Act, 2009.

Methodology

The objective of this study is to find out if low-fee private schools really provide cost-efficient i.e., low-cost and high-quality education. Therefore, for the empirical verification of the case, the methodology depends on the primary data collected through field research in the south-west district of Delhi in 2013. The data were both qualitative and quantitative, generated through semi-structured interviews with 16 school authorities i.e., school owners and teachers, and 20 parents in two low-fee private schools. The two schools were purposively selected, which were private, unaided, registered but unrecognised. Table 1 reports the number of interviewees and schools included in the paper:

[3]The Government of India enacted the Right of Children to Free and Compulsory Education (RTE) Act, 2009, which came into force in April 2010. It aims at the universalisation of elementary education by providing satisfactory education in schools to all children belonging in the age group of 6–14 years. It is implemented to address concerns relating to infrastructure, learning levels, teacher education, qualification, recruitment, etc.

Table 1
Sample of Interview Respondents

	Parents	School Authorities: Owners and Teachers	Total
School One	10	7	17
School Two	10	9	19
Total	20	16	36

Source: Author's Survey Data

Interviews were conducted with school authorities to find information about the schools' profile, their organisational structure, their viewpoint on the RTE Act, 2009, and their financial status. The data were obtained on the schools' legal status, functioning, motivation for setting up the schools, measures adopted to fulfil the RTE Act and sources of revenue and expenditure for running the schools. The study also collected evidence on school quality by observing the norms and standards

Table 2
Number of Primary and Upper Primary Schools according to Type of Management in South-west District, Delhi.

Type of Management	Primary Level			Upper Primary Level			Total
	Total	Rural	Urban	Total	Rural	Urban	
Government	0	0	0	2	0	2	2
Local Body	193	57	136	3	0	3	196
Private Aided	2	0	2	3	0	3	5
Private Unaided	85	17	68	57	3	54	142
Unrecognised	18						18
Total	298			65			363

Source: Provisional Statistics, 8th AISES, *NCERT*

Table 3
Number of Unrecognised Schools in Rural Areas having Primary/Upper Primary Classes

State	7th AISES	8th AISES	Percentage Increase or Decrease
Delhi	44	201	356.82
India	54,620	39,015	-28.57

Source: Provisional Statistics, 8th AISES, *NCERT*

as listed under the RTE Act, 2009, through school visits. Finally, parents were interviewed to corroborate the school fee levied by the authorities.

Table 2 gives information regarding the participation of private sectors at the elementary level of schooling in south-west Delhi. There are 363 elementary schools run by various types of managements in south-west Delhi. At the upper primary level, there are a total of 65 schools, of which the government and the local body manage five, and private management runs 60. Apart from these, under the private sector, there are 18 unrecognised schools also in the district. Within this, rural areas in Delhi have witnessed an increase of 356.82 per cent in the number of unrecognised schools from 7th AISES[4] to 8th AISES over the same period, where at the all-India level, there has been a slump of 28.57 per cent in these schools. However, this is just an underestimation of the total number of unrecognised schools as most of them being not entitled to function prefer to remain hidden from the official data sets. In case, they are caught, they are subjected to huge penalties and may even close down, so they choose not to disclose their identities (Kingdon, 1996 and Srivastava, 2013).

Literature Review

Prominent works, noting the rise of low-fee private schooling sector in India, and directing the attention towards reasons behind its proliferation and it emerging as an alternat means to address concerns relating to education for all goals, started during the early 2000s. Beginning with the foremost and popular works of Tooley and Dixon (2003 and 2007) through their study on low-fee private schools in Hyderabad and Delhi, it builds the case that private schooling is potentially more effective, cost-efficient and accountable than their state counterparts and delivers higher quality in terms of learning outcomes and school inputs at the lowest possible cost to children of poor households. The usage of economic concepts in education for determining relative positions of alternate providers to traditional providers and framing educational goals in the neo-liberal discourse has become hegemonic.

Alongside these evidences, there exists controversial and small set of evidences, suggesting that in some contexts, low-fee private schools offer higher quality, in terms of production of learning levels (Tooley and Dixon 2007; Murlidharan and Kremer, 2007; and French and Kingdon, 2010). The raw test scores tend to be higher in low-fee private schools even after controlling for family and school characteristics (Murlidharan and Kremer, 2007), showing that private schools indeed provide quality education to the poor. But on an average, the private advantage may be relatively small as the magnitude

[4]AISES stands for the All-India School Education Survey, which is conducted every year

of superiority varies across different studies, and in some cases, may not even hold true (OECD Economic Surveys: India, 2011; Basu, 2012). The reason behind the private school advantage is attributed to its efficiency, which is equated to higher teacher attendance, greater teaching activity and teacher accountability brought through constant supervision and monitoring and the schools tend to be more focused on the learning levels of children.

An interesting dimension that has attracted diverse actors to the low-fee private school sector is 'profitability'. Tooley assures that "running such schools is a potentially profitable enterprise" (Tooley, 2003, p. 5) even for individual owners of low-fee private schools and profits tend to increase during the year a school receives recognition. This is the shortest route for pulling investors for creating sustainable business models out of this sector. In India, it is constitutionally against law[5] to run schools for profit, still low-fee schooling sector is showcased as one of the budding industries to make fortunes with little consideration about the purpose of education that our nation has envisioned for its citizens. Moreover, Srivastava (2007) demonstrates how low-fee private school owners indulge in shadow institutional mechanisms, consisting of corrupt practices and procedures, to gain recognition even when they fail to comply with the regulatory norms and standards. Tooley (2003) also solves the mystery behind rampant opening of such schools, which are "subject to payment of bribes", revealing extra legal sector where majority of regulations are sidelined. However, instead of arguing on how to overcome such practices, it raises doubt regarding the appropriateness of the regulatory framework by asserting, "in any case, it is not clear that the regulations accurately target those criteria that do lead to school improvement and higher standards" (p. 21).

In view of such popular claims of low-fee private schools relating to efficiency, markets and business ventures have also garnered a lot of attention and scepticism from academic circles. Nambissan (2012) argues that advocacy for low-fee private schools that they provide cost-efficient and high-quality education to the poor holds little promise due to inconclusive evidences. Also, the attractiveness of forming an education business in this sector is rooted within the neo-liberal discourse of education markets, parental choice and vouchers, which have eventually led to the growth of transactional advocacy networks for expanding and creating a regulatory environment for low-fee private sector due to huge profitability in it.

Next, we look into empirical evidences as regards to the motivation for opening low-fee private schools, their subsequent implications on

[5]According to a 1993 Supreme Court ruling, Unnikrishnan P.J. and Others v. State of Andhra Pradesh and others, schools are not allowed to run for profit (Tilak 2001).

the cost incurred and the quality of schooling provided by them.

Findings

Profile of Low-fee Private Schools under Study

Both the schools have been functioning for decades in the same locality. While School One was established in the year 2002, the other has been functioning since 1992. These schools are registered under the Societies Registration Act, 1860, to prove their non-profit motive as according to the Constitution, educational institutes are not allowed to run for commercial purposes. These schools provide education till primary level i.e., till Class V but being unrecognised they are not entitled to issue transfer certificates, which are mandatory for admission in upper primary and secondary schools (Kingdon, 2005). However, to resolve this, schools have tied up with recognised schools in the neighbourhood to permit their students to appear in Class V examinations. The recognised schools will then issue to them transfer certificates which are necessary for the continue higher studies. In Delhi, the Municipal Corporation of Delhi (MCD) provides recognition to primary schools and the Directorate of Education grants recognition to schools beyond elementary education. There are numerous parameters relating to infrastructure, teachers, curriculum, etc., on the basis of which the recognition certificate is issued.

In the later section, we will see as to how many of these norms are the schools actually able to comply with under the RTE Act.

The medium of instruction in both the schools was English, which was a propelling factor for parents to send their children to these private schools, but teachers were found using both English and Hindi while communicating with the students in the classroom. As per the RTE Act, one of the norms for obtaining the recognition certificate is to follow textbooks approved by the NCERT/ SCERTs, but the schools were found using privately-published books. Government schools, particularly those run by the MCD, impart free primary education to most children from disadvantaged and weaker

Table 4
School Profile

School	Year of Establishment	Registered	Recognised	Classes	Monthly Tuition Fee	Medium of Instruction
School One	2002	Yes	No	I–V	₹370	English and Hindi
School Two	1992	Yes	No	I–V	₹490	English and Hindi

Source: Author's Survey Data

sections. They charge no tuition fee from students and also provide free textbooks and uniform to them.

There are a total of 308 and 425 students enrolled in School One and School Two, respectively. With each progressing class, the enrolment drops i.e., 69 students are enrolled in nursery in School One and only 12 in Class V. Similarly, in School Two, 85 students are studying in nursery and only 30 in Class V. There are 12 teachers in School One and 13 in School Two. This makes School Two more effective with much greater enrolment. However, it has just one teacher for additional students. Consistent advertising in the locality, in the form of pamphlet distribution and hoardings and displaying the school's name and affiliation could be a reason for drawing so many students to School Two. The pupil-teacher ratio (PTR) as per the RTE norms should be 30:1 at the primary level. While School One's PTR is 25.7:1, School Two is not able to comply with the norm as its PTR turns out to be 33:1. But studies conducted on low-fee private schools obtained the PTR as 22.7:1 in Tooley and Dixon (2007), 19.2:1 in Murlidharan and Kremer (2007) and 28:1 in Joshi (2008). However, looking at class-wise segregation in School Two, the PTR is quite high for pre-primary sections.

Though there has been much debate whether the PTR should be considered as a benchmark for judging the quality of schooling; nevertheless, it is sure to be burdensome for teachers to cater to 50 students at a time and will impact the teaching-learning environment.

Table 5
Class Size and PTR

Grade	School One			School Two		
	Enrolment	Number of Teachers	PTR	Enrolment	Number of Teachers	PTR
Nursery	69	3	23:1	85	2	43:1
LKG	50	2	25:1	75	2	38:1
UKG	61	2	30.5:1	70	2	35:1
First	40	1	34:1	60	2	30:1
Second	31	1	31:1	40	2	20:1
Third	24	1	24:1	35	1	35:1
Fourth	21	1	21:1	30	1	30:1
Fifth	12	1	12:1	30	1	30:1
Total	308	12	25.67:1	425	13	33:1

Source: Author's Survey Data

School Management and Motivation behind the Establishment of Schools

Both the schools have a highly centralised pattern of management and functioning. They are registered under a society, which comprises several members. But none of them seemed to take interest towards school operation. The principal of School One stated that during the initial years of establishment, each founding member was actively engaged in the school, but over time due to the unpromising fate of unrecognised schools, they started losing interest. The society, under which School Two is registered, runs several schools across Delhi. The school has a managing director, who owns it and reserves all management rights. Thus, in both the schools, society members do not decide the functioning. Unlike School One, the principal of School Two acted like a teaching faculty and enjoyed no administrative role. This was evident through school observations, which revealed the immense interest shown by the managing director to undertake administrative work himself. He visited the school daily for two hours each in the morning and in the afternoon after the classes got over and issued fee slips, stationary and textbooks to parents. On the contrary, the principal of School One, apart from teaching, carried out all administrative work alongside the administrator, who took care of the school's accounts, starting from staff recruitment, salaries, admission and fee policies.

Given the unrecognised status of these schools, it bestows immense autonomy on them to pursue the objectives they desire for, and eventually, the schools exhibit a different picture in that context. In case of these two schools, the societies under which they are registered are found to have no active involvement in the school functioning and the heads of both the schools i.e., principal in case School One and managing director in case School Two control all functions staring from admission policies, fee, curriculum, teachers' recruitment, salaries, etc. Another interesting point that emerged from the disinterest shown by the society members of School One could suggest that they might not see their objectives being fulfilled the way the school is functioning. In case of School Two, the society seemed to be well-versed with the practices of operation and rendered immense opportunities to the managing director to lead the school on his terms.

The heads of both the schools hold a degree in post-graduation but never underwent any professional course in school management and training required for leading a school. The principal of School One quit her teaching job at a leading private school in Delhi to start this school. She stated that she was determined to provide quality education, similar to that provided in the elite private schools, to underpriviledged children, who aspire to study but cannot afford quality education. However,

the managing director of School Two said that his family, who are also members of the society, has a history of running schools. His family members encouraged and assisted him in fulfiling his motive of providing quality education to children hailing from low-income families. Actually, the heads of both the schools i.e., the principal of School One and the managing director of School Two, apparently felt that there was a need to impart quality education at an affordable price. Their agenda was never to run a school for commercial purposes, but they stressed on their social responsibility to provide quality education to children from low-income families at the lowest possible fee. However, the managing director of School Two came across as a popular face in the local community and the political circle, who had put up his photographs with popular politicians in his room. The political association could act as an important support to escape the regulatory issues confronting the functioning of unrecognised schools.

The study revealed that those operating unrecognised schools have a prior knowledge of working in the education sector. Being a teacher at a private recognised school gives the principal of School One the advantage of understanding the intricacies involved in running a school. Similarly, being in a family engaged in running educational institutions also renders the managing director of School Two the comparative advantage for establishing a school.

Difficulties in Operating Low-fee Private Schools

Both the schools admitted facing difficulty in running the school only through one source of income i.e., tuition fee. They also pointed out that despite providing concession to families, there were many parents who failed to pay the fee on time. During festival seasons, the number of defaulters increased. They also highlighted that teachers had to put in extra effort in the form of remedial classes, as parents were not able to help their wards in studying due to socio-economic constraints. They also raised concern that since most of the teachers were just graduates or Class XII passouts, the school authorities spent most of the time on their training and exposing them to classroom practices. These concerns as shared by the schools under study demonstrate the motives to provide quality education but given the huge supply of qualified teachers, it is intriguing that they still hire untrained teachers. The schools also seem to be strategising to capture the market by maximising the student intake and by offering remedial classes.

Views on RTE Act, 2009

The implementation of the RTE Act, 2009, is a revolutionary 'right-based step', which has major implications on private schools, particularly, unrecognised ones. They face the threat of closing down and penalties if they do not comply with the norms within a stipulated period. Therefore, this study intends to capture the

perspectives of the owners of low-fee private schools on the RTE Act, 2009, and the ways in which they are trying to comply with the same.

The principal of School One was appreciative of the norms relating to infrastructure and recruitment of qualified teachers for achieving quality education. However, she found it different to achieve them due to insufficient resources and felt that it was harsh to shut down schools, which were working hard to provide quality education at an affordable cost. Further, she pointed out that if they were asked to shut down due to non-compliance, then they would probably run the school till the pre-primary level to which the RTE norms do not adhere. This might be pleasing for the school indeed as the maximum number of enrolment is in the pre-primary section and it could utilise the space more effectively. An article dated 27 March 2013 in *The Hindu* mentioned that pre-primary schools faced no threat of closure as the RTE norms were not applicable to them. With regard to the case of nursery admissions, the Delhi High Court has declared that pre-primary schools do not fall under the Right to Education Act. Thereby, exempting 955 pre-primary schools from applying for recognition and, thus, facing no threat of closure. However, the managing director of School Two did not share his views on the RTE Act, 2009, and in fact, appeared to be dismissive of complying with the norms. He stated that affiliation the society was sufficient to operate schools and more so, they were providing quality education. The attitude of unrecognised schools in this study reflects their seriousness towards the regulatory framework and their approach to fulfill them.

Financial Structure of Low-fee Private Schools

Every economic activity has its own cost and quality requirement. Efficient and effective goal realisation occurs through appropriate cost and quality management process. Cost and quality are indispensable and inseparable elements in determining the success of a school. A good school climate is achieved by adequate funds, infrastructure and instructional facilities, trained teaching and non-teaching staff, improved salary and welfare conditions for all (Ugwulashi, 2011). These factors facilitate the quality of a school. The goal of a quality school cannot be achieved without incurring appropriate cost. In other words, cost and quality go together. When appropriate amount is allocated and funded by the management, only then is the school able to provide quality education. The reason for mentioning cost-quality relationship in education is that unrecognised low-fee private schools have claimed that they provide quality education at the lowest cost. Table 6 and 7 present the income and expenditure of both the schools.

Table 6
Annual Expenditure in Schools

Expenditure	School One ₹	Percentage	School Two* ₹	Percentage
Fee Concession	15,000	1.67	15,000	1.6
Teachers' Salaries	2,88,000	32.01	3,85,200	40.80
Administration	1,80,000	20.01	1,80,000	19.06
Staff Training and Welfare	8,000	0.09	8,000	0.85
Utilities	20,000	2.22	20,000	2.21
Property and Other Tax	9,550	1.06	9,550	1.01
Rent/Building Cost	3,00,000	33.35	2,47,500	26.21
Furniture	40,000	4.45	40,000	4.24
Defaulters	9,000	1.04	9,000	0.95
Other Expenditure	30,000	3.34	30,000	3.18
Total Expenditure	8,99,550	100	9,44,250	100
Unit Cost of Education	2,998	—	2,221	—

Source: Author's Survey Data

Table 7
Annual Income in Schools

Income	School One '₹'	Percentage	School Two '₹'	Percentage
Tuition fee (per month)	12,60,000	87.5	22,95,000	92.72
Annual Charges (per annum)	90,000	6.25	90,000	3.64
Term Fee (per annum)	75,000	5.21	75,000	3.03
Miscellaneous Charges (per annum)	15,000	1.04	15,000	0.61
Total Annual Income	14,40,000	100	24,75,000	100
Unit Income of Education	4,800	—	5,820	—
Annual Surplus	5,40,600	—	15,30, 750	—
Surplus Per Student	1,802	—	3,600	—

Source: Author's Survey Data

School One and School Two were incurring most of their expenditure on recurring items. The annual expenditure on teachers' salaries was ₹2,88,000 and ₹ 3,85,200, respectively, in School One and

* School Two did not provide information on all parameters either relating to expenditure or income. Therefore, expenditure information that was obtained from School One was utilised as proxy for School Two. Teachers were also asked to give an insight on their salaries and for income side, parental information regarding fee was collected.

Two, which was 32.01 per cent and 40.80 per cent of the total annual expenditure. In School Two, the monthly salary per teacher amounts to ₹2,280. This was ₹280 more than the amount being paid by School One. The salaries of administrative staff amount to ₹1,80,000, which was 19.06 per cent of the total annual expenditure. The annual expenditure incurred by School Two was 5 per cent more than School One. When comparing the average annual cost incurred by both the schools per student, School Two was incurring ₹2,221 and School One ₹2,998, which was ₹777 more than School Two. Thus, School Two was incurring even lower cost per student each year. Unit income earned by School One is ₹4,800 and School Two is ₹5,820. It was the actual cost incurred by a parent annually to send their child to low-fee private schools. Parents in School Two were incurring more cost.

It was revealed that the schools were also incurring huge surpluses per student. The surplus per student in School One was ₹1,802 and in School Two, it was ₹3,600. Thus, this is a financially viable option for the authorities to operate the schools at a low cost and incur huge surpluses per student. Thus, both the schools are cost-effective in their operations since they are hiring resources at a cost, which are substantially lesser than the amount they are actually receiving from each student.

Fee comparison was made between schools run under different management types in south-west Delhi with School One and Two to ascertain if they really charged low fee. The annual fee charged by School One is ₹5,200 and School Two is ₹6,350, whereas the annual fee charged by Elite Private School I and Elite Private School II is the highest, i.e., ₹53,295 and ₹30,095, respectively. Kendriya Vidyalaya (KV) charges the lowest fee i.e., ₹2,625. The unit fee was calculated for each school by taking the total annual fee charged by Kendriya Vidyalaya as base, since it had the lowest fee among them. The schools under study, however, were charging low fee compared to private recognised schools but it was two times more than the fee chaged by Kendriya Vidyalaya.

The financial structure of both the schools was sound. The

Table 8
Fee Structure of Schools in Delhi

Particulars	School One	School Two	Kendriya Vidyalaya	Elite Private School I	Elite Private School II	MCD School
Annual Fee per student	₹5,200	₹6,350	₹2,625	₹30,095	₹53,295	—
Ratio Unit Fee (KV as Base)	1.98	2.4	—	11.46	20.30	

Source: Author's Survey Data

schools provided a profitable business opportunity to both the principal of School One and the managing director of School Two. The schools may be incurring low cost per student, but they surely were levying high fee compared to the fee charged by government institutions. The profit generated by the schools is definitely a source of great apprehension and clearly points towards the underlying reason for opening such schools besides other reasons provided by the school authorities. However, given the low cost incurred by these schools, let's explore the quality of education provided by the schools under study, which they claim to be of quality in relation to the cost incurred.

Quality Education in Low-fee Private Schools

The RTE Act, 2009, requires all schools to provide quality education, conforming to the norms and standards as specified in the schedule of the Act. Accordingly, Sections 18 and 19 of the Act state that no private school is allowed to function without obtaining the recognition certificate. For obtaining the recognition certificate, the schools have to declare that they are complying with the norms and standards as specified in the RTE Act, 2009. Schools that do not conform to the norms, standards and conditions as mentioned in the RTE Act and the Model Rules would be given a timeframe not exceeding three years, from the date of the commencement of the Act. However, schools which do not conform to the norms, standards and conditions within three years of the Act shall cease to function and their recognition will be withdrawn.

This paper utilises the norms and standards as prescribed in the RTE Act, 2009, to explore the level of quality education provided by the two low-fee private schools studied in the article. To provide quality education to students, the educationist needs to supply quality inputs in terms of better school infrastructure, textbooks and teachers. The RTE Act states that the student-teacher ratio should be 1:30 for primary schools and 1:35 for middle schools. It states that there should be a separate toilet for boys and girls, a playground, a kitchen where mid-day meal is cooked and a library. The RTE norms focus more on infrastructure and basic inputs (Brinkmann, 2012).

The minimum level of school inputs are important for a child's learning and for the same, appropriate cost needs to be incurred. While the Act does not mention the teacher's salary, but according to Section 18, the State government or local authority shall specify the norms and conditions of salary and allowances for teachers in order to create a professional cadre of teachers. Given the State's power to decide teachers' salaries, the Delhi State Education Act, 1973, states that the salary of a private school teacher needs to be at par with those teaching government schools. For a fresh primary school teacher, the salary should be ₹23,346, and for those who have been teaching for more than 10

years, it should be ₹28,591 (Kingdon, 2005). In Delhi, advisory bodies decide all norms and these can be amended only if decided by the advisory board or approved the by Lieutenant Governor. The MCD provides recognition to primary schools, while the Directorate of Education does so for elementary schools. Table 9 lists the norms and standards for the schools, which are necessary for ensuring quality education.

Table 9
Quality Parameters in both Schools with Norms laid down in RTE Act, 2009

S. No.	Quality Parameters	School One	School Two	RTE Act Requirements
1.	Plot Size	134 square metre	167 square metre	800 square metre but for Delhi it is relaxed to 200 square metre
2.	Number of Floors	Ground Floor	First and Second Floor	—
3.	Number of Classrooms	6	10	Separate room for each class
4.	Classroom Size	100 square feet	80 square feet	Each classroom has to be of 150 square feet with 10 feet length
5.	Classes Taught	I–V	I–V	—
6.	Number of Teachers	12 (27:1)	13 (33:1)	PTR ratio at primary level is 30:1
7.	Number of Students	317	425	—
8.	Teacher's Qualification	Majority higher secondary passouts, one graduate and two post-graduates, some NTT, two trained and three untrained	Higher secondary passouts mostly, three graduates and one post-graduate, four trained and four untrained	Typically, Diploma in Education or Bachelor in Education, plus passing the National Teacher Eligibility Test (CTET)
9.	Teacher's Salary	₹1,800–5,800	₹1,500–6,500	As per the prescribed state norms of the Sixth Pay Commission, the monthly salary ranges from ₹17,996 to ₹22,955 (Kingdon, 2005)

10.	Number of Toilets	one each for boys and girls	one each for boys and girls	Separate toilets for girls and boys
11.	Library	No	No	There shall be a library in each school providing newspapers, magazines and books on all subjects, including storybooks
12.	School Fee	₹300–650	₹450–700	—
13.	Textbooks Followed	Private	Private	Schools must follow a standardised time-bound syllabus as prescribed by the State or the Central government
14.	Language of Instruction	English	English	—
15.	Playground	No	No	Playground with boundary wall prescribed but for Delhi, it's exempted
16.	Principal's Room	Yes	Yes	—
17.	Staff Room	No	No	An office-cum-store-cum-head teacher's room
18.	Any Certificate Obtained	No	No	Fire safety, building safety and health certificates

Source: Author's Survey Data

As suggested by the findings indicated in Table 9, both the school managements failed to provide the minimum basic facilities essential to operate a school and contribute to a child's learning. These factors hold relevance when the teacher tries his/her best in a class. But if the classroom is not spacious enough to accommodate all students, then no matter how hard the teacher works, the outcome will not be satisfactory. It is further depressing to find that the schools despite making huge surpluses refuse to use it for their development. Some of the requirements laid down by the RTE Act are essential for basic school functioning, which both the schools studied are not able to fulfil. So, will it be worth to allow these schools

to function, even as they provide low-quality schooling to students and charge reasonable fee from parents.

Conclusion

The paper brings forth the dynamics of low-fee private schools by presenting the viewpoints of school managements engaged in this sector. The quintessential advocacy that these schools provide low-cost, high-quality education has to be understood since education is not meant for commercial purposes. This paper highlights the concerns that crop up with the objective of achieving cost-efficiency in the education sector.

The unification of practices adopted by these schools along with the commercial benefits in the form of huge surpluses accruing to school owners and strategies for not complying with the RTE norms and standards squarely raise concerns regarding the motive behind opening such schools. The rapid growth in the number of private schools impose negative implications on education, since in the name of cost-efficiency, profit-driven incentives become much dearer to schools, leading to extensive cost-cutting by indulging in practices which are detrimental in providing basic quality education essential for the all-around development of a child. Therefore, the growing policy discourse surrounding the entry of diverse private participation, including low-fee private sector, as a potential partner, for solving concerns relating to education delivery should be endorsed with caution, as available evidences do not offer such positive claims. Perhaps, the state must ensure that these schools comply with the RTE norms and standards relating to school inputs, curriculum, teachers, qualification and recruitment, etc., so that the authorities do not deceive parents and equitable quality education is provided to all.

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School Readiness in India
Perspective, Initiatives, Practice and Approaches

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Abstract

School readiness over the last few decades is being globally treated as a significant component of Early Childhood Education (ECE). In India, it has set up its roots, starting from pledges in government documents, development and implementation of school readiness programmes, development of school readiness indicators, early learning indicators, school readiness assessment instruments and promoting researches in the area. This paper is a description of literature and research studies on school readiness in the global and the Indian context with an aim to explain the different perspectives in its understandings. It begins by tracing the development of school readiness concept, presenting the Indian scenario, reporting the ground reality, discussing the initiatives undertaken by the Government of India and suggesting approaches to ensure school readiness among children. Evidences from the literature and studies reveal that India has to go strategically, starting from ensuring the quality of pre-primary education for all children, providing early intervention, addressing diversity of children's background and their experiences as well as development and use of appropriate assessment of school readiness of children.

Introduction

School readiness is the foundation for ensuring quality and equity in access to education as well as improving the learning outcomes. It has the capacity to promote enrolment, sustain attendance and increase retention rate of children in schools. The Education for All Global Monitoring Report (EFA GMR)–2015

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realised that, "the efficiency of the entire education system can be increased by improving children's readiness to learn, resulting in less repetition and dropout" [United Nations Educational, Scientific and Cultural Organisation (UNESCO) 2015, p.47]. In this context, the United Nations International Children's Fund (UNICEF) (2012a, p.3) affirmed that school readiness is gaining global support as a viable means to help young children reach their full potential and engage them in lifelong learning. Recognising the need and significance of school readiness, the Council for Economic Advisers (CEA) Report: The Economics of Early Childhood Investments, released by the Executive Office of the President of the United States, reaffirmed that, "Children who enter school at higher levels of readiness have higher earnings throughout their lives. They are also healthier and less likely to become involved with the criminal justice system" (CEA, 2015, pp.4–5).

Global Perspective on School Readiness

School readiness is a multifaceted and holistic concept, encompassing the physical, social, emotional and cognitive skills and competencies in children [Bhise and Sonawat, 2016; Colorado Department of Public Health and Environment (CDPHE) and Colorado Department of Human Services (CDHS), 2004; Janus and Offord, 2007; Rhode Island Kid Count, 2005; UNESCO, 2006]. It is a measure how prepared a child is to succeed in school physically, cognitively, socially and emotionally. Realising the importance of school and family in children's holistic development and learning, school readiness is globally defined by three interlinked dimensions — (a) ready children (b) ready schools, and (c) ready families (Rafoth, Buchenauer, Crissman and Halko, 2004; UNICEF, 2012a). With this view, the National Early Childhood Care and Education (ECCE) Curriculum Framework, developed by the Ministry of Women and Child Development (MWCD), also defined 'school readiness' as "making children ready, the school ready and the family ready to ensure required skills and competencies in children in all domains of development for their smooth transition from pre-school to primary school and also improving learning outcomes in primary and secondary school, both in terms of equity and performance".

The curriculum further elucidated that "children, schools and families are considered ready when they have gained the competencies and skills required to interface with the other dimensions and support smooth transition of children from home to Early Childhood Care and Education (ECCE) centre and subsequently to primary school" (MWCD 2013a, p. 23). In this regard, the whole process includes children's transition to school, school's transition to accept new children in Grade I and the families' transition to interact with the school and send their children to school regularly and on time (UNICEF 2012 a, p. 3).

Initiatives by the Government of India

The significance and need of school readiness in India was recognised long back. Since then, many initiatives have been taken to ensure school readiness among children. The MWCD developed the National ECCE Curriculum Framework. It advocates that for the smooth transition of children from pre-primary to primary education, development of focused and more specific school readiness is necessary (MWCD 2013a). The Right of Children to Free and Compulsory Education Act (RTE), 2009, has also directed the states under Section 11, Chapter III, that "with a view to prepare children above the age of three years for elementary education and to provide early childhood care and education to all children till six years of age, the government may make necessary arrangements for providing free pre-school education" [Ministry of Law and Justice (MLJ), 2009]. In this endeavour, the Twelfth Five Year Plan says, "Every primary school would be facilitated to have a pre-primary section and provide pre-primary education with school readiness programme for at least one year to children in the age group of four to six years." The plan is further committed to provide school readiness intervention to children aged 5+ years in pre-primary centres by ensuring additional and trained human resources, introduction of a developmentally appropriate curriculum framework, use of local and culturally relevant play or activity materials, creating activity corners, creating local toy banks, and promoting joyful early learning approaches (Planning Commission, 2013). In this context, the Central Advisory Board of Education (CABE), MHRD (2013), recommended that the ECCE curriculum should be developmentally appropriate and have school readiness component, as learning at this stage should be in accordance with children's interests and development priorities.

Also, with an aim to offer a framework for assessing the implementation of pre-primary programmes and supporting pre-primary centres as well as service providers in developing and maintaining quality programme for improving school readiness, the MWCD has developed Quality Standards for ECCE (MWCD 2013b). The key standards include interaction health, nutrition, personal care and routine, protective care and safety, infrastructure/physical environment, organisation and management, children experiences and learning opportunities, assessment and outcome measures, and managing to support quality system. As a concern towards ensuring quality pre-primary education in India, the Centre for Early Childhood Education and Development (CECED), Ambedkar University, Delhi (AUD), has developed the Early Childhood Education Quality Assessment Scale (ECEQAS)

(AUD 2012). This tool is under field testing that can be adopted or adapted according to the context.

Recognising the significance of assessment and monitoring of children's readiness level, the Department of Women and Child Development (DWCD) under the Ministry of Human Resource Development (MHRD) in its National Plan of Action for Children–2005 stated, "Develop inbuilt mechanisms for monitoring the learning outcomes in children and undertake periodic assessment to ensure that all children acquire school readiness by the end of the programme".

Actual Scenario

The impact of these initiatives is evident in terms of increased accessibility of pre-primary education for children in India, as indicated in subsequent National Survey Reports. The Seventh All India School Education Survey (7th AISES), conducted by the National Council of Educational Research and Training (NCERT), reported 4,93,700 pre-primary institutions in the country in 2000 (NCERT 2006, p. 6). It increased to 6,55,493 in 2009, as reported in the Eighth All India School Education Survey (8th AISES) (NCERT 2016, p. 40). Similarly, the National University of Educational Planning and Administration (NUEPA) in its survey reported that the percentage of primary schools with attached pre-primary section reached 14.27 in 2002–03 and 24.07 in 2015–16 (NUEPA, 2016, p. xv).

However, a vast majority of children in India are entering primary schools in Grade I without any experience in pre-primary education. Even if some of them do attend a pre-primary education programme, it is not always a quality programme in terms of content and process. Studies found that despite children participating in pre-primary programme, they are not developing adequate competencies because of low-quality programmes (Kaul, et al. 2014; NUEPA, 2014). As a result, children are entering schools without adequate readiness, with increasing risk of low learning achievement, behavioural problems, no enrolment, late school entry or dropout after Grade I or Grade V. This situation often contributes to low-wage jobs and unemployment (CDPHE and CDHS, 2004). Similar situation prevails in other parts of the world. Das, et al. (2008) reported that in five South Asian countries — India, Bangladesh, Pakistan, Nepal and Bhutan — only 26 per cent children in the pre-primary age group have access to school readiness programmes. Considering the situation, EFA GMR–2011 estimated that nearly 72 million children will remain out of school in 2015 (UNESCO, 2011), especially in developing countries. This situation is evident in the Eighth All India School Education Survey (8th AISES), which reported 3.58 per cent decrease in the total enrolment of children in primary schools as compared to the Seventh All India School Education

Survey (7th AISES) (NCERT 2016, p. 44). The National Survey Elementary Education in India: Analytical Tables 2015–16 indicated 84 per cent retention rate at the primary level. It means that about 16 per cent children, who were admitted in Grade I five years ago, couldn't continue and dropped out from the system before reaching Grade V (NUEPA, 2016, p. xv). However, from 2000–01 to 2014–15, the annual average dropout rate at the primary level was constantly declining (NUEPA, 2016, p. xvi); and children, were still at a risk restraining India from achieving the goal of universal retention at the primary level.

To achieve the goal of universal enrolment and retention, a number of comprehensive School Readiness Programmes (SRPs) were developed by various organisations, like M.S. University, Baroda (Mistry, Parekh and Mankodi, 1985) and NCERT (Soni, 1996) in India. These programmes aimed at reducing the problem by offering school readiness programmes at the end of pre-primary education and the beginning of Grade I. After a thorough citation of the above documents, it was found that these were developed by the M.S. University and the NCERT a few decades ago to serve the children, irrespective of the varied curricula in different schools and to decrease the dropout rate at the primary level. These documents were adequate for developing readiness among children but in the current scenario, where the pre-primary curriculum has been altered drastically, these are found to be less relevant. Recently, the NCERT has developed school readiness programme, 'Little Steps' (Soni, 2005) and come up with books *Readiness Activities for the Beginners* – Vol. I and II (Soni, 2011). The Kendriya Vidyalayas (KVs) have developed readiness programmes for entry level children in Grade I with an inbuilt assessment system. These programmes are comprehensively designed to meet the demand of school readiness and prove to be an excellent intervention in the area. The focus is on reading, writing and number readiness. Moreover, the focus of these programmes is only on the school readiness of children. The other two components of school readiness i.e., school ready and family ready are left unaddressed.

Literature review and general survey in Indian schools also revealed that the quality of school readiness programme is compromised and varied in standard; however, the purpose is the same. There are variations in pre-primary curriculum, depending on the kind of schools viz. government, private and Non-government Organisations (NGOs). A longitudinal study revealed that pre-primary curriculum of most government pre-primary schools was unstructured and did not truly cater to the required components of school readiness. However, private pre-primary schools are conducting them but for short duration (Kaul, et al., 2014). Private

schools claim to have school readiness component in their curriculum. Interestingly, there is a variety in that also, as some of them follow a specific school readiness programme; some have a small component of it in the curriculum; while yet others have school readiness component throughout the curriculum, starting from 3+ years. Some schools organise school readiness activities throughout the year, some before the end of pre-primary education, while some at the beginning of Grade I. However, in 50 per cent pre-primary centres in Andhra Pradesh, Rajasthan and Assam, no readiness activity for reading, writing and number is conducted. As a result, such programmes do not ensure school readiness of children (Kaul, et al., 2014).

There is no systematic and objective-based uniform pattern of assessment of children in pre-primary schools (National Institute of Public Cooperation and Child Development [NIPCCD], 2012). Also, there is no provision of assessing the existing and increased school readiness level of children in all domains of development. Even the most reliable and valid School Readiness Instrument (SRI) for children, developed by the World Bank, India, in 2007 under the Early Childhood Education (ECE) Programme Evaluation Package (World Bank, 2007) assesses the level of school readiness of children in cognitive and language domains only.

It is also found that in most government schools, either there is no pre-primary education or they have only one year of pre-primary education. Most private schools have at least two years of pre-primary education. There are also a few independent as well as private pre-primary schools. In general, elite private schools have good infrastructure facilities. However, most private schools that have mushroomed do not have adequate facilities required for pre-primary education. Most government schools are still struggling for pre-primary infrastructure.

The NIPCCD (2014), in a study, reported that government pre-primary buildings in Delhi are decaying and do not have adequate light and ventilation facility. Largely, the Anganwadi Centres (AWCs) operate from single rooms in rented buildings (Dhingra and Sharma 2011; Dixit, et al., 2010; NIPCCD, 2012). Most of them have no outdoor space (NIPCCD, 2006; NIPCCD, 2011; NIPCCD, 2012; and Planning Commission, 2009), or if available, it is inadequate and without playing equipment. Schools are also facing the problem of teachers' shortage. Key positions such as Anganwadi workers, supervisors and child development project officers are vacant (NIPCCD, 2013). The UNESCO (2006) also reported language gap and inadequate learning material as the undermining factors of school readiness. This situation adversely affects the quality of school readiness programme, thus, producing children with low retention and high dropout rates.

Hence, considering the significance and holistic nature of school readiness, a few constant gaps are observed, which are critical and are required to be addressed on an urgent basis. These are the lack of:

- pre-primary education in all schools, especially in the government sector;
- national-level standard pattern of school readiness programme that is flexible enough to be contextualised and adapted by the implementers;
- development of need-based and school-specific school readiness programme that is evolved as per the resources available in the pre-primary school. Also, its alignment with the concept of school readiness as per the National ECCE Curriculum Framework, developed by the MWCD;
- coverage of components of school readiness (children, school and family) and all domains of development in the available school readiness programmes;
- appropriate provision for assessment of school readiness among children; and
- nationwide awareness and dialogue on school readiness.

Approaches to Ensure School Readiness among Children

It is visible that the Government of India along with other organisations has taken considerable efforts to enhance the level of school readiness among pre-primary children, thereby, ensuring their smooth transition from pre-primary to primary education. However, evidences provided by national surveys and research studies conducted across the country indicate areas which need to be addressed on an urgent basis by acquiring the following approaches:

Ensuring Quality Pre-primary Education

The quality of pre-primary education makes a crucial difference to children's learning in early primary grades by improving their school readiness. According to the National Association for the Education of Young Children (NAEYC), participation in quality pre-primary education programmes contribute positively to children's development during the early years and provide foundation for school readiness (NAEYC, 2009a). Recent longitudinal research carried out on large samples in India has also confirmed the impact of quality pre-primary programme on children's level of school readiness during entry to primary school (Kaul, Chaudhary and Sharma, 2014). According to the Joint Legislative Audit and Review Commission (JLARC) to the Governor and the General Assembly of Virginia, U.S.A. (2007), quality pre-primary experience for 'at-risk' four-year-olds helps to prepare them for school with lasting benefits. The Centre for Early Childhood Education and Development (CECED) and the Annual Status of Education Report (ASER) (2015) reported that children with higher school readiness scores

at the age of five performed better in conceptual tasks in subsequent years. This early advantage persists even two years later when they are aged seven. Similarly, in Bangladesh, children attending high-quality rural pre-primary programme improved their literacy and numerical skills, enhancing their school readiness. They outperformed their peers in a control group by 58 per cent on a standardised test (UNESCO, 2011, p. 38).

Therefore, quality is a prerequisite to school readiness of children. It includes responsive, affectionate and readily available adult-child interactions, trained teachers/staff members, appropriate adult-children ratio, small class size, developmentally appropriate curriculum with learning experiences building on the prior experiences of children (NAEYC, 2009b; Pelletier and Corter, 2005; and UNICEF, 2012a), optimal learning environment (Pivik, 2012); classroom equipment or material to support children's active and thoughtful engagement with learning (NAEYC, 2009a), planning, assessment, record-keeping (Portugal and Gois, 2010), availability and use of books and material (Arnold, et al., 2008 p. 29) and adequate infrastructure, mainly indoor and outdoor space with proper light and ventilation. It is also important to organise comprehensive and intensive trainings for pre-primary teachers supported by regular refresher and orientation programmes, make pre-primary education mandatory in all formal schools under all sectors, especially government-run, and increase expenditure on pre-primary education by assessing the cost of sustaining the quality of pre-primary education and enhancing financial allocation per child.

Early Intervention

Early intervention is crucial for children's cognitive, socio-emotional, language and physical development during the pre-primary years. It can have a strong influence on readiness, enrolment, progress and learning in primary schools, especially for the undeserved and disadvantaged children's later learning (UNESCO, 2015). In countries with low level of access to pre-primary education, UNICEF's school readiness interventions have had a profound effect on children (UNICEF, 2012b). Also, data from several developing countries show a strong association between early skills and high school completion. These results implicate school readiness interventions in sustained positive school achievement outcomes (Grantham-McGregor, et al., 2007). Nonoyama and Bredenberg (2009) in an intervention study found that children in the experimental group significantly outperformed those in the control group in the language test. The results of Getting Ready Intervention also found significant differences between treatment and control participants for certain interpersonal competencies (Sheridan, Knoche Edwards, Bovaird and Kupzyk, 2010).

For identifying the significance of school readiness interventions at an early stage, it is suggested that early school readiness intervention efforts should be employed as per the requirement. These interventions must be school-based, carefully designed, short-term, child-focused, culturally sensitive, relevant to children's family and social context, (Bhise and Sonawat, 2016; Grantham-McGregor, et al., 2007; NAEYC, 2009a), integrated (Kamel, 2006), directed by the child's interests and developmental priorities, pedagogically effective, low-cost, capable of being implemented in low-resource environments (Rao, 2010) and ensure to make children ready for schools (Arnold, 2008).

Addressing Diversity

Diversity in children's early life experiences, the wide variation in young children's development and learning (NAEYC, 1995), socio-economic status and childcare history are significantly related to their readiness to learn (Janus, 2001). In a study, Isaacs (2012) examined children's readiness for school at the age of five years by a simple comparison of the simulated effects of interventions and found a 27 per cent-point gap between poor and moderate/high-income group children. The findings suggested a diverse set of interventions to improve children's school readiness. He further reported that it is not poverty alone that places poor children at risk, but parent's low level of education, higher rate of smoking, depression and lower parenting skills also harm them. Therefore, an indivisible aspect of education is vital to be considered while designing any programme or intervention.

Appropriate Assessment of School Readiness

Due to a variety of contributing factors, the magnitude of school readiness may also differ. However, the larger the gap at school entry, the harder it is to bridge. Then, it is essential to make wise investments at this stage. School readiness assessment can be an important signpost in this regard that can be done at the programme or individual level. Missal (2013) elucidated that initially, school readiness assessment has two purposes. One is to ensure that each child has skills for successful early school achievement, and second is to develop a comprehensive plan to evaluate and monitor children who are at a risk of school failure. Apart from this, it is proved to be an important instrument to establish a baseline and document the magnitude of the problem; understand and support children's development; assess the interventions or programmes that are most efficient, cost-effective and contextual for the target group; document and evaluate programme effectiveness and inform the policy dialogue for future planning (Naudeau, et al., 2011). UNESCO and UNICEF (2012. p. 40) affirmed that strengthening programming

is possible if a short but targeted assessment of the impact of school readiness programmes can be obtained. The information obtained through assessment helps in planning instructions for individual children (Early Education for All, 2006; and Garber, et al. 2007).

It is proposed that for assessment to be widely used, it must be valid, reliable, employ methods that are feasible, sustainable and reasonable with regard to duration, budget, manpower and children (Epstein, et al., 2004). However, school readiness assessments are administered at varied timings. Some are conducted around the time of school entry and some in Grade I (Early Education for All, 2006; UNESCO, 2006). Also, there is no best approach or tool for assessing school readiness as different purposes require different approaches.

Generally, children are tested through standardised assessment, norm-referenced assessment (formal) or by naturalistic assessment (informal or authentic). Assessing children's learning through informal methods include structured observations, portfolio analysis of individual or collaborative work, teacher and parent ratings of children's behaviour, structured activities, like tasks performed by them which demonstrate developmentally expected skills or behaviour (Epstein, et al., 2004, Garber et al. 2007; Maxwell and Clifford, 2004). Assessment can also be conducted by using multiple assessment approaches and tools.

Besides this, there is no unified and consistent opinion among professionals about the entry level skills and competencies (Slentz, et al., 2008). Thus, to capture a child's relative preparedness for school, it is vital to measure his/her development outcomes in physical, cognitive, linguistic and socio-emotional domains (World Bank, 2012). During school readiness assessment, the factors which influence children such as the range and quality of their early life experiences, including family, community, pre-primary school, demography and socio-economic conditions, variation in their development and learning, appropriateness of school's expectations from children (McCain, et al., 2007; Rafoth, et al., 2004), local education practices, socio-cultural context (Bernard van Leer Foundation, 2008), school climate, teacher instructional methods and classroom environment (UNICEF, 2012b) also need to be considered. For getting a holistic outcome, it is best to gather assessment information from multiple sources, like teachers, families and children, which will be useful in understanding children's skills across various settings.

Conclusion

School readiness is not a new concept in India. For long, a number of initiatives have been taken to improve the learning level of children, promote

enrolment and enhance the retention rate, thereby, reducing dropout rate. Realising its impact on improving the education of young children, it is now drawing more attention. India has taken concrete steps towards improving school readiness skills and competencies in children through various initiatives. However, some gaps are yet to be filled. These are — lack of pre-primary education in all schools, national standard pattern of school readiness programme that covers different components of school readiness (children, school and family) and all domains of development, need-based school readiness programme, appropriate provision for assessment of school readiness among children and nationwide awareness and dialogue on school readiness.

A few collective and concrete steps, if taken in a planned and coordinated way by the central government, using the available resources, might address these gaps. These could help improve the quality of pre-primary education, provide early interventions to children in need, consider the diversity of their background as well as their experiences, and develop and use appropriate assessment of school readiness. However, the assessment level of school readiness of children should not restrain them from primary school entry when they reach the legal chronological age of school entry.

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Life, Ideals and Learning(s) to be a 'Teacher' in B.Ed.

An Analysis of the Literature of B.Ed. Programme

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Abstract

The central concern of this paper is to present an analysis of the definitions and images of an ideal teacher while being trained in B.Ed. programmes in India. The study explores this theme with the help of student-teacher interactions, interactions with faculty members as well as textbooks and other study material through which the author traverses. These interactions between student-teachers and teacher-educators look into their experiences in the classroom, hostel life, teaching practice and assignments. These aspects have been contextualised and woven along with broader experiences and exposure that the author gained while working in the field of education prior to the programme and the disjuncture that has come to permeate the ideals in teacher education programme. The paper uses these narratives to critique the teacher education programme as well as to highlight its stagnation. The data for this study emerged through detailed documentation, while the author was a student as well as through further discussions after the completion of the programme. The paper also looks at a series of studies that emerge from teacher biographies, teacher-educators' research, analysis and studies on teacher education programmes, along with discussions on the definitions of an 'ideal teacher'.

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Introduction

One of the authors, Ram Murti Sharma, began his career in the education sector after postgraduating from the Punjab University in 1993. His 11-year career is spread from the initial days of observing and documenting classroom practices under Eklavya's innovative social science teaching programme to helping the state and national bodies in developing textbooks and conducting teacher and resource person trainings. Yet, when he decided to join the government teaching job in 2005, he was deemed unqualified because he did not possess a degree in education[1]. Hence, he went back to college at the age of 37 to learn about teaching and teachers.

This article attempts to reflect this experience and review the obsolete practices followed in professional trainings to be come a teacher. We begin this study by briefly looking at the prime source of knowledge for student-teachers (STs)[2] — textbooks. We also look at the ideals of a teacher as described in these books. Moreover, centrally, we look at the interactions of the author with his fellow student-teachers (STs) and teacher-educators (TEs). Thus, the article attempts to point out the images of a 'teacher' emerging through the programme.

Rationale and Method

There is a vacuum in the linkage between current practices of teacher education programmes and knowledge paradigms at two levels — first, at the level of actual content which is taught to STs and second, at the level of usability of what is taught in these B.Ed. professional courses. Clubbing them sounds like comparing them with all professional courses. Often, it is pointed out in popular discussions that STs learn notes that were prepared immediately after the Second World War. However, a few attempts have been made to touch upon the lacuna that exists in these notes, or how a student-teacher, in the absence of better learning options, responds to such a classroom, how he/she reflects his/her experiences elsewhere to 're-arrange' himself/herself for the tasks that await him/her in the future institution of the school. The research attempts to explore these questions.

The author recorded numerous events as he attended his B.Ed. classes in 2005–06 with a plan to reflect upon them later. Yet, it may be false to claim that we strictly used documented data for developing this paper. Both the authors interacted

[1]From the 1990s, a number of people were appointed as school teachers, without a formal degree, in many states. However, this option was not available while Ram Murti Sharma was looking for such an opportunity.

[2]We use two acronyms in order to make the reading easier and remove the overlaps in the way the words teacher and student are used. TE is used for 'Teacher educators' and ST for 'Student-Teachers'. STs are those who attend the B.Ed. programme and TEs are faculty members. Hence, when we use the term 'teacher' or 'student', it refers to the larger school context.

over the academic year and exchanged 'stories' informally and promised to 'do something about it'. After the completion of the course, they spent a week together, going through a series of discussions and narratives on their experiences. Free-flowing discussions, clarifications and re-narrations followed and 'data' in the strict sense of research emerged. No formal interview schedules or questionnaires were used for this research. During the same period, the second author spent time reading and understanding guide-textbooks[3] that he had collected to 'pass' his degree course. Extracts from one such books become the key resource for this paper. There was also a small collection of assignments, lesson plan notebooks, teaching aids, etc., that provided a comprehensive view of the B.Ed. programme. Hence, the documentation for the article includes both Braille notes of the author as well as perspectives from the shared discussions.

Here, it is important to clarify that the authors did not begin the process of research with a set of well-articulated questions. The process of documentation and reflection was based on their field experiences and academic research on teacher education in India. While documenting the experiences, following questions came up: What are the notions of child, school and teacher that are communicated through mandatory courses, like philosophy, sociology and psychology, of education? What did the author learn from courses on social science teaching? What is 'archaic' about the understanding of social sciences? How did the teacher-educators transact ideas? How were these ideas different from or similar to his experience of training with organisations, like Eklavya? Yet, as we began articulating the reflections, we realised that an in-depth analysis would be difficult. Hence, we decided to focus on the key aspect of a teacher training programme — notions and ideals related to the teacher.

Research on Learning Material in Teacher Education

While documenting (or prior to) the experiences of a student-teacher, neither the first nor the second author explored the literature on teacher education. Thus, the studies identified here are not necessarily those which the authors had used to reflect on prior to the research but accessed only after the completion of documentation. Our experiences, observations and interactions helped us to recognise the potential for evolving a criticism of the

[3]It is probably not easy to distinguish the learning material that an ST uses. There are books that have been intended or written for the student audience. These books may cover every topic that is in the syllabus and move beyond that; they may have even been written with the intention of catering to the syllabus of more than one university. However, there are also books in the form of solved questions, which generally collect questions from the previous examination papers of universities. In various parts of the country, we come across terms, like '20 questions', 'digest', 'guides', 'scanner', etc., all of which are interchangeably used.

curriculum. In the context of school education, it is often pointed out that the absence of social world experience for children in learning material and the definition of what is considered as 'valid' knowledge create alienation from the learning material. For example, the theme of comparison between a child's experiences of political ideas from the social world with those taught in textbooks had already been explored and analysed (George, 2007). This research was probably able to create a valid criticism of the ways in which learning material for children are developed. In a similar fashion, in this article, we look into the experiences of an individual and try to contextualise them into prescribed images from the textbook.

Literature pertaining to teacher biographies and debates on teachers are the two strands that have helped the author in writing a critique of teacher education. Life histories permit an individual to critically look at his/her relationship with "individuals, institutions, cultural values and political events, and the ways in which these social relationships contribute to the individual's identity, values and ideological perspective" (Britzman, 1986, p. 452).

In the context of this study, we classify the literature on teacher education into two categories. The first is based on the method we have adopted for the study — reflections on personal experiences. And, the second is based on the construct of teacher ideals as well as discussions on teacher education programmes. In the context of schooling or teaching, studies that relate to a teacher's experiences are broadly classified into two paradigms — life histories and reflective narratives. A variety of methods are adopted to select and organise the data in this context, such as personal practical knowledge, collaborative autobiography and personal history.

Broadly, such studies argue — (1) Teaching is deeply personal; (2) personal understandings of teaching are profoundly systematic and theoretical; (3) learning to teach is fundamentally a negotiated process; and (4) A sense of mastery in teaching takes a long time to achieve (Carter and Doyle, 1996; p. 134). Given this argument, "clearly and not surprisingly, the most prominent and pervasive recommendation flowing from the biographical perspective is that the examination of one's personal narrative and/or life history should constitute the core of teacher education" (p. 135). We looked for articles with similar themes in the Indian context but couldn't find much work. However, there were a few essays by scholars of higher education such as Pathak (1994)[4], Singh (1991), and Gupta (2010). These essays

[4]Pathak's argument on the state of higher education is relevant to us. "There is no dearth of books and ideas. From Marx and Engels, to Lenin and Mao, to Gramsci and Luckas, to Marcuse and Habermas, the ocean of ideas creates a special problem for a teacher. He/she can lose his creativity in two ways. First, he/she can rely on a standard textbook or a bazar notebook and, thereby, discourage himself and his students to read better books or original thinkers. Much has been written and talked about this pathetic state of teaching in our country. But what is equally damaging — and, herein, lies the importance of the second point we are making — is the sickness emerging out of excessive dependence on books. For instance, in many good universities, one sees students and teachers always dropping names, talking about every new book that they have read." (on Teachers and Teaching: Reflections on Existing Pedagogical Practices, page 18).

do not discuss school education and its processes or teacher education. They, instead, discuss practices of higher education institutions and learning material from premier institutions that had a certain level of quality and were not dependent on the type of textbooks which the author came across.

In the context of teacher education, studies point out that an ST often has predetermined notions about teaching. Authors, like Gordon (2004), observe that a teacher-educator's role becomes critical in re-engaging with schooling practices distinctly. Alan R. Tom (1997) and June Gordon (2004) draw from their experiences of training student-teachers and reflect on teacher education programmes. Similar study conducted by Ivor Goodson (1992) looks at reflections and narrations by practising teachers. Scholars, like Deborah Britzman (2003), have explored specific aspects of teacher education, like 'practise teaching', in a critical ethnographic framework to study the impact of popular notions about a teacher and the experiences of practising teachers with student-teachers. Sharma himself being an education practitioner for years was more reflective than most student-teachers. He felt that these arguments were being validated while filling various practice teaching lessons. Similarly, Dershimer and Corriggan (1997) argue that practising teachers have a set of beliefs which have a great impact on how student-teachers are trained. It is, therefore, important that teacher education programmes encourage student-teachers to reflect on such beliefs. Gary Knowles (1992) observes, "...The small but growing body of knowledge about teachers' biographies suggests that it is not primarily the pre-service teacher education programmes that establish the role identity of a teacher but, rather, previous life experiences as they relate to education and teaching. To understand how to harness the life experience of pre-service teachers and channel them into contributing to more developed and effective role identities will be a valid activity for teacher-educators" (p. 147). In the light of the above mentioned studies, we draw that teacher education institutions play a crucial role in developing and reformulating the beliefs of student-teachers. But in the context of the author's experiences, we notice that our teacher education programmes do not create an opportunity for student-teachers to reflect on their ideals.

E.R. Ducharme and M.K. Ducharme (1996) observe many critical gaps in teacher education research in India. In their overview article on Indian research, they identify seven research studies that were conducted during the 1980s. Three of them were unpublished Ph.D thesis. Four were about micro-teaching and their impact — all argued for a particular method in teacher education. The other research was on integrated and one-year degree programmes that are available

in the country and argued that there was no significant difference between both the programmes. (It is possible that during the last decade, after the above overview was published, there may have been attempts to evaluate the quality of teacher education research that we are not aware of.)

But the content and curriculum of teacher education research in India has not been explored much. Needless to add that reports from various commissions[5] and government bodies, involved in higher education, have highlighted many glaring gaps in the practice of teacher education. Hence, this article delves into what goes on inside the classrooms in teacher education institutions and the decay that has set in.

The understanding and interpretations of an ideal teacher have been critically explored in several Indian studies, though not always in the context of teacher education. For analytical smoothness, we categorise them into the following types: historical analysis, socio-political analysis of policies and schooling or classroom practices.

In the historical context, the post-Colonial continuities or ruptures have been a repeated theme. Krishna Kumar's (1991) description of a teacher as a meek dictator of the state system has been widely read. Nita Kumar (2000) extensively writes about the schooling system in Banaras over a century. Certain caste groups have had their own schooling systems and teaching techniques that were not aligned with the Colonial-modern schooling system. The image of the teacher was closely associated with caste and professional identity and knowledge of a specific skill was considered valuable for particular social groups. Similarly, Sanjay Srivastava's study (1998) on a single elite school in the context of the creation of post-Colonial or modern India indicates how the role of a teacher gets differentiated based on his/her background. These notions of an ideal teacher and teaching practises that were required for different social structures probably continue to prevail. As we shall read in this article, student-teachers are often threatened against attempts to collectively mobilise. They are often reminded that disciplining themselves and aligning with power structures are more suitable than resistance.

There have been numerous analysis on policies and practices of teacher recruitment and the role of teachers. We focus on the studies conducted in 2000–10, as there were government programmes to overhaul

[5] The National Knowledge Commission, was closest to our period of study. While talking about higher education, the commission recommends to the University Grants Commission, "Departments that do not update their syllabus for two consecutive years shall be asked to provide a justification. While there is a need to ensure relevance of the curriculum on a continuous basis, it may be difficult to devise appropriate methodologies for student originated curriculum." Available online at http://www.knowledgecommission.gov.in/downloads/recommendations/HigherEducationNote.pdf, which reflects the stagnation perceived within the education system. (Accessed on September 2008)

the schooling system and the role of teachers in this phase. Studies conducted by Govinda and Josephine (2005) and Kingdon and Rao (2010) explore the trend of appointment of 'para-teachers' in the last two decades, and critique assumptions focussing exclusively on access to schooling, while undermining the definition and notions of the quality of education. These appointments in various States partially undermine the idea that a teacher education programme is indeed necessary for a person to enter the classrooms to teach.

In this context, we see the linkage that Sadgopal (2006) makes with the neo-liberal political worldviews that have become dominant in the field of education. Further, when there is marginalisation and silence on teachers in the National Curriculum Framework as Batra points out (2005 and 2006) the large socio-political scenario during which Sharma had joined college does not hold a bright image of teachers. Thus, along with the archaic content that student-teachers learn, there is an increased folk message of marginalisation and doubt about the programme itself and de-professionalisation of the role of teachers.

In the context of state-run programmes, studies of the last three decades analyse the role of teachers in classrooms (Joshi, 2008; Balagopalan, 2003 and Clarke, 2003) and emphasise on the centrality of a teacher in sustaining innovation. The attitude of teachers towards social issues is another key area of exploration, for instance, the manner in which marginalised communities, like Dalits and Adivasis (Samavesh, 2003) or gender perspectives (Nambissan, 2004) get highlighted in studies of this nature. Teacher education programmes should equip student-teachers to respond to the plurality of the society in the classroom. However, neither social sensitivity, nor pedagogical and domain knowledge capabilities are part of Sharma's experience in the B.Ed. programme. The above mentioned studies indicate that there is a disjuncture between the idea of a teacher as conceived and discussed by academic research and as reflected in the learning material and experiences of student-teachers.

An Introduction to the College and the Programme

This paper explores the following questions — What does a student-teacher learn about being a teacher in his[6] training? How do various learning practices and interactions between student-teachers and teacher-educators create the image of a teacher? What notions of a teacher do teacher-educators emphasise on in the process of their classroom teaching and training? How does

[6] We use the male singular pronoun as this study happens to look at a male and not to connote the teacher being male alone.

the training help a student-teacher to reshape his beliefs about being a teacher? Specifically, in the context of the author, in the field of education, how does this training help to reflect on his experiences as a classroom observer and teacher-trainer? In conclusion, we shall draw the picture of the teacher that emerges from this scenario.

The college[7] that Sharma joined for B.Ed. is considered to be the best and the oldest in the region. Around 300 student-teachers enrol for this programme every year and are divided into six batches. Majority of them are girls. A total of 225 girls and 75 boys sought admission in the year in which the study was conducted. The college also offers M.Ed. programme with 20 seats. It has 20 faculty members. The students are selected through a combined entrance examination from three universities — Guru Nanak Dev University, Amritsar; Punjabi University, Patiala and Punjab University, Chandigarh. During counselling, the students are allocated teacher education colleges according to their choice, merit, availability of seats and preference of the subject combination[8]. In many cases, student-teachers choose college, largely f or it being closer to their homes, the availability of subject combination and lower fee structure. The perceived quality of education at a college does not seem to be a factor that informs students in their choice.

Even though, officially, there are different labs for teaching — computer, science, social science; the author, who was trained as a social science and Hindi teacher, had never visited one. As approved by the National Council for Teacher Education (NCTE), the university follows a curriculum that is prevalent across the country. The papers include: (A) Core Courses — 1. Philosophical and Sociological Bases of Education; 2. Educational Psychology and Guidance; 3. Management of Education and Education Technology; 4. Emerging Trends in Indian Education; (B) Two Specialisation Papers, and (C) Practice Teaching and Work Experience which includes craft, social service, etc.

The university to which Sharma's college is affiliated has a bad reputation among students. The examination pattern emphasises on long essays, whereas other universities in the region offer multiple-choice questions. Examinations based on essay-writing are not considered 'favourable' by student-teachers because one is likely to score low. The B.Ed. exam scores become important

[7] A college is affiliated to Guru Nanak Dev University, Amritsar. In the indicators developed by NAAC to rate colleges, this college gained a 'B' grade. In the later part of the article, we describe how colleges achieve the grades. An important debate on indicators and definitions of "good quality of institutions" though would have been necessary and useful, is currently left out of our discussion.

[8] Subject combination refers to options that students choose for their specialisation, such as English and social studies, or Hindi and social studies, or mathematics and sciences, etc.

to students when they apply for jobs or for M.Ed. programmes.

The course begins with an orientation programme, during which the college authorities announce the annual agenda, which essentially means their expectation for better results. The class is divided into groups and informed about the timings, the pattern of examination, etc. This is where optional components under work experience subjects (any two subjects, such as gardening, home science, art, etc.) are chosen. Generally, male student-teachers don't opt for home science. The faculty share their expectations with student-teachers and ask them to maintain discipline, learn well, share the responsibility, participate in co-curricular activities, keep the campus clean, work hard, etc.

In the B.Ed. college studied, students attend nine lectures a day six days a week. The lectures are on four compulsory papers — two teaching subjects and three work experience programmes. Apart from this, five days are allotted to practice micro-teaching in the year. Practise sessions for regular teaching take place for 20 to 30 days. Seminars, presentations[9], annual competitions and inter-university performing arts and sports activities are also conducted in the college.

Textbook Ideals of a Teacher

Guide-textbooks were a major learning material for the author during the programme. We are yet to have a systematic study in the Indian context that analyses the impact of such a learning process in terms of quality, which in itself may reflect the state of affairs in higher education. This section introduces a 'sample' text from chapters about the teacher in these guide-textbooks — the broader theme of this paper.

No one denies the role of good textbooks in the Indian education system[10]. However, one cannot stop condemning the use of 'guidebooks' in classrooms, which are nothing but a compilation of questions and answers. In Sharma's class, the student-teachers never read original articles written by thinkers. They hardly read books on education, like Mahatma Gandhi's *Hind Swaraj* or Gijjubhai's *Diwaswapna.* Most, if not all, student-teachers confined their reading to guidebooks. However, such books seem to have become crippling for teacher education programmes. They attempt to suit the need of student-teacher to pass the exam and cover the syllabus of major universities in the Northern states of India to ensure wider sale and profit. The guidebooks

[9] One presentation was on the topic — 'How to migrate to Canada?'

[10] In B.Ed. the STs are expected to read material of post-graduate courses since it is offered to graduate students. Today, many major Indian publishing houses publish series titled 'Themes in History', 'Readings in Sociology', etc. Similarly, in the last few years, certain bodies such as Kerala State Higher Education Council have come up with reading lists for graduate-level programmes. The students are mostly exposed to the type of books that we analyse in the following page.

are largely written in the fashion of an answer sheet of an average student with all information about the diverse aspects of education but without clear perspectives and sometimes even opposing views. The content is over-simplified and provides no detailed analysis, or opportunity to think about or problematise ideas. These books have no perspective or theoretical grounding. They often club together contradictory arguments in an attempt to appear 'neutral', where most ideas are redundant. In a B.Ed. programme, the usage of such guide-textbooks becomes even more ironical since they themselves claim, "textbooks belittle the role of a teacher [11]"!

Let us look at an example of over-simplification and appearing 'neutral' approach in these guidebooks. While discussing two methods of teaching, for instance, lecture and discussion — both are difficult for children to understand; time-consuming, dull and boring, etc. This criticism may be the same for other methods of teaching, such as activity method, problem method, etc. Thus, every method of teaching becomes inherently faulty. Yet, the entire programme is based on the assumption that a student-teacher can be trained to become a teacher. Such an approach becomes contrary to the prior experiences of the author, where an in-depth knowledge of the subject matter was clearly emphasised in the trainings and where the method to teach social sciences is integral to the very nature of the discipline, for example, an activity about making a map of India in Eklavya's political science textbooks did not emerge for merely teaching maps through activity, but also to gain a mental feel of the States located in different parts and then making a unified country. This gives a sense of political division for administrative purpose. Or say, in history, drawing one's conclusion based on two different descriptions about the rule of a king was not merely a 'discussion method' but central to the nature of historiography.

We now look at the learning material closely for a detailed analysis. We selected a section from the textbook that describes the 'qualities of a social science teacher', primarily because this was one of Sharma's specialisation subject in the course and work experience. The author adds a reminder that "most of the qualities expected a of out Hindi teacher was not different"[12] which was his other specialisation.

The book, *Teaching Social science* by J.S. Walia[13] (2004), has a section, (pp. 139–147) called 'Qualities of a Teacher', wherein the qualities have been classified into five categories. The names of these categories are upsetting.

[11] Some of these titles are listed on the website of the university's prescribed syllabus. The website threatens with 'prosecution' if the PDF document is printed.

[12] All quotations, unless specified, are from the notes that Sharma had kept in Braille and which emerged during our discussion.

[13] This particular author has been selected because these books are among the most popular in the universities in that part of the state. Many of his books are also listed on the universities' websites.

The textbook does not provide an explanation as to why there are five categories. The following extracts from each category are followed by commentaries as analysis. This selection has been made on the basis of two aspects: (1) those that are contradictory in certain ways, and (2) passages that over-simplify ideas about the role of a teacher.

Extract: Category 1

Special qualities of Social Studies Teacher

(a) Sufficient knowledge of social studies: Only a competent teacher can guide a discussion, stimulate interest and provide an educational situation. Only he/she [sic] can simplify and reorganise so many diverse elements into one connected whole — the historian's history, the geographer's geography, the economist's economics, the sociologist's sociology, and so on. He must keep himself abreast with current affairs in order to utilise this for supplementing social science and for facilitating instruction.

(b) He/she should be an expert in the methodology of teaching social studies[14].

(c) He/she should have mastery in techniques of teaching social studies[15].

Commentary 1: Nine sub-qualities have been identified under this category. A good social science teacher has knowledge i.e., facts and information from all four subjects — history, geography, political science and economics. It is assumed that social science needs to be 'simplified and reorganised' by the teacher for its re-narration to children. Social science is treated at par with knowledge of 'current affairs', merely a compilation of 'information' within the subject domain of history, economics, geography, and so on.

Social sciences are seen as static, overlooking the evolution of social sciences and its diverse perspectives and paradigms that provide newer ways of analysing the social world. It evades the fact that these subjects are becoming interdisciplinary and adopting perspectives that cut across themes and ideas. The idea that school social sciences are information packages is a carry-over of older paradigms, where schooling was seen necessary only as an information-gathering process.

[14] There is a complete chapter dedicated to address the methods of teaching. Due to limited space, we are unable to analyse them at this stage. However, they include — 'lecture method, question-answer method, problem method, project method, unit method, observation method, storytelling method, source method, laboratory method, socialised recitation method, inductive and deductive method, etc.

[15] Similar to the methods — there is a listing on techniques, like exposition, explanation, narration, description, review, recitation, discussion and device such as illustrations, textbooks, homework, assignment, dramatisation, questioning and answering, and play-way devices and maxims of teaching, like to proceed from known to unknown, from simple to complex, from concrete to abstract, and from empirical to rational, etc.

Another predominant aspect is clubbing together of worldviews and values to social sciences and social science teacher[16]. Occasionally, by bringing together worldviews and values, contradictory and opposite perspectives are expected to be fused in. For example, these textbooks expect a teacher essentially to have a 'national outlook' — which 'he/she should inculcate in children by his/her conduct'; yet in another instance, it would appreciate the need for 'critical thinking'. This burden of conformist stand to the cause of nation is never criticised, and limits the worldview to people in social sciences. It draws a thin line between social sciences and value education and nationalism. Teaching social science is assumed to be the most crucial for nation building.

Guide-textbooks do not explain how the method or technique (item c and d) of teaching emerges or has an impact on or relation with the nature of the subject. For instance, reading and analysing various interpretations of history can be a way of teaching history; similarly, visiting and observing life in marshes for geography teaching or conducting a survey of school expenses or a family household to understand economics. Guide-textbooks are dismissive of different practices in classroom because 'methods' are seen not as emerging from the disciplinary requirement, but some assumed requirement of diversity in ways of interacting with students.

Extract: Category 2
General Academic Qualities

(a) Mastery of the subject matter: Any weakness on his/her part will lower his/her prestige in before students. Unless a teacher himself/herself has adequate knowledge, he/she is not in a position to inspire others to learn, nor can he/she kindle the minds of others with the flame of knowledge unless the same flame burns within him/her. Besides he/she must love his/her subject. A teacher who does not love his/her subject fails to inspire his/her students and runs the risk of becoming a hypocrite.

(b) Adequate general knowledge: He/she must be conversant with various branches of learning. He/she must be a jack of all trades and master of one. He/she must have a working knowledge of related subjects and possess a fair knowledge of current affairs. The teacher must have the knowledge of his/her community and other communities.

(c) Thirst for Knowledge: He/she should improve his/her knowledge by making a good use of libraries,

[16] The role of a social science teacher is to create linkages between subject domains. One wonders if that is not a tall claim in the Indian context, where we have repeatedly talked about the integration of subjects for school curriculum and continue to treat them in different school textbooks.

visiting exhibitions and museums, and attending educational seminars and refresher courses, etc.

(d) Fluency in expression: He/she should possess good pronunciation skills. His/her voice should be pleasant, clear, audible, moderately-pitched and well-modulated. There are three ways of changing the voice — pitch, loudness and pace. The voice must appeal to the aesthetic sense of the pupils.

Commentary 2: These passages reflect the notion of a teacher as the sole source of knowledge. This idea gets repeated in different ways, and one dominant way of asserting it is by arguing that "any weakness on his/her part will lower his/her prestige in the eyes of his/her students". The idea of knowledge being defined in relation with information (current affairs) is reiterated and the sources of knowledge are clearly associated with institutions, such as libraries, exhibitions, museums, seminars, etc. As per them, the child or the society with whom the ST interacts cannot become a source of knowledge. The teacher 'himself/herself' accumulates it and acts as a transmitter of knowledge for children. In this scenario, information banking is clearly given validity over the knowledge generated in a classroom interaction.

There is no rationale in dividing the qualities into four sub-categories — a, b, c and d. Further, finding a relation between a, b, c and d is a tough task. But in the examination system, the length of an answer is important to gain higher scores, and thus, sub-categories a, b, c and d merely symbolise such aspiration and validate the ranking system.

Another underlying assumption is that all classrooms will use 'lecture method'. Under general categories, other possible methods of teaching disappear, and thus, the assumption that a teacher is the only source of knowledge gets reasserted. It is unjustified that we expect every ST to have a voice that is pleasant and that he/she should be ashamed of his/her native pronunciation, just as it is equally unjustified that every pupil in a classroom should have the same 'aesthetic sense'.

Extract: Category 3

Professional Efficiency

Love for profession: The teacher must have his/her heart and soul in the profession. 'Once a teacher, always a teacher' — must be his/her motto. He/she must take pride in the profession and be wedded to it. He/she must possess a strong vocation and devotion towards teaching. If a teacher takes his/her work just to make his/her living because nothing else is available, he/she will lack the zeal required by the profession.

Commentary 3: Some other qualities identified within the category are — adequate professional training (pre-service), in-service training, teaching experience and progressive

outlook. Training and experience seem to be the key factors in this definition of profession. However, more curiously, here the 'motto' sounds like a burden, a chain from which a teacher cannot escape. It is important to note that there are many first-generation graduates who join the profession as student-teachers. For them, teaching becomes a tool for social mobility. These social realities are completely ignored by textbook authors. The social context of teaching as a profession does not emerge in these bookish descriptions. The description makes no attempt to define 'profession' against other categories of employment and vocation. At the same time, there are imageries, such as 'vocation', 'devotion', 'wedded to', etc., being used to describe the role of a teacher.

Extract: Category 4
Personality Traits

(a) External appearance: A good social studies teacher is known from his *dastar* (dress), *guftar* (behaviour) and *raftar* (pace of work). A teacher should look well outwardly so that the students are attracted by his/her charm, imbibe love for him/her at the very first sight, develop loyalty and profound faith in him/her. Dress holds importance professional life as it appeals to the masses. The social studies teacher should be smartly dressed. He/she should be considerate, humble, modest, and should not arrogant, or conceited. He/she should be careful of his/her conduct and cautious in his/her behaviour.

(b) Physical health: He/she has to deal with children, who are full of energy and vigour. If a teacher often complains of headache or frequently changing weather, he/she will not be able to do justice to his/her job. Thus, the teacher should maintain good health by having a balanced diet, doing regular exercises and participating in games.

(c) High character: A social studies teacher should be a person of high character. He/she should possess moral alertness, courage, patience, love and humility. He/she should be frank, sincere and industrious and should possess purity of thought, word and deed. He/she must avoid everything that is petty. Children are imitative and suggestive by nature. They imitate the dress, voice and behavioral habits of their teachers. The likes and dislikes of the teacher become their likes and dislikes.

Dr. Rajendra Prasad said, "Their (teachers') own character should be such that there is no difference between what they say and do. When we act upon this ideal, then alone we can be sure of a bright future for our own country." Mahatma Gandhi

said, "Woe to the teachers who teach one thing with their lips and carry another in their heart."

Commentary 4: Some other sub-categories in this list are — love for children, sense of humour, optimistic and democratic outlook, justice and impartiality, sympathy and wisdom, punctuality, self-confidence, self-analysis, enthusiasm and industriousness, sociability, emotional and mental health, intellect, etc.

Statements, like "if a teacher complains of changing weather, he/she will not be able to do justice to his/her job", leaves you aghast. They remind you of perspectives prevalent until the nineteenth century where climatic conditions affected an individual's nature and behaviour[17]. The passage also defines child as someone who "imitates", another prevalent archaic notion supporting the popular argument that most practices of higher education are 'frozen for decades'.

Teachers are expected to be compliant to these definitions and any difference that is inherently humane is overlooked. The teacher is portrayed as a super human, especially in the context of defining the notion of morality, character, or health. Inevitably, on such occasions, they cite authorities, like Mahatma Gandhi and Dr. Rajendra Prasad, without any reference to their own context to evoke respect among student-teachers, it would twist a popular saying, like 'jack of all trades', or use words like *ruftar, guftar, dastar* to get rhyming sentences. However, in the larger context, the expectation is that the teacher would be regulated on the personal front, even on aspects of health by following rules of diet, voice, and physical and cultural specificities. In effect, it expects a teacher to be a conformist to the core.

Even as educationists speak of inclusive classroom practices, it is important that the presence of student-teachers, who are physically challenged in various ways, is ignored by textbook authors. These books convey the idea that one's disabilities are likely to create repulsion among school children and they are discouraged from taking up teaching as a profession. This reflects that the voice or looks of a teacher are expected to attract children, which further assumes that they have a uniform sense of reason to feel associated, either with adults or with ideas.

Extract: Category 5

Qualities from Different Points of View

(a) From the point of view of the pupil: Hart in his investigation found the first five traits —

[17] For instance, it was a prevalent notion that the hot and humid condition of India was responsible for the size of its population.

(1) cheerful, good-natured, sense of humour; (2) humane and friendly; (3) interested in understanding pupils; (4) making work interesting, motivating them to work with pleasure; and (5) commanding respect.

(b) From the point of view of the parent: The best teacher is the one who helps a child score the best results, pays individual attention to each child and shows sympathy to each child.

(c) From the point of view of headmaster: An ideal teacher should be cooperative, obedient, loyal, industrious, respectful, punctual and one who gives the best results (good pass percentage and the maximum number of scholarships) to students.

(d) From the point of view of higher educational authorities: A teacher should be humble, cooperative, resourceful and should give the best results.

(e) What the teacher should not be: A teacher should not be a drunkard, gambler, shabbily dressed, conservative, cruel, cynic, selfish, sarcastic, dogmatic, discourteous, gloomy, haughty, inconsistent, impatient, irritable, ill-adjusted, undemocratic, unsympathetic, unreasonable, partial, prejudiced and pessimist.

Commentary 5: Here, the teacher is defined in relation with the expectations of different actors in the education system. However, there is no explanation as to how these expectations are different or similar to the qualities that were identified earlier and the rationale for making these expectations. And curiously, the teachers are left thinking that they need to be seen only in the context of those who are in authority or to whom they are expected to cater.

Across the system, the only common expectation from all stakeholders, except for the child, is 'good results'. No effort is made to analyse such contradictory (at least sometimes) expectations from the teacher, which makes teaching a complex task. But these guide-textbooks and teacher-educators are satisfied that the student-teachers just mug up these passages. Similarly, the student-teachers are conveyed the idea that the education system expects 'loyalty' and 'obedience'. Apart from portraying the teacher's qualities using positive jargons, the author resorts to further simplify them through negative qualities, especially, in the context of educationists (whoever the textbook author expects to fall into this category) who have the most unimaginative and outworldly cherubic notions of a teacher.

Conclusion

Textbooks of the above mentioned nature provide no scope for independent thinking. Thus, on becoming an student-teacher, the

author, Ram Murti Sharma, got alienated from the programme. However, this may not be the case for students who join teacher education programmes without field experience. Such textbooks provide excuses to teacher-educators through arguments, like "that is given in the text, do not criticise", "that is what you will be evaluated on by the university", or "this is what will get you a job certificate". While the teacher-educator is probably aware of his/her disempowerment, these books perpetuate stagnation through bookish re-articulation of their roles. It is probably in this context that a teacher-educator could have made a difference by creating critical spaces for engagement.

How do teacher-educators use guide-textbooks in everyday interaction? Initially, teacher-educators talk about books other than textbooks during classroom interactions but after a week, those references disappear. Many teacher-educators bring these guidebooks to the classroom and often suggest the names of the book to be bought. As the exam dates approach and assignments are to be completed, immediate references are made only to guidebooks. The author felt that the social science teacher-educator was among those strongly dependent on textbooks. She left out portions that were considered difficult and focused more on examination results. For example, when the teacher-educator found Constitutional provisions in the context of education to be "difficult", she chose to skip the topic in the class and advised the students to choose areas that were "simpler". It is important to acknowledge that many of these teacher-educators themselves continue to "read" books by Walia (2004) for their M.Ed. examination. The teacher education system is creating a vicious cycle for itself.

During the teacher education programme, the list of qualities became a laughing stock. The author and his fellow student-teachers are aware that these qualities are practicable only in ideal situations. They gloss over such lists by saying "our social realities are different". These lists of qualities are only to be reproduced in the examination. At the end of B.Ed. training, a commonly asked essay question is — 'Describe the basic traits of a social science teacher in the emerging Indian society'. Inevitably, student-teachers draw their answers from books by Walia. A variety of headings and sub-sections introduced in the textbooks help them to write their answers and score better marks. Interestingly, when these guidebooks talk about textbooks, they send across a message that textbooks disempowered the teacher.

The authorities who determine the syllabus and examination pattern for B.Ed. programmes have adopted and maintained archaic paradigms for understanding the subjects. The

examination pattern approved by the universities and the National Council for Teacher Education (NCTE) continues to evaluate student-teachers on the basis of false assumptions about the qualities of a teacher. Yet, a textbook author can play an equally critical role by drafting learning material that could help a student to think and not merely act as an agent who recalls information. The possibility and potential of good textbooks that are better than the books mentioned here cannot be denied. However, books like the one authored by Walia represent a group of textbooks that are badly designed and conceptualised.

'Who is a good teacher?' is a perennial question at the heart of the (teacher) education system. Many definitions have been given by different actors in the education system. In the current practice, the criterion to define a good teacher emerges through awards for teacher, policy documents, writings by academicians, tests to evaluate or recruit teachers for a job, tools used by school inspectors (sic), and so on.

In an ideal situation, one would have expected textbooks to contextualise these parameters within the larger context of a student-teacher's experience as a child, along with the predominant notions and narratives in the society, as against the expectations of the state system. In the current phase of neo-liberalism, as Shore (2008) points out and with the entry of corporate managerial perspectives, the discussion often gets diverted to lists of indicators and is in dissonance with the discussion that teacher education should articulate. The broad definitions of a teacher in books are unearthly and bookish, attempting to define a teacher in terms of qualities. The teacher education programme, thus, merely becomes a passport to the perpetuation of a redundant learning.

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Notes of the author, Ram Murti Sharma, running over 1,500 pages in Braille; micro-teaching and lesson plan notebooks, etc.

Continuing Professional Development of College Teachers in Higher Education

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Abstract

Three hundred and thirty-five teachers working in three state-affiliated universities for the past 10 years were randomly selected for the study. Two self-reporting measures — Continuing Professional Development (CPD) and change in learning — were employed for data collection. Factor analysis yielded four dimensions of CPD — internal, external, research and collaborative. Besides, the CPD had two facets — belief and practice. The analysis also highlighted that teachers had less collaborative orientation and more internal orientation. Ideally, teachers had strong beliefs in CPD. But in practice, they did not show it. Professional learning practices did not alter belief values but had brought a change in teaching practices.

In the domain of higher education, Continuing Professional Development (CPD) of college teachers has been much discussed but a less understood phenomenon (Bennell and Akyeampong, 2007; Bolitho and Padwad, 2013; Singh, 2014a). It is a debatable issue whether college teachers in India continuously update their professional knowledge for both inclusive teaching and career development.

Inclusive teaching means empowering teachers, where learning gets precedence over teaching. A conceptual ambiguity between in-service training and CPD prevails in the minds of education planners. As a result, only officially sanctioned in-service training programmes and courses receive recognition and support, while other forms of CPD activities, such as attending seminars,

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acquiring add-on qualifications, publishing papers, etc., are not equally weighed. At the university level, there exists no provision of either pre-service or in-service training programme for teachers. College teachers perform CPD-related voluntary or mandatory activities for their career development. In both the cases, it is apparent that CPD is a planned, continuous and lifelong process, wherein teachers develop their professional knowledge, skills and practices (Padwad and Dixit, 2013).

Institutional support mechanisms for career development programmes help develop professional competence in teachers. This view not only excludes informal and voluntary contribution to teacher learning and teachers' desire to learn but also assumes authorities to be the sole provider of CPD, disregarding any possible role for teachers. Probably, under the impact of this view, teachers often seem not to think beyond career development or take responsibility for their own development after a certain period of time and rely solely on university administration for CPD. The conventional view of the teacher as a transmitter of knowledge to students is gradually redundant. A teacher becomes a facilitator of learning rather than being a transmitter of knowledge. Teachers are now called upon not only to gain new professional knowledge and skills, but also to be inclusive and socially more responsible. CPD assumes even greater importance because it is the only way teachers can equip themselves to cope with this change.

Professional Development Value (PDV) and behavioural practices are important components of CPD. PDV is a preferential importance and belief that a teacher has. Behavioural practices reflect adoption of such values in teacher learning. The lesser the discrepancy between professional values and their practices, the stronger will be the CPD of college teachers. In India, teachers usually show stronger beliefs in professional values but, in practice, they trail. Professionally, elite institutes, such as IITs, IIMs, etc., are capable of creating values and evolving CPD mechanisms for teachers. Even teachers by learning practices, themselves, strengthen their professional values (Singh, 2014). Teaching in university colleges, on the other hand, is not as esteemed as other professions, like medicine, engineering, or law (Umashankar and Dutta, 2007). This has resulted in a mindset of teachers not to go beyond classroom teaching and just carry out cosmetic researches for career development. A few studies (Opfer, Pedder and Lavicza, 2010), conducted in the West, lend support to the notion that belief in add-on professional development values facilitates the process of change in the learning of teachers. A growing body of literature focuses on the desire for professional learning practices and activities that lead to a change in teaching practices (Opfer, Pedder and Levicza, 2010). This is possible

when teachers place the importance of professional development values and show their willingness to add-on professional values. It is debatable whether professional development values lead to learning practices in teachers, followed by teaching practices. Professional Development Values brought to teaching and learning is not easily altered. Teachers reflect their learning practices corresponding to professional values. However, in many cases, they reorganise their Professional Development Values according to learning practices. Teachers perform various learning activities in order to improve their skills. Teacher learning change is more likely to occur when learning activities are completed. However, it is difficult to say that behavioural practices bring about a change in Professional Development Values unless the desire for learning is reinforced. Most elite learning institutes in India evolve some mechanisms to reinforce their teachers for learning. They create learning environments for both teachers and students (Singh 2014).

Objectives

1. To develop a measure of Continuing Professional Development (CPD) for college teachers,
2. To estimate a gap in Professional Development Values and learning practices of CPD at college level,
3. To assess change in learning with respect to Professional Development Values and behavioural practices.

Since there is hardly any study on CPD of college teachers in the university system, no hypothesis was formulated. However, the study presumed that:

1. Continuing Professional Development is a multidimensional phenomenon consisting of teachers' orientation to learning and teaching.
2. Professional Development Values and their behavioural practices do not ideally correspond, and hence, show a gap in professional development.
3. Continuing Professional Development bears a significant relationship with change in teaching practices.

The Research Strategy

Three hundred and thirty-five university teachers (80 professors, 185 associate professors and 70 senior lecturers) working in three State-affiliated universities from the eastern region of India were randomly selected (with replacement) for the study. Their experiences ranged from 10 to 30 years. Of them, 225 were male. The teachers represented 26 colleges and 14 PG departments, including three professional courses at the PG level and seven at the UG level.

Instruments Used

Continuing Professional Development Scale: The CPD, comprising 13 items, was a multidimensional scale. It was a four-point scale measuring teachers' professional learning practices and their importance. The multiplication of two separate sets of scores was

used for factor analysis. The factor analysis by principal axis method was followed by oblique rotation, which yielded four interpretable factors accounting to 77 per cent of the total variances. The Eigen value was 1.78–3.37. The internal coefficient (Cronbach alpha) radiated between 0.57 and 0.71. The emerged factors were — internal orientation, external orientation, research orientation and collaborative orientation.

Professional Development Values and Learning Practices of CPD: While measuring the CPD of teachers, two types of responses were gathered. The first response on each item of CPD focused on teachers' professional learning practices. The second response on the same item laid emphasised on their own values and beliefs, indicating how important a particular learning practice was for them. Two sets of scores

Table1
Factor Analysis of Continuing Professional Development

Factor I: Internal Orientation

S. No.	Items	Loading
1.	I modify my teaching practices in the light of classroom evidences (3.42)	.78
2.	I experiment with my innovative teaching practices (3.38)	.74
3.	I consult pupils about how they learn most effectively (3.33)	.66
4.	I reflect on my practice as a way of identifying professional learning needs (3.37)	.61

Variance = (26.10), Eigen Value = (3.37), Cronbach Alpha = (.71)

Factor II: External Orientation

S. No.	Items	Loading
1.	I use the web as one of the sources of useful ideas for improving my teaching practice (3.07)	.69
2.	I draw on good teaching practices from other institutions as a means to further my own professional development (3.04)	.64
3.	I modify my teaching in the light of feedback received about classroom practice from other colleagues (3.34)	.60
4.	I reflect on my practice as a way of identifying professional learning needs (3.37)	.61

Variance = (20.54), Eigen Value = (2.97), Cronbach Alpha = (.66)

Factor III: Research Orientation

S. No.	Items	Loading
1.	I read research reports as one of the sources of useful ideas for improving my practice (2.57)	.68
2.	I relate what works in my own practice to research findings (2.50).	.65
3.	I modify my teaching practice in the light of published research evidence (2.56)	.62
4.	I reflect on my practice as a way of identifying professional learning needs (3.37)	.61

Variance = (16.12), Eigen Value = (2.25), Cronbach Alpha = (.62)

Factor IV: Collaborative Orientation

S. No.	Items	Loading
1.	I carry out joint research or evaluation with one or more colleagues as a way of improving my practice (2.72)	.64
2.	I engage in reflective discussion of working practices with one or more colleagues (3.31)	.61
3.	I engage in collaborative teaching and planning as a way of improving practice (3.18)	.59

Variance = (14.20), Eigen Value = (1.78), Cronbach Alpha = (.57)
Note: Value in parenthesis against each item denotes mean.

were separately analysed to assess the magnitude of teachers' professional learning practices and beliefs in a particular learning situation.

Teacher Learning Measure: A set of 13 questions was framed to assess the impact of beliefs and practices on change in learning. Each question was a situation, in which teachers had engaged themselves in learning activities. While reporting these changes, they were asked to consider those professional activities in which they had participated during the last 12 months. It was a four-point scale. A period of 12 months was used to record changes in practice as teachers had a good recall ability for that given period.

Procedure: A number of activities were expected to be performed by a teacher for CPD. The present study covered a few significant activities that were relevant to teaching and research. For teaching-learning measures, some common situations were generated with a presumption that they would react to a situation as they had done in the past.

Results

PDV and Learning Practices of CPD: Continuing professional development had four dimensions — internal, external, research and collaboration. An attempt was made to ascertain whether teachers differed on Professional Development Values and learning practices on each dimension of CPD. On each dimension of CPD, professional values outstripped learning practices (ps< .01). On internal orientation to learning, teachers had more professional values (mean 3.41) than learning practices (mean 2.35), showing a gap between professional values and learning practices (t-ratio 10.6, p<.01). The difference for internal orientation to learning was also significant, showing a gap between professional values (mean 3.41) and practices (mean 2.35). Similar trend was noted in case of external orientation (t-ratio 11.44, p<.01). Teachers also had high level of professional values (m=3.15) on external source of knowledge but were found practising it less. On research orientation, they had a moderate difference between professional values and learning practice (t-ratio 5.63, p<.01). The difference for research orientation between values and practices was significant, confirming that teachers had the least orientation to research (mean 2.51), and hence, were found practising it less (mean 2.02). On collaborative orientation to learning, teachers had a high level of professional values but were found practising it less (t-ratio 12.63, p<.01). What they practised in their profession did not correspond to their professional values. The difference between beliefs and practices for collaborative orientation to learning was huge (p<.01). College teachers were reluctant to use support mechanisms of professional development but had placed importance to it.

Table 2
Difference between Beliefs and Practices

Orientation	Beliefs		Practices		t-ratio
	M	*SD*	*M*	*SD*	
Internal	3.41	1.25	2.35	1.41	10.6**
External	3.15	1.17	2.12	1.22	11.44**
Research	2.51	0.91	2.02	1.07	5.63**
Collaborative	3.07	1.16	2.06	0.87	12.63**

*Note: ** significant at .01 level.*

Table 3 reflects multiple comparison among the dimensions of CPD separately on professional values and practices with a presumption that whether teachers differed on professional values and practice elements. The differences between practice elements and professional

value elements of CPD were, by and large, significant (p<.01). On each comparison between dimensions of CPD, teachers had high professional values than practices. The differences between internal and external professional values (t-ratio 2.6, p<.01) and between internal and external practices (t-ratio 2.3, p<.05) were significant, showing a consistent pattern. A similar trend was observed between internal and collaborative and between internal and research dimensions of CPD. The difference between external and collaborative was not found to be significant both on professional values and practices (p>.05). Contrary to it, they showed high orientation to professional values on external and research dimensions of CPD (t-ratio 8.0, p<.01) but had low practices (p>.05) on the same. A similar pattern was observed in case of collaborative and research orientations to professional development.

An overall trend confirmed that teachers not only differed on professional values and learning practices but brought variation in preferential arrangement of CPD dimensions too. Some dimensions of CPD held more importance to them, while the rest had the least significance. Collaborative orientation followed by research orientation had the least

Table 3
Difference between Dimensions of CPD on Beliefs and Practices

Orientation	Difference between values and beliefs				t-ratio	Difference between practice				t-ratio
	M	***SD***	***M***	***SD***		***M***	***SD***	***M***	***SD***	
Internal and external	3.41	1.25	3.15	1.17	2.6**	2.35	1.41	2.12	1.22	2.3*
Internal and collaborative	3.41	1.25	3.07	1.16	4.25**	2.35	1.41	2.06	0.87	2.9**
Internal and research	3.41	1.25	2.51	0.91	11.25**	2.35	1.41	2.02	1.07	3.3**
External and collaborative	3.15	1.17	3.07	1.16	1.00	2.12	1.22	2.06	0.87	0.67
External and research	3.15	1.17	2.51	0.91	8.00**	2.12	1.22	2.02	1.07	1.11
Collaborative and research	3.07	1.16	2.51	0.91	7.00**	2.06	0.87	2.02	1.07	0.5

*Note. *< .05; **< .01.*

Table 4
Change in Teaching Learning

Change	Mean	SD
PDV (overall)	2.16	1.89
i. About teaching	2.41	1.11
ii. About pupil learning	1.91	1.91
Practice (overall)	2,85	1.22
i. Improved knowledge skills	2.92	.87
ii. Used new study materials	2.71	.86

importance to them, and hence, were not reflective in their practices.

Change in Teaching-learning: While reporting on change, resulting from professional development practices, the teachers admitted that their professional learning activities brought more variation in teaching practices (m=2.85). However, professional development values (2.16) brought the least change in teaching-learning (Table 4). Institutional learning practices were more important to teachers who had brought change in teaching-learning. Hence, beliefs and values embedded in teaching were not sufficient to bring about a change in teaching practices, unless learning activities by teachers are ensured in the institutions.

Discussion and Conclusion

The study witnessed Continuing Professional Development as a multidimensional phenomenon. But not all dimensions had equal valence in terms of preferential importance and its practices for change in teaching-learning. On each dimension of Continuing Professional Development, teachers had high Professional Development Values than practices for teaching-learning. They showed high internal orientation, followed by external and research orientation for Continuing Professional Development. The study noticed a significant gap between Professional Development Values and practices on all dimensions of Continuing Professional Development. Ideally, they acknowledged the importance of Continuing Professional Development but did not practise it to the extent it was being expected. Teachers do learn, and then, engage themselves in professional competence. It is determined by the Indian mindset (Sinha, 2012). They organise their thoughts, feelings and actions in order to meet specific contextual demands. The Indian mindset is a paradoxical mixture of modern and traditional values, where tradition and technology go hand in hand. (Sinha, 2012, p.17). Not only people here hold inconsistent and contradictory beliefs, values, norms and practices, they also possess them without any discomfort

or dissonance. Multiple comparisons among dimensions of CPD separately on Professional Development Values and practices confirmed that teachers differed on professional values and practices for professional competence. Results showed that on each comparison of CPD, teachers showed a high desire for change in teaching-learning but low intensity of practices. Thus, another presumption got substantiated that belief in Professional Development Values and their practices do not ideally correspond. Teaching and research are seen as separate activities. While teaching is perceived as an institutional work, research is viewed as a personal agenda for moving forward in one's career. Colleges work like higher secondary schools. Teaching means periods taken by the teachers (Krishna Kumar, 2012).

Classroom teaching can be classified into two categories—subject-specific (content knowledge) and pedagogy-specific (teaching process). Internal orientation to learning is subject-specific knowledge, which is relevant to classroom teaching. On the other side, pedagogy-based knowledge requires improvement in the teaching process. Teachers give priority to subject-specific knowledge instead of pedagogy-based learning. In the West, curriculum and pedagogy both follow the teacher's own research interests. "Teaching and research are the two sides of the same coin and the modern society cannot exist without a research society. Most of the research institutions had been overwhelmingly public institutions and they facilitate an environment for both competitive and collaborative research and studies" (*The Hindu*, 17 September 2012).

The lack of collaborative orientation restricts the university to become a learning institution (Singh, 2014). The study presumed that professional values embedded in teaching practices can be altered. Values, too, are learnt and cultivated by professionals by deliberate application of mind (*The Hindu*, 15 September 2012). Practising teaching and learning brings about a change in professional values. If a learning situation is created and learning is ensured for teachers, there may be a possibility of add-on professional values. Hence, continuing professional development is more than an exercise of capacity building. When teachers participated in various professional learning activities and spent more hours in the institutions, it had a greater impact on their performance (Singh, 2014a).

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Culturally Responsive Mathematics Teaching

Implications for Teacher Preparation and Professional Development

Charu Gupta*

Abstract

School mathematics is often conceptualised as being neutral, decontextualised and culture-free. In consonance with reforms in mathematics education, the National Curriculum Framework (NCF)–2005 envisages a new vision of school mathematics that connects mathematical knowledge and social worlds of children. This epistemological shift places new and challenging demands on teachers and teacher-educators. Challenging the 'deficit theory', the paper acknowledges home, community and culture-based practices as reservoirs of knowledge, which need to be strategically tapped in classrooms. The paper, in this light, discusses the possible ways in which a teacher and teacher-educators can collaborate to address one's sociocultural beliefs and assumptions about knowledge and learners in mathematics classrooms, and develop cultural awareness and responsiveness. Most importantly, the paper argues for a deeper engagement with equity and justice issues in mathematics teacher education.

The traditional 'absolutist' conception of mathematics views it as a body of infallible and objective truths, far removed from the affairs and values of humanity (Ernest, 1991), treating mathematical activity as

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highly abstract, formalised and decontextualised. Such a view assumes a separation between "cognitive processes and the settings and activities of which they are a part" and treats knowledge as "a factual commodity or compendium of facts" (Lave, 1988). At the school level, this conception of mathematics gets manifested in the form of cultural discontinuity between 'academic' and 'everyday' mathematics, resulting in the exclusion of some particular groups. The teacher is the epistemic authority and the emphasis is on students' knowledge of facts and formulas, reducing mathematics to nothing but algorithmic thinking (Ernest, 2009). There is tyranny of one 'right' answer to every question, one meaning for every word and that meaning stays the same for all people and for all times (Fasheh, 1982).

This view of mathematics has, however, undergone a 'Kuhnian Revolution', challenging the infallibility of mathematics and acknowledging its sociocultural character. Redefining mathematics as a fallible social construction and the continually expanding field of human creation and invention provides rationale as well as foundation for 'inclusive' approaches to the subject, wherein "the social contexts of the uses and practices of mathematics can no longer be legitimately pushed aside". Mathematics, then, needs to be "studied in living contexts which are meaningful and relevant to its learners, including their languages, cultures and everyday lives, as well as their school-based experiences" (Ernest, 1991).

In India, a large number of failures happen in mathematics due to its role in alienating children and contributing towards their non-participation (NCERT, 2008), and thus, pushing students out of the system. This poses a greater challenge to our aim of providing equitable and quality education to all, and calls for a fundamental shift in our conception of mathematics and mathematics education.

The Epistemological Shift

Studies in everyday cognition have apparently made visible a new metaphor for learning, which Sfard (1998) calls 'participation metaphor', contrary to the conventional 'acquisition metaphor'. Learning, from this perspective, is reconceptualised as a process that takes place in a participation framework, not in an individual mind. It is not a one-person act, but is rather distributed among co-participants and is mediated by the differences of perspectives among the co-participants. Thus, learning is viewed as an integral and an inseparable aspect of social practice and children as legitimate peripheral participants in adult social worlds (Lave and Wenger, 1991). Closely linking his work to the ideas of Vygotsky and Lave (1988) allows us to shift from a 'claustrophobic view' of cognition to a 'social anthropological' view, wherein cognition is viewed as a complex social phenomenon. 'Cognition' observed in everyday practice is distributed— stretched

over, not divided among mind, body, activity and culturally organised settings. His ideas, thus, mark a shift from 'dissociated' cognition (separation of cognition from the social world) to 'situated' cognition (cognition in practice); from an isolated learner to a learner involved in a 'community of practice'. The perspective implies emphasis on "comprehensive understanding, involving the whole person rather than 'receiving' a body of factual knowledge about the world; on activity in and with the world; and on the view that agent, activity and the world mutually constitute each other" (Lave and Wenger, 1991).

Several decades ago, educational philosophers, like Dewey and Gandhi, proposed a new vision of education centred around productive work and community-based practices. Dewey (1929) noted that "the true centre of correlation on school subjects is neither science, nor literature, nor history, nor geography, but the child's own social activities".

As a consequence of the current reforms in mathematics education, the NCF–2005 advocates a shift from achieving 'narrow' to 'higher' goals of 'mathematising'; a shift in focus from mathematical content to mathematical learning environments; offering multiplicity of approaches, procedures and solutions (NCERT, 2006). The shift from the conventional noun 'mathematics' to the verb 'mathematising' poses a challenge to the conventional epistemology of mathematics. This shift, according to Millroy (1992), signifies a move from mathematics as an abstract "accomplished fact" to experience and process of mathematics.

Taking into cognizance the new epistemology of mathematics, the NCF–2005 acknowledges the "cultural grounding of mathematics" when it notes that "mathematical competence is situated and shaped by social situations and the activities in which the learning occurs. Hence, school mathematics has to be in close relation with the social worlds of children where they are engaged in mathematical activities as part of daily life" (NCERT, 2006, p.11). Such a conception of mathematics necessitates a fundamental reconstruction of school mathematics at all levels — curricular choices, pedagogy, assessment and teacher education. To respond to the shift envisaged and to address the diverse ways of knowing, learning and communicating in and out of school contexts in India, significant efforts have been made at the curricular level and designing new textbooks. Emphasising on an integrated approach to learning mathematics, chapters have been developed thematically and are based on real-life contexts, offering connections not just within mathematics but across subject areas. However, as Gay (2009) puts it, "the best curricula and instructional materials are only as good as the teachers who implement them", calling for a radical departure from the existing approach to teacher education and professional

development so as to translate the NCF's vision into reality.

Towards a Culturally Responsive Pedagogy

Dominant ways of teaching mathematics involve presenting the standard algorithm to students, followed by drills and practices. Such practices are antithetical to learning with understanding and the goal of mathematisation as envisaged by the NCF–2005. There is a mismatch between teaching practices and goals for mathematics education and between teaching strategies and students' ways of thinking, learning and problem-solving. For teachers and teacher-educators, the changes envisaged place new and challenging demands and responsibilities.

Since visible teaching practices that occur in a classroom are partly a result of hidden interpretive lenses a teacher holds (Aydin, et al., 2010), one of the major challenges is to bring about changes in their beliefs as a crucial precursor to real change in teaching. It has been found that a teacher's beliefs about the nature of mathematics and its teaching-learning influence the teacher's planning, decision-making, pedagogical and assessment practices. Many assumptions of teachers come from attitudes and beliefs prevailing in wider social contexts. Leonard (as cited in Gay, 2009) calls for a thorough understanding of subject-associated perceptions and socialisations of mathematics; how they are manifested and affect students from diverse groups so that teachers can develop strategies to counteract them. Teachers need to challenge erroneous assumptions that link success in mathematics to some innate ability that only a talented few possess, and thus, deconstruct what mathematical 'ability' and 'achievement' constitute.

Teachers, usually, expect less from students belonging to the marginalised sections of the society. The blame for failure is often attributed to their inability and, at times, to their backgrounds. Such failures are seldom linked to the way mathematics is taught in schools, the curriculum and the nature of mathematics itself, in short, the way school mathematics is structured. Differences and diversity that these students bring to the fore are thought of as a classroom problem rather than as potentially important learning resources. Knowledge that these students bring to the classroom go unacknowledged and unrecognised. Therefore, the children feel denigrated by a system that appears to assume that they know nothing about the realm of mathematics (Nelson-Barber and Estrin, 1995). At the same time, mathematics education remains devoid of not just rich content and processes that these students bring but also certain well-developed ways of knowing, learning and problem- solving rooted in children's everyday experiences (ibid. pp.174), thus, accentuating tension between knowledge and experience acquired

in and out of school (Carraher and Schliemann, 2002).

According to Gay (2009), "Culturally responsive teaching is always influenced by who, when and why it was created or configured, and for whom and for what purposes." Going beyond content knowledge and pedagogic content knowledge, teachers need to have knowledge about students' cultural and linguistic backgrounds to help build bridges between school and community as well as between academic abstractions and live sociocultural realities (Mukhopadhyay, Powell and Frankenstein, 2009). They should also help develop positive social and cultural identities, what Ladson-Billings (1995) called 'cultural competence', in which students are able to "maintain their cultural integrity while succeeding academically" (Gutstein, 2006). This can be done by exploring mathematics latent in diverse cultural practices, such as geometric ideas in art, architecture, folk crafts, oral algorithms used in streets, mathematical ideas in folk riddles, games and puzzles, examining historical evolution of concepts, highlighting contributions made by different cultures and 'other' people in mathematics. The *Sourcebook for Assessment of Children's Learning in Mathematics* states that "these are the cognitive resources that children already have access to, and which can be drawn upon by the pedagogic processes at school" (NCERT, 2008). Also, as Masingila (1994) puts it, posing the problems that are meaningful to the problem-solver motivate and sustain problem-solving activities.

Liberating mathematics from the tyranny of procedures and memorisation of formulas, and emphasising on learning with understanding and teaching with meaning calls for a re-examination of classroom practices and nature of assessment. While using numbers, symbols and words with children, teachers seldom pose questions to explore the meanings and images created in the young minds (Fasheh, 1982) — a concept often described by invoking the standard algorithm for its calculation (Millroy, 1992). Millroy notes, "It is easy to confuse the two issues of the meaning of the concept and of knowing how to calculate it, so volume is length times width times height seems an adequate explanation for the concept." Thus, a significant question it raises for mathematics educators to be analysed is — "what does it mean to understand a concept?" (Millroy, 1992). Since culture influences our ways of thinking, knowing, proving the logic we are using, classificatory schemes as well as the concept we are forming, teachers need to encourage subjective ways of looking at mathematical expressions and concepts, while exploring local and cultural meanings associated with them (Fasheh, 1982). Contextualisation is, thus, necessary to capture the meaning of students' classroom learning, participation and

performances on classroom tasks, as Nelson-Barber and Estrin (1995) note that when ways of knowing particular groups remain unacknowledged in assessment practices, they cannot pretend to have valid outcomes.

The social organisation of a classroom may include or exclude students from particular groups. Many students in mathematics classrooms belong to marginalised or oppressed sections of the society. Girls, Dalits, tribals and students with disabilities are often considered intellectually inferior when it comes to learning and solving mathematical problems. In mathematics classrooms, these students often employ various coping and passive-resistance mechanisms, such as non-participation, withdrawal, silence, evasiveness and ingratiation. Atwater and Riley (1993) explained that students from marginalised and traditionally under-represented community are estranged from mathematics due to alienation from its texts and content. To be successful in school mathematics, it requires them to continuously challenge messages of inferiority transmitted to them about their abilities, backgrounds and prejudiced accounts, which misrepresent contributions their communities made to the discipline. Drawing from the mathematical ideas embedded in their culture, home and community-based practices position them as active participants, thinkers and problem-solvers, rather than as passive recipients of mathematical knowledge. Teachers need to raise and critically reflect on questions, such as, "who is in the different levels of mathematics courses?" and "who is having a voice in mathematics classrooms and why is that happening?" (Atwater, 1996). Teachers need to transform classroom learning environments in order to "create modes of social interactions in which students not only bring their individual thinking to the fore, but in some instances also engage in processes of inquiry and validation of ideas through mathematical practices of explanation, clarification, challenge, and justification of their ideas" (Wood and Turner-Vorbeck, 2001).

Decades ago, the Kothari Commission (1964–66) recommended breaking the isolation of teacher education institutions from realities and problems constituting school and community life, and isolation from universities and researches undertaken. These institutions continue to exist as insular organisations and need to be revitalised. This calls for a convergence of institutional linkages (Batra, 2005) and comprehensive research base that can contribute to restructuring teacher education in accordance with the current reforms in mathematics education.

There are inconsistencies between the 'New Vision' of teacher education as envisaged in the National Council for Teacher Education (NCTE)–2009, acknowledging the socio-constructivist principles and the actual practices of teacher-educators, which still follow

teacher-dominated approaches. Since teachers are expected to use culturally-responsive strategies and pedagogical practices that recognise mathematics culture interface can be nurtured by engaging with teachers' sociocultural contexts, both in learning and teaching mathematics. In other words, teacher education programmes must offer exemplary models to teachers to teach maths to their students in culturally-responsive ways as they themselves are being taught (Gay, 2009). Thus, mathematics teacher-educators should attend to the culture of their students in order to enhance their abilities. Teacher-educators can provide opportunities to pre-service teachers to share examples of mathematical ideas and practices in their own cultural environments. Such activities may help develop openness for mathematical practices in other cultures as well (Gerdes, 1998), thereby helping develop cross-cultural competencies. In order to strategically tap students and their communities' 'funds of knowledge' (Gonzalez, Moll and Amanti, 2005) in mathematics instruction, teachers can plan small researches — observing and participating in diverse community practices, and conversing informally with children about everyday life and work contexts, in which they gain and use mathematical knowledge. Beginning from initial teacher preparation, teachers need to be given opportunities to integrate children's multiple mathematical knowledge bases in their planning and instruction (Turner, et al., 2012).

'Becoming' a Critical Mathematics Educator

According to Gutstein (2006), it is important to distinguish between using mathematics in real world settings, as in shopping, travelling, working, and building from those that explicitly ask students to investigate injustice. Thus, students learn to see mathematics not only as a meaning making tool but also to use it as an analytical tool in order to understand inequality and restructure the society for justice and equity.

The current 'mathematics for all' reform requires us to go much beyond than just enacting pedagogy of access — providing adequate resources to all students in mathematics classes. Such focus on access in a system that continues to reproduce inequities in the society seems limiting and problematic. The very notion of equity in mathematics education needs to be problematised and reconceptualised to include identity and power aspects (Gutierrez, 2012). This necessitates a move towards 'pedagogy of transformation' that helps unveil injustices in the society and empowers students to transform their worlds (Aguirre, 2009). Learning to teach for social justice requires both pedagogy of access and pedagogy of transformation.

Drawing from Darling-Hammond's model of equity pedagogy, Bartell

(2011) cites four key factors that guide teachers in learning to teach for social justice — self, society, students and schools. Here, 'self' includes "reflecting on how one's beliefs about teaching and learning are influenced by cultural, historical and economic contexts, in which they grew up", viewed as gaining "sociocultural consciousness" (Villegas and Lucas, 2002); 'society' refers to "understanding how economic, political and social power structures interact with teachers' understanding of teaching and learning"; 'students' include "understanding one's students in non-stereotypical ways while acknowledging and comprehending the ways in which culture and context influence their lives and learning" and taking into consideration an evolving understanding of the above three factors, 'school' includes "developing and enacting classroom practices that support students". There is a need to address each of these factors so as to challenge the inequitable structures that hinder the participation of students from particular groups, in order to engage each child with a sense of success.

Applying Freire's critical education theory to mathematics education, Gutstein (2006) advocates two dialectically-related pedagogical goals of "reading and writing the world with mathematics".

Reading the world with mathematics means "to use mathematics to understand relations of power, resource inequities, disparate opportunities between different social groups, and to understand explicit discrimination based on race, class, gender, language and other differences".

Writing the world with mathematics means "using mathematics to change the world". To actualise these pedagogical goals requires teachers to enact what Freire calls 'problem-posing pedagogies', distinct from problem-solving ones, constituting an education that "involves a constant unveiling of reality... that strives for the emergence of consciousness and critical intervention in reality" (Freire, as quoted in Gutstein, 2006). In Giroux's (1988) words, this could be conceptualised as "making the pedagogical more political, and the political more pedagogical".

Providing opportunities with real-world projects based on 'generative themes' can serve as the starting point for problem-posing pedagogies and examining the idea of 'fairness' in real lives. These themes can be searched for with the students within the ideas, experiences and contradictions which give meaning to the sociocultural realities in which they are situated. This can also be done by using statistical examples that require students to probe the society's structures and underlying ideologies (Gutstein, 2006), such as investigating unfair wage patterns, allocation of GDP to various sectors in neo-liberal regimes and State's abdication of its responsibility in health and education sectors in order to understand power relations and

unequal resource allocation in the society (Gutstein, 2003). Further, the mathematical ideas of simple and compound interest can be studied and taught through a critical analysis of different loan schemes.

Such an approach to teaching mathematics, according to Skovsmose and Greer (2012), "transcends the aim working for equity within mathematics education to enacting vision of equity through mathematics education by teaching content and raising political consciousness together".

Critical mathematics educators always find themselves in a "continuous state of becoming" (Stinson, Bidwell and Powell, 2012). Although learning to teach for social justice is a complex and lifelong process and not a matter of one graduate course. Teacher preparation programmes must take steps for prospective teachers' initial engagement in this process (Bartell, 2011).

Attempts at revitalising school education in India will have little success, if the 'agency of teacher' remains unrecognised (NCFTE, 2009). Teaching has to be revitalised into a transformative profession and teachers need to be viewed as "transformative intellectuals" to address the larger issues of social justice and equity in education, in general, and mathematics education, in particular.

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Representation of Nature of Science in Pre-service Teacher Education Programme

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Abstract

Science education holds a prominent place in our education system. The fact that the Constitution stresses on developing scientific temper as one of the fundamental duties of Indian citizens speaks of the high value attached to science education in our country. While earlier curricular reforms and policies have emphasised on the 'product' or 'process' approach in science, the recent reforms have paid attention to the epistemological aspects of science. This paper examines the pre-service teacher education curricula (B.Ed.) of three universities for their focus on the Nature of Science.

Introduction

Questions of epistemology or Nature of Science (NoS) have been considered integral to science education worldwide. The 'Nature of Science' has been emphasised by several curricular reforms worldwide in view of broader goal of scientific literacy for all. In two major reports — *Science for All Americans* [American Association for the Advancement of Science (AAAS), 1990] and *Benchmarks for Science Literacy* (AAAS, 1993), Project 2061 emphasises on the importance of understanding the Nature of Science at different stages of school education. According to AAAS (1993), the study of science as an intellectual and social endeavour, and the application of human intelligence

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to figure out how the world works should have a prominent place in any curriculum that has science literacy as one of its aims. In India, concerns about the Nature of Science are being raised at least at the level of curriculum reforms in schools. In the position Paper (1.1) on the teaching of science, the NCERT (2005) advocated scientific literacy; distinction between science and technology; relationship of science, technology and society; process of science; and understanding the historical and developmental perspective of science at all levels of school education. The framework also presents a brief description of the 'Nature of Science' and 'science and technology'. It emphasises on understanding the development of scientific knowledge, scientific method and the relationship of science with technology and society. However, there appears to be ambiguity about the implementation of these goals at various stages.

Objective

The objective is to examine the curriculum of pre-service teacher education programme (B.Ed.) of three universities located in Delhi for representation of various aspects of the Nature of Science.

Theoretical Background

The concept of the Nature of Science has changed over the years. The earlier attempts to define 'Nature of Science' equated it with science process skill, attitudes and interests. The epistemological meaning of the Nature of Science gained prominence in the 1970s and many researchers construed NoS as having multiple facets or aspects. The various aspects of NoS have emerged as an attempt to answer the most fundamental question — 'what is science?'. The answer to this, however, is not simple and often attracts various viewpoints. It is argued that the common view of science is — 'science is derived from facts' (Chalmers, 1999). These facts can be directly established by careful, unbiased use of senses. Science is based on what we can see, hear and touch, rather than on speculations. This means that scientific knowledge relies heavily on observations that result in so-called 'facts' in science. These observations are made with the use of senses, such as see, hear, touch, etc., with the sense of 'seeing' being the most commonly used. For an empiricist or positivist, two observers seeing the same object would form exactly the same image on their retina. This is, however, not true. For example, a student trying to observe the cell structure through a microscope for the first time without seeing its picture is rarely able to see the different components of a cell. Thus, observation does not depend solely on the images formed on our retina but also on existing knowledge, experience and expectations of the observer. So, even if there is a single, unique reality that exists, our access to it is limited through our senses. Secondly, the 'facts' in themselves

have little meaning. These have to be expressed as statements that are later interpreted to generate knowledge. Another concern associated with knowledge based on observations is that observations are fallible in the light of new advancements in science and technology. Prior to the Copernican Revolution, the statement that 'earth is stationary' was a fact confirmed by observation. However, the assertions made under the Copernican Theory coupled with Galileo's telescopic observations led to the rejection of the earlier theories based on sensory observations.

Another important aspect of science is 'experimentation'. Scientists often need to isolate the phenomenon under investigation and control the effect of intervening variables. The challenge is that despite their best efforts, one can never be sure of having controlled all intervening variables. Also, with advancements in technology and availability of more sophisticated instrumentation, the results may vary significantly.

Another popular way through which scientific theories could be developed is based on 'logic'. Logic could be deductive or inductive in nature. Deductive reasoning employs logic of the sort. If the premises are true and the argument is valid, then the conclusion is also true. It can be explained with the following example:
Premise 1: All birds lay eggs.
Premise 2: House sparrow is a bird.
Conclusion: House sparrow lays eggs.

Based on Premise 1 and 2, the conclusion is a valid deduction. However, whether Premise 1 and 2 are true is questionable and that cannot be ascertained by logic.

In case of induction, the basic premises are used to arrive at generalisations. For example, based on our observations with certain metals, we can say that Metal 1 expands on heating, Metal 2 expands on heating, Metal 'n' expands on heating, and so on. But no matter, however, large 'n' is, we cannot logically conclude that all metals expand on heating. The problem here is not only ascertaining the truth of the premises but that the conclusion itself lacks logic. General scientific laws often go beyond the finite number of observations supporting them; hence, they can never be proven in the sense of being logically derived from evidence. The problem of induction was provided as an alternative by Karl Popper, who introduced falsification. He rejects the view that induction is the characteristic method of scientific investigation and substitutes it by 'falsifiability'. He proposed that science is a set of hypothesis that is 'tentatively' proposed in order to describe some aspects of the world. However, not all hypothesis will work. The condition that any hypothesis must satisfy if it is to be granted the status of a scientific law or theory is that it must be falsifiable. A hypothesis is falsifiable, if there is a logical possibility of falsifying or

refuting the hypothesis with some observation statements. A scientific statement is 'falsifiable' but not yet 'falsified'. If it is falsified, it should be rejected. Popper stresses that even if a theory has withstood rigorous testing for a long time, it cannot be said to be verified; rather it should be recognised as a theory that has received a high measure of corroboration, and hence, should be retained as the best available theory of the time. Falsification also had several problems and there were alternative views given by several philosophers, like Kuhn and Lakatos, on how scientific knowledge takes place. No view was alone sufficient to explain NoS, however, together they provide a basis for understanding 'science'.

Some of the commonly acceptable tenets of the Nature of Science could be stated as below:

- Science is tentative,
- Science is heavily based on empirical evidence,
- Science involves imagination and creativity,
- Science has no universal scientific method,
- Science is influenced by culture and society,
- Observation and inference are distinct,
- Laws and theories are different forms of knowledge and there is no hierarchical relationship between the two.

These aspects of the Nature of Science can be considered of practical importance for various science curricula worldwide. The job of science teachers and educators is to appreciate the plurality of views and reflect it in their teaching.

Sample

The sample was purposive in nature to help identify the sites of data collection. Hence, the sample consisted of institutions offering pre-service teacher education programme called Bachelor of Education (B.Ed.) in the three universities located in Delhi. The pre-service teachers and teacher- educators studying or teaching in these institutions formed the sample. They were chosen on the basis of their availability and interest to participate in the study. A total of 70 pre-service teachers and 30 teacher-educators participated in the study.

Data Collection

The following tools were used for data collection:

i. Content Analysis of the Curriculum

A list of indicators related to the NoS was prepared. These were expected to be mentioned in the syllabi of different courses. The list was prepared by the researcher after carrying out the literature review of the research related to the NoS. The policy documents, research papers and instruments used for assessing NoS frequently mention certain terms, phrases or dimensions. The key terms or phrases were

identified and after an expert validation, a few were retained and used for qualitative content analysis of the syllabus.

The terms and dimensions that were used for reference in content analysis were — Nature of Science; history of science; works of some philosophers, such as Kuhn, Lakatos, Popper and others; change in laws and theories; observation and inference; process of science; influence of culture and society; tentativeness; and life sketch of some scientists. The terms and phrases were used only for reference and the researcher was flexible to accommodate any other term or phrase that might be associated with the Nature of Science. The objectives, practical work and references mentioned in different syllabi were also examined for any explicit focus on NoS. The data included identifying NoS-related terms from the syllabi of pedagogy of science courses in the B.Ed. programme.

ii. Interviews with Pre-service Teachers and Teacher-educators

These interviews were conducted after qualitative content analysis of the syllabus and were meant to understand the implicit focus on NoS through curriculum transaction. The explicit focus was examined through qualitative content analysis of the syllabi of pedagogy of science courses of the selected universities. A semi-structured interview schedule was prepared by the researcher for pre-service student-teachers as well as teacher-educators to understand the implicit focus on NoS in the curriculum. It had questions on the following themes:

- objectives of the course,
- approaches or strategies used for curriculum transaction,
- laboratory work, project work or field visits, and
- problems and challenges.

The researcher framed open-ended questions on each theme for students as well as teachers to understand the implicit focus of curriculum on the Nature of Science. Implicit focus implies what aspects of NoS are indirectly taken care of through curriculum transaction.

Insights from Data Collection

Curriculum means both theoretical and practical aspects of the syllabus and the pedagogical strategies used by a teacher in a class for transacting the syllabus. The pedagogy papers are important in the B.Ed. curriculum as they enable the prospective teachers to do justice to the subject they would teach in schools. For this purpose, the syllabi of pedagogy of science courses of the selected universities were examined to see the representation of NoS-related aspects. Interviews were conducted with students and teachers of these courses to understand the pedagogical practices with respect to the NoS.

University 'A'— State University

The B.Ed. course of University 'A' has four papers based on pedagogy of science. These are— teaching of integrated sciences, teaching of physics, teaching of chemistry and teaching of life sciences. All these papers (any one) are being offered to graduates in respective science disciplines. The paper on 'teaching of integrated science' is offered to a science graduate, irrespective of his/her subject combination in graduation. Also, the courses are offered as per the number of students and availability of teacher-educators to teach a particular pedagogy paper.

Analysis of University 'A'

Syllabus

The syllabus of different courses suggested that Nature of Science is mentioned in the overview of only one pedagogy paper, pedagogy of chemistry. They stated that "Nature of Science is not only the content but also a process". Also, they emphasised on the acquisition of certain skills, like observation, inference and experimentation in order to understand the process. While some important aspects of NoS, like observation, experimentation, inference, etc., were stated in the overview, they were only being seen as skills. The factors affecting our observation, difference between observation and inference, limitations of observations, place of experimentation in science, validity of experimental results, etc., are certain important aspects of NoS, which seem to be neglected if we take this view of developing observation, classification, inference, experimentation, etc., as skills to be developed. It appears as if the teacher would mechanically focus on certain steps that need to be followed for developing these skills. This is, in fact, the reality of many science classrooms, where the students are told what to observe, how to observe and also repeat if they don't get the expected results. Most observations are planned by the teachers in laboratory settings or occasionally, through field trips ruling out the possibility of observation in natural settings. Also, if the students share any such observation, they are often ignored, considered as not worthy of discussion and outside the scope of curriculum.

Pedagogy papers — 'teaching of integrated sciences' and 'teaching of life sciences' mentioned understanding the nature of integrated science/life science as an objective in their respective syllabi. The paper on 'teaching of physics' had neither an overview, nor objectives as a part of the syllabus. The syllabi of all pedagogy papers had certain commonly taught topics but indicated an overall lack of coherence in all science papers. The mention of NoS in two papers, 'teaching of life sciences' and 'teaching of integrated sciences' was also cursory and seemed that it was put in the syllabus as a 'buzzword' as currently a lot of discussion and debate, emphasising

on the importance of NoS, are going on. There was no elaboration in any of the papers about what should form the content of NoS.

The syllabus of each pedagogy paper was divided into 4–5 units and invariably Unit 1 mentions Nature of Science. In fact, the first unit was named 'Nature and Scope' of the respective discipline. This suggested that the curriculum developers may have wanted to emphasise on NoS. However, there wasn't any further elaboration on what is expected to be taught as NoS in any paper. It appeared as if it was up to the teacher's interpretation and discretion as to what he/she understood of NoS and the way it should be transacted. While flexibility was important for teachers to approach the syllabus but such scanty and unstructured representation is unlikely to reflect the Nature of Science and facilitate its teaching. Most teachers have themselves not studied about NoS as part of their formal education; therefore, explicit mention of its aspects in the syllabus would actually help them in understanding and communicating about the subject. The reading list suggested in the end of all pedagogy papers had general references on teaching methodology. In some references, NoS is given as a chapter or as part of the chapter. The researcher specifically included questions in interviews to check the references, which teachers were consulting and whether even those mentioned in the syllabus were available to them.

The practicum work did not explicitly mention NoS. However, there is always a possibility of using practical work as a means for developing an understanding of NoS. The researcher tried to find this through interviews.

University 'B'— Central University

The B.Ed. curriculum of University 'B' had methodology of teaching biological sciences, methodology of teaching physics, methodology of teaching chemistry and methodology of teaching sciences as pedagogy papers. The methodology of teaching physics, chemistry and biological sciences are offered at Level 'A' (to prospective teachers preparing to teach up to the secondary level) and 'B' (for teaching up to the senior secondary level).

Analysis of University 'B' Syllabus

The examination of the syllabi in different pedagogy papers suggested a fairly good number of common strands. While Level 'A' intended to prepare teachers for the upper primary and secondary level, Level 'B' focused on the senior secondary level. The syllabi seemed to have been made on similar lines for all pedagogy papers.

Pedagogy papers at Level 'A' in all subjects reflected some common objectives and topics explicitly related to the Nature of Science. The common objectives as stated

in the syllabus at Level 'A' was to enable the pupil-teacher to develop an understanding of the Nature of Science, in general, and the discipline, in particular, and its interface with the society. This suggested some common understanding among curriculum developers. Developing an understanding of the Nature of Science has been given explicit importance in the syllabi of all pedagogy papers. The relationship of science, technology and society was mentioned specifically in the objectives unlike many other aspects of NoS. This is an important aspect of NoS and the syllabus seemed to lay specific emphasis on the relationship between science, technology and society. However, the researcher also tried to understand through interviews what exactly was transacted under this topic? Was it treated as an aspect of NoS or understood in some other perspective?

The syllabi of all pedagogy papers seemed to give enough importance to NoS. Unit 1 of all pedagogy papers was dedicated to the Nature of Science. Unit 1 suggested that the development of science should be seen in a social and historical perspective. The syllabi reflected an emphasis on understanding the major turning points or landmarks in the history of science (specific discipline). This might throw light on some of the paradigm shifts in the discipline as Kuhn has suggested. To understand science in its historical context is important as it depicts the tentative Nature of Science. This helps one to appreciate how scientific knowledge is constructed. What may be the different processes used by scientists at a point of time and how these processes may change. Another important aspect is how the change is accommodated and validated as scientific knowledge. The researcher was, however, cautious of the fact that if the history of science is presented as a series of facts, laws or theories, the learners may not get a complete or accurate view about how scientific knowledge is constructed. Therefore, the researcher tried to explore the pedagogic strategies used in classrooms through interviews with both students and teachers.

The progress of science is mostly seen in terms of its technological applications and often one talks of the positive and negative aspects of the development of science (technology) in the society. However, how science and technology are different and also related is often not given much importance. Science is mostly seen as an objective and value-neutral activity not only by 'non-science people' but also by individuals, who are studying and practising in science domains. Therefore, the inclusion of the topic, 'Science Technology Society Interface', in the syllabi seemed appropriate and suggested the possibility of developing a better understanding of the relationship between science, technology and society among B.Ed. students. The syllabus also included development of scientific temper,

public understanding of science and role of ethics in the context of a developing country.

The development of process skills such as observation, inference, hypothesising and experimentations were specifically mentioned in Unit 1 in all pedagogy papers at Level A. The researcher found it in alignment with the various aspects of NoS that have been time and again emphasised upon by various curriculum documents and tools used for research on NoS. For instance, the role of observation in science cannot be undermined. Though the objective view of science is based on verifiability and replicability of scientific observation, Popper has critiqued this view of observation. According to him, observation has its own role and limitations in science. The inductive view that is based on arriving at generalisation on the basis of observation has been critiqued by Popper, saying that no number of observation is good enough to arrive at a generalisation that is universal. This is because no matter how large the number of observations that support a particular generalisation is, only one observation that is contradictory can refute the generalisation. Similarly, the role of inference and making hypothesis is important in science, but at the same time, these have their limitations too. This suggests that observation, hypothesisation, experimentation, etc., are all important parts of the process of science but one must be aware of their limitations and should be able to reflect on what kind of knowledge these processes would generate. Is it objective and universal?

The researcher found it important to explore as to which pedagogic strategies or classroom processes were likely to develop these so-called skills in science, and this purpose was fulfilled through interviews.

The practicum work in biology Level 'A' mentioned that students would 'practise' at least 10 experiments that were to be conducted or demonstrated at the secondary level. This suggested that the students were trained to repeat the experiments suitable for the secondary level, so that they could demonstrate or conduct them as efficiently and as their teachers.

This portrayed a traditional image of science, where experiments were supposed to generate verifiable and reproducible results. The very spirit of scientific inquiry i.e., designing and conducting experiments to solve the problem at hand was lost in this approach. The physics and chemistry practicum suggested organisation of activities, experiments and laboratory work with a critique of the existing practices. This showed openness and flexibility in approaching the practicum work in a different way but how is that put into practice needed to be explored through interviews.

The pedagogy of physics syllabus at Level 'A' also mentioned providing exposure to the possible projects with academic, industrial or research organisations. This might provide

the students with an opportunity to experience the process of science in the real context. The researcher tried to find out more about such projects and opportunities from students and teachers of the B.Ed. course.

At Level 'B', in all pedagogy papers, the first objective was geared towards developing an understanding of the Nature of Science (specific discipline) in a sociological and historical perspective. Also, in a pattern as in Level 'A', Unit 1 focused on various aspects of NoS. However, more explicit emphasis on NoS is placed at Level 'B'. The syllabi in all papers mentioned some science philosophers, like Popper, Kuhn, Lakatos, Lovelock and Prigogine. Besides, certain other aspects such as Science Technology Society (STS) interface, role of language and role of experiment were explicitly stated in the syllabi. This suggested that the course had an explicit focus on developing an understanding of NoS. However, the researcher found it strange that the reading list of pedagogy papers did not have any reference directly linked to the Nature of Science. In the reading list, there was no mention of original readings on Popper, Kuhn, Lakatos or other philosophers; however, these names were mentioned in the syllabi. The researcher felt the need to further probe this by interviewing students and teachers.

The practicum work had field work, investigatory projects and laboratory work that may be useful in developing an understanding of the Nature of Science. It was also important to know about the nature of the project work and field work in order to understand its potential to develop an understanding of NoS. This was achieved through interviews.

University 'C'— Another Central University

The B.Ed. curriculum of University 'C' had teaching of physics, teaching of chemistry and teaching of life sciences' as science pedagogy papers. The structure of the course was similar to that of University B.

Analysis of University 'C' Syllabus

The syllabi of pedagogy papers in University 'C' showed explicit focus on the Nature of Science. Unit 1 of all pedagogy papers mentioned various aspects of the Nature of Science (with specific reference to a particular discipline). The syllabi discussed the content vs. process debate in science, highlighting how knowledge is constructed in science. While on one hand, the syllabi mentioned process skills, such as classification, observation, inference, etc., on the other hand, it emphasised on product (laws, theories and principles) of science. The other significant aspects such as scientific attitude and relationship of science with technology and society were also explicitly stated in the syllabi. The history of the discipline was mentioned with content enrichment

only in 'teaching of physics' but not in other papers. There was no specific reference to the Nature of Science except in case of 'teaching of physics' and that too was not adequate to deal with the topics mentioned in the syllabus. Though the syllabus had several aspects of the Nature of Science, the depth and the pedagogy to be used was left to the discretion of teachers. The analysis of the syllabi of pedagogy papers in University 'B' suggested some similarities with University 'C' in terms of content but with lesser depth. Also, in case of University 'B', the practical work was not mentioned. The syllabi raised similar concerns in both the cases.

Data Collected on the Basis of Interviews

The critical examination of the syllabi raised many questions and necessitated to conduct in-depth interviews with the participants. Also, while explicit mention of NoS and related terms and phrases is an important part of the curriculum, different researches have suggested that merely stating them in the curriculum without changing the focus of teaching-learning strategies may add to the curriculum load. The students (pre-service teachers) and teachers (teacher-educators) may see it as another topic to be studied for examination purpose and may not actually develop a good understanding of the discipline. Thus, the researcher found it important to examine the pedagogical strategies being used by teacher-educators in transacting the curriculum. This was done to understand how and what understanding of NoS is implicitly conveyed by classroom processes in the B.Ed. programme. For this purpose, the researcher interviewed 15 teacher-educators and 40 pre-service teachers.

Analysis of Data Collected during Interviews

The responses of the participants were divided into various categories and the percentage of responses in each category was calculated.

Though the syllabi of all three universities chosen for the study stated developing an understanding of NoS as the first objective; the students and teachers of the B.Ed. programme did not mention it as an important objective. The most common objective as mentioned by most students was that the pedagogy paper would equip them with innovative ways of teaching science. The other objectives mentioned were related to revising the school concepts and developing classroom management skills. A few students mentioned developing skills such as experimentation, analysis, inference, etc. On prompting that NoS is specifically mentioned in the objectives of the syllabus, most students agreed NoS to be an important objective but this was more of an agreement with the content of the syllabus and the researcher. Most students were unclear about

the role of understanding NoS in their classrooms. Some answered vaguely that they may discuss the history of concepts and how theories develop. Only one student mentioned the tentative aspect of science that could be discussed in the classroom as there are many examples, which show that theories in science may change over a period of time. The researcher prompted them to think of ways in which NoS could be incorporated in classroom teaching but there was silence. Most of the students could not give examples about incorporating NoS in their everyday teaching. They said that transacting NoS was at no was difficult at the school level because they could not discuss philosophers. Understanding the work of eminent philosophers is only a means to understand NoS, but it seemed that students saw this as an end.

The teacher-educators also held similar views about objectives. Only two teacher-educators mentioned developing an understanding of NoS as an important objective without any prompt. One teacher-educator was instrumental in making this addition about NoS unit in the syllabus.

According to her, it is important to understand how science has changed over a period of time in terms of content and processes. Technology has also influenced science and that it affects the society in many ways. About 26 per cent (only four in the entire sample) believed that an understanding of NoS was important to strengthen students' content, ability to conduct scientific research and to have a scientific attitude. Out of these four, only two teachers said that B.Ed. students were able to reflect their understanding from the syllabus in their school teaching. She said it affected their outlook and they were able to deal with things differently. Many teacher-educators mentioned that NoS was a new topic in the syllabus and it was a struggle to teach it as they did not have proper references for teaching it. More than 70 per cent teachers said that the unit was done in the end and practically there was no significance of it.

The most common approach used for teaching NoS was to give readings related to it and ask the students to present it in class. Only 33 per cent teachers in the entire sample gave original reading of Kuhn, Popper and Lovelock. They also mentioned that all students did not read the original references as they found them terse. They teachers pointed out that only specific portion of the readings were discussed due to the lack of time. The teachers, especially from the state university, said they took some computer printouts about the characteristics of the Nature of Science and that was enough for teaching the topic. Some teachers even asked the researcher to suggest some readings. The original readings mentioned by some teachers were not included in the reference list. The researcher asked specific questions to teachers about teaching some topics,

like public understanding of science, landmarks or turning points in their discipline, role of language, etc. None of teachers mentioned any specific reading or source for teaching these topics. Also, the understanding about what and how these topics were to be taught was limited.

The discussion with both students and teachers reflected that the former repeated the experiment that they were supposed to perform in schools. The experiments were mostly similar to what they had done in schools. Some teachers mentioned that they encouraged students to use local material in experiments as mentioned in Eklavya's publication *Balvaiganik* or from a popular website, arvindguptatoys.com. The purpose as stated by both the students and the teachers was to verify the theory, and improve the pupils' confidence through revision. The idea was to prepare the students to demonstrate or conduct the experiments efficiently in schools. Sixty per cent teachers said that they did not conduct experiments, rather they discussed experiments with their students. On asking how they critique the existing practices in schools, the teachers (total four in the entire sample) said that they encouraged them to think why they were not getting the expected result in the experiment. What might have gone wrong? The field work and the project work were found to be minimal.

Some students also mentioned that in schools, lab assistants helped them in conducting experiments and the teachers only checked the results and evaluated their practical notebooks. This suggests that they did not take it seriously and did not see it as part of the teachers' responsibility. There was no opportunity to reflect on the nature or process of science through this kind of work in the B.Ed. programme.

Findings

Based on content analysis and interviews of the pre-service teachers and teacher-educators, following are the major findings of the study:

- The term Nature of Science was mentioned explicitly in the curriculum of B.Ed. programme of all three universities — two Central and one state university located in Delhi.
- In the curriculum of the selected state university, the term NoS was stated only in Unit 1 without any further elaboration on content and scope. In the curriculum of two Central universities, Unit 1 had a detailed mention of various aspects of NoS.
- There was a lack of adequate referencing on NoS in the syllabi of all three universities. Though some teacher-educators mentioned referring to books and articles related to the works of Kuhn and Popper during their classes, the reference list given in the end of the syllabi did not mention the same.
- The project work or field work was similar to the work done in schools. The idea was to prepare B.Ed. students for school teaching. The students found the

work basic and simple, and it only helped them revise what they had done in schools.

- The syllabi mentioned skills such as observation, inference and hypothesisation as topics but development of these skills was not paid enough attention. There was a lack of engagement in true scientific inquiry with respect to understanding the role and limitations of these skills. A highly simplistic view of science was presented to the student-teachers as the curriculum only required pre-service teachers to do similar type of activities or experimentation that they had done in schools.
- Pedagogical strategies used by teacher-educators were not conducive to the development of understanding of NoS among pre-service teachers. There were some discussions about the work of Kuhn and Popper and features of the Nature of Science; however, the nature of these discussions was not reflective. The students often read some books (partially) and presented the summary in groups. The topics related to NoS were not given enough importance and were often discussed at the end of the syllabus. The teacher-educators seemed to make little attempt to integrate discussion about the history or philosophy of science with school subjects. These topics were being taught superficially, merely because they formed a part of the syllabi. Most teacher-educators did not consider it to be a significant aspect of the curriculum.
- Most pre-service teachers felt that NoS discussions in B.Ed. programme did not help them in school teaching or as science teachers. What they discussed in B.Ed. programme as part of NoS was difficult to teach students. Most pre-service teachers in B.Ed. programme did not see any linkage and usefulness of NoS discussion for school students. This clearly suggested the problem of implementation of their understanding of NoS at different levels of schools.

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English Language Curriculum at the Secondary Stage

Perceptions of Learners and Teachers

Ramanujam Meganathan*

Abstract

This paper presents the perceptions of learners and teachers on various aspects of English language education as it is administered in two government-run rural schools in the state of Tamil Nadu. Initially, the paper presents the language profiles of learners and their opinions on various aspects of English language education in their schools, followed by the opinions of teachers. Then, it presents two classrooms observed during the study. It attempts to seek answers to the questions: (i) How do learners and teachers perceive English language teaching-learning in a rural setting? (ii) How many languages the learners know and what are the domains of the languages used by them? (iii) Whether teachers' beliefs and perceptions are influenced by language policy and curriculum reforms? (iv) How is the English language classroom organised to promote language learning?, and (v) Whether the curricular reforms have an impact on the perceptions of learners and teachers?

English Language Education Situation

English language teaching in India is a complex and diverse phenomenon in terms of resources available for teaching-learning of the language, the English language teacher, pedagogical practices and demand for the language. It is an ever-expanding part of almost every system and stage of education

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Table 1
English as a Medium of Instruction in Indian Schools

				Upper Primary			Secondary		
	1993* (%)	1993* (%)	2009*** (%)	1993* (%)	2002* (%)	2009*** (%)	1993** (%)	2002* (%)	2009*** (%)
English as medium	4.99	12.98	15.49	15.91	18.25	21.73	18.37	25.84	33.06

*(Source: *Sixth All-India School Education Survey, 1993*
***Seventh All-India School Education Survey, 2002*
**** Eight All-India School Education Survey, 2009)*

in India (Tickoo, 2004). Twenty-nine out of 35 States and Union Territories introduce English as a language from Class 1. The near total achievement of the universalisation of elementary education has intensified pressure on secondary and higher secondary education in the country. On the other hand, the non-availability of and less value attached to the native medium at the higher education level has had a wash-back effect on education at the secondary and the higher secondary level for English medium. The above table shows the increase in English-medium education. The network of secondary schools, numbering more than 1.1 lakh (Meganathan, 2011), some 11,000 colleges, universities (numbering 221 apart from 40-odd deemed universities) and other institutions of higher learning and research, whose numbers and reach keep growing, offer instruction in this language at various levels and under different arrangements. Another interesting fact is the diversity and disparity in the provision of and resources for teaching English as a second language, which includes medium of instruction in school education.

There are a variety of school systems that exist in the country—state-run schools, where the medium of instruction is the state language or the vernacular; English-medium schools known as public schools, which are actually private schools, where the medium of instruction is English; and Kendriya Vidyalayas, where children of Central government employees study. A special category of schools known as Navodaya Vidyalayas was created as a follow-up to the National Policy on Education (1986) for nurturing rural talents. These last two categories of schools follow a mixed medium of instruction i.e., to some stage or for some subjects it is the vernacular and for the other stage or subjects it is English. Mohanty (2010:168) describes how this 'mixed medium

within a school and classroom' works in these category of schools.

- English is used to teach 'prestigious subjects', like mathematics and science, whereas Hindi or other languages are used to teach the 'less prestigious' subjects, like history and social sciences. Hindi used to be the second language subject in most non-Hindi speaking states in India. Now, it has been replaced by English and is relegated to the position of third language subject in most states.

The English language teaching situation, within and across school systems, presents a mixed picture from very high to very low level in terms of Teacher Proficiency (TP) and exposure of pupils to English in and outside school, i.e., the availability of English in the Environment (EE) of language acquisition (Nag-Arulmani, 2000 quoted in NCERT, 2005). Kurrien (2005) identifies four types of schools as given below:

↑↑ = Very high ↓ = Low
↑ = High ↓↓ = Very low

a. ↑↑**TP,** ↑↑**EE** (e.g., English-medium private/government-aided elite schools): proficient teachers; varying degrees of English in the environment, including as home or first language.

b. ↑**TP,** ↑**EE** (e.g., New English-medium private schools, many of which use both English and other Indian languages): teachers with limited proficiency; children with little or no background in English; parents who aspire for upward mobility through English.

c. ↓**TP,** ↓**EE** (e.g., Government-aided regional-medium schools): schools with a tradition of English education along with regional languages, established by educational societies, with children from a variety of backgrounds.

d. ↓↓**TP,** ↓↓**EE** (e.g., Government regional-medium schools run by district and municipal education authorities). They enrol the largest number of elementary school children in rural India. They are also the only choice for the urban poor (who, however, have limited options of access to English in the environment). Their teachers may be the least proficient in English of these four types of schools. [Kurrien 2005 quoted in NCERT 2006:9, Position Paper Teaching of English, NCF–2005, NCERT]

Research on learner and teacher beliefs and perceptions reveals a mixed trend as studies focus on individual language learning and learning in the school context. Studies on learner and teacher perceptions, beliefs and attitudes (Xiuping Li, 2005; Subarna Sivapalan, 2006; Vai Ramanathan, 1999; Larisa Nikitina and Fumitaka Furuoka, 2008; Elizabeth J. Erling, Philip Seargeant, Mike Solly, Qumrul Hasan Chowdhury and Sayeedur Rahman, 2012) show how learners perceive learning of English language and teachers' beliefs and attitudes towards English language education at various stages, from school to

post-graduation. Learners believe that English language is important for upward mobility and the study of English enhances their life skills. They recognise the importance of a well-designed curriculum, syllabus and textbooks as important for learning the language. Studies also reveal how teachers' beliefs have an impact on the learning of English by learners.

Agnihotri and Khanna (1994) brought out how English language education in India has shaped itself during the post-Colonial period playing a hegemonic role. The National Curriculum Framework (NCF) – 2005 (NCERT) while advocating mother tongue-based multilingualism as a strategy for holistic language education, understands the question of introduction of English language in school as: "The level of introduction of English has now become a matter of political response to people's aspirations rendering almost irrelevant an academic debate on the merits of very early introduction" (Position Paper Teaching of English 2005:1). The NCF, in reality, records the 50 years of development on the changing role and place of English as a language in school and higher education. This prompted me to explore what learners and teachers perceive of English language teaching in schools.

The Process of the Study

Students from government boys higher secondary school and government girls higher secondary school, Neyveli Lignite Corporation (NLC), Neyveli, Cuddalore district, Tamil Nadu, were given a questionnaire consisting of items which could be categorised as below. The questionnaire aimed at knowing the perception of students on the importance of English, textbooks and use of other materials. It also aimed at ascertaining the reading habits of children the types of movies they watched, the type/ category of English they preferred as their ideal model, their habit of (i) listening to radio, (ii) watching TV, (iii) preferences of programmes on TV and radio, examination in English and about the continuance or abolition of English language in India. This was followed by an interview with some selected students.

The second part of the paper presents the perceptions and beliefs of teachers about English language education. The data from the teachers were collected through interviews and questionnaire. The data were also collected through classroom observation. A total of eight classroom processes were collected and two were presented in the third part as the remaining six classes did not have much to report. Most of them were conventional as the teacher read out a paragraph or some lines and explained the same by translating those into Tamil.

Students' Perceptions

1. Languages Known to Students

Students of both the sexes know at least two languages i.e., Tamil and English (Table 2). Some of them

know a third language, which is one of the South Indian languages, Sanskrit or Urdu. All of them are confident that they can understand, speak, read and write Tamil, which in most cases is the mother tongue, and in some the second language. It is also the language of home or the locale since their birth. When it comes to speaking Tamil, only one of them does not speak the language at home, school or any other place where the child may happen to speak with his/her peers, friends or acquaintances. All others speak Tamil at home, school and other public places, like temples, markets, etc.

Almost all students feel that they know English well. It is interesting to learn that 55 out of 58 are confident that they can understand and speak the language, while all of them feel that they can write well in English. All, except but one, said that he/she could read English. But when asked why they were not able to speak in English, while they could read and write in the language, many learners said:

"We do not get any opportunity to speak in English even in English language class. Sometimes English teachers ask us to speak. Otherwise, no other subject teacher asks us to speak in English. They read out the lessons in English and explain in Tamil. (sic)"

Only 28 of 58 students said that they spoke in English at home and 51 spoke the language in school, while 42 used the language at other places, like markets, banks, etc.

We can notice that Hindi is not a language known to the learners. Tamil Nadu is the only state which has rejected India's language in the education policy since inception. The sociopolitical movement that became popular in the 1950s and 1960s took up Tamil language and culture as distinct from Hindi and opposed to the 'imposition' of Hindi on the people of Tamil Nadu. Since then, the State teaches only two languages in schools.

2. Importance of Studying English

Most students have opined that the study of English at the school level is essential for upward mobility (Table 3, 4, 5). Only two of them feel that the study of English would not be of any help, while 55 favour studying. While citing reasons for the language their choice of studying English as important, students have mixed

Table 2
Languages Known to Students (N = 58)

Language	Understand	Speak	Read	Write	Place of Speaking		
					Home	School	Other places
Tamil	58	58	58	58	57	56	56
English	55	55	57	58	28	51	42

responses with less than half feeling that it would help them opt for higher education. Quite a few have multiple opinions while favouring the study of English. The reasons cited by them include: (i) getting good jobs, (ii) migrating/going to foreign countries, and (iii) getting a job in BPOs and multinational companies.

3. The Textbook

3.1 How do you feel about textbooks in English language?

Majority of the students, 41 out of 57, feel that the textbooks are interesting. Eight of them opine that books serve the purpose of learning the language. A few perceive books as boring and difficult.

Table 3
Do You Think the Study of English is Important for Us? (N = 58)

Do you think the study of English is important for us?	Female	Male	Total
No	2	0	2
Yes	27	28	55
Total	29	28	57

Table 4
Reasons for Study of English

Reasons for study of English	Female	Male	Total
i.	6	7	13
i,ii,iii,iv	–	1	1
i,ii,iii,iv,v	–	1	1
i,ii,iv,v	–	2	2
iii	8	3	11
iv	13	10	23
v		4	4
Total	27	28	55

Note: *i. We can get good jobs,*
ii. We can go to foreign countries,
iii. We can get jobs in BPOs and multinational companies,
iv. We can go for higher education,
v. We can migrate to foreign countries, like America, Canada and Australia.

Table 5
Textbooks in English (N = 58)

The textbooks in English are	Female	Male	Total
Interesting	19	22	41
Boring	3	2	5
Difficult	3	–	3
It is okay/serves the purpose	4	4	8
Total	29	28	57

3.2 Content of the textbooks

The students perceived the content of the textbooks as new, challenging and informative/as they have stories or information on their place and culture (Table 6). Twelve of them feel that the content is new, 19 feel that it is challenging and 16 opine that the book relates to their locale and culture, while seven feel that the content is alien or not related to them.

This could be compared with the students' responses on the language of the textbooks which follows immediately.

3.3 Language of the Textbooks

The students feel that the language of the textbooks enables them to understand by one read (Table 7). They also find the language suitable and interesting. Only three feel that the language of the textbook is difficult. This proves that the children feel that the textbooks and materials are well-designed and serve the purpose of learning the language.

4. Teaching Methods

While reflecting on the teaching methods and strategies followed by teachers in the classroom, majority of the students opine that the methods and strategies adopted by the teachers are interesting and help them learn, though a few feel that the methods are boring and it is difficult for them to follow their teachers' teaching methodology (Table 8).

Table 6
Content of the textbooks (N = 58)

Content of the textbooks as perceived	Female	Male	Total
New	6	6	12
Challenging	10	9	19
Alien/not related to us	1	6	7
Has stories/information on my place and culture	10	6	16
Total	27	27	54

Table 7
Language of the textbook (N = 58)

Language of the textbook	Female	Male	Total
It is suitable for us	6	12	18
Interesting	9	5	14
I can understand by one read	13	9	22
Difficult	1	2	3
Total	29	28	57

Table 8
Teaching methods and strategies (N = 58)

Teaching methods/strategies	Female	Male	Total
Interesting	13	10	23
Boring	–	2	2
Difficult to follow	4	2	6
I feel I learn	12	13	25
Total	29	27	56

Table 9
Use of teaching aids/material (N = 58)

Do your teachers use any other material in the classroom?	Female	Male	Total
No	16	15	31
Only in Science	1		1
Yes	11	13	24
Total	28	28	56

4.1 Teachers' use of material other than textbooks in the classroom

The students' perception about the use of material (Table 9), in the form of teaching aids and printed or non-printed material, shows their opinions. While 31 feel that their teachers do not use any material or teaching aids in the classroom, 24 say that their teachers use some sort of teaching aids in the classroom to enhance their teaching and help them to learn better.

The students also listed the material or teaching aids used in their classroom. These include (Table 10) pictures, grammar book, storybook and storytelling. However, it can be drawn from the listing by children that they could not distinguish between what other subject teachers use in the classroom and what an English teacher should use. This raises another question whether the teachers use any material at all to facilitate learning of the language they teach.

Table 10
Material Used in the Classroom (N = 58)

Material used in the classroom	Female	Male	Total
Charts	1	–	1
Charts, experiments	1	–	1
Grammar book	1	–	1
Science teacher explains with many objects and draws on the blackboard (sic)	–	1	1
Stick	–	2	2

Stick and scale	–	1	1
Storybooks, charts	1	–	1
Teach with pictures	1	–	1
Teacher tells stories	–	2	2
Workbooks	1	1	2
Total	8	11	19

Table 11
What is Important for Learning English? (N = 58)

Factors	Female	Male	Total
i	13	1	14
ii	3	7	10
ii, iii	–	1	1
ii, iii, iv	–	1	1
iii	1	2	3
iv	11	15	26
Total	28	27	55

i. A good English teacher,

ii. Good textbooks and supplementary material,

iii. Audio/video programmes,

iv. A good library,

v. An environment for speaking English.

5. What is Important for Learning English?

Students feel that an environment for speaking English is as essential as learning the language (Table 11). All other aspects come afterwards. A good English teacher, as 14 of 55 respondents feel, is important for learning the language, while 10 feel that good textbooks and supplementary materials are important for learning English. Quite a few feel that a good library and audio/video programmes are important for learning the language. However, there is a difference in the perception of male and female learners. While girls feel that a good teacher is important, boys feel that it is a good library that makes English language learning effective.

6. Reading Habits of Students

Students read newspapers, weekly or monthly magazines in their mother tongue, English and also in a third language, which happens to be the mother tongue of the family or a local language (Table 12). The NLC is a corporation which has transferable employees on all-India basis, mostly from neighbouring states, who stay here for a long period from the date of getting the job. The township is basically multilingual in nature. One can notice that the students read

Table 12
Reading newspaper and magazine in Tamil (N = 58)

Reading newspapers and magazines in Tamil	Female	Male	Total
Daily	19	23	42
Weekly	2	12	14
Fortnightly	1	4	5
Monthly	2	2	4

Table 13
Reading newspapers and magazines in English (N = 58)

In English	Female	Male	Total	In other Language(s)	Female	Male	Total
Daily	10	16	26	Daily		3	3
Weekly	2	4	6	Weekly		1	1
Fortnightly	2		2	Fortnightly	-	-	-
Monthly		2	2	Monthly	-	-	-

newspaper(s) — weekly, monthly, etc., in the prime language of the locale i.e., Tamil, then comes English, in which 26 students said that they read a newspaper daily and six of them read a weekly and two read a fortnightly. The number in Tamil is very high with 42 of the 57 students reading a daily, 14 a weekly and a few a monthly magazine. A few said they read newspapers and weeklies in other languages too, other than Tamil and English.

6.1 Reading novels

Students read novels and stories in their mother tongue, as well as, in English (Table 14). But the kind of stories and novels they read in their mother tongue includes a few known mythical stories and epics, such as the *Ramayana*, *Mahabharata*, Tenali Raman stories, etc. Though some of them said that they read novels in English, most of them did not mention reading any particular novel recently with an exception of the popular *Harry Potter*. This is read in both English and in Tamil.

7. Watching Movies, Television, etc.

Students watch movies in their mother tongue, English and in a third language, which is often one of the South Indian languages or Hindi (Table 15). Most of them (50) responded that they watch movies in their first language or mother tongue, 29 in English and a few (16) in other language, which is either Hindi or some other local language. For those whose mother tongue is not Hindi, they watch movies in one of the South Indian languages, and for

Table 14
Reading Novels in English and Tamil (N = 58)

Do you read novels?	Female	Male	Total
No	8	8	16
Yes	9	17	26
Total	17	25	42

Table 15
Movies Watched in a Month (N = 58)

Language of movies	Female	Male	Total
Mother tongue	25	25	50
English	14	15	29
Other language	4	12	16

Hindi-Speaking students, it is English movies. The students' responses also show that the movies they watched depended on the availability of tickets in the area's theatres. They also say that they watch movies because they "want some entertainment".

8. Listening to Radio and Watching Television Programmes

When it comes to listening to radio and watching television programmes, most students listen to radio in their mother tongue and watch television programmes in the same language only. However, they do watch television programmes in English and other language, most often it is Hindi. Most of them watch English programmes.

9. Which English

Students said they watched programmes once a week and some said that they watched every day. Even in television programmes, most of them watched only serials and movies. A few said they watched news.

Students' opinions about the kind of English that should be a model for Indians reveal that they prefer General Indian English (GIE) (Table 16). GIE is the acceptable or intelligible English spoken by educated Indians. Thirteen out of 57 opine that the BBC Newsreaders' English should be taken as a model for Indians to be intelligible. Some feel that AIR/TV newsreaders' or the English spoken by actors in American movies should be the model for Indians. In his interactions with students, the investigator felt that all Indians wanted to learn English to lead a prosperous life and to cope up with the forces of globalisation.

Table 16
Model of English preferred? (N = 58)

Which model of English preferred?	a	b	c	d	e	f
Female	1	7	2	4	12	2
Male	1	6	8	4	6	1
Total	2	13	8	8	18	3

a. Queen's English of London, *b. BBC newsreaders,*
c. AIR/TV newsreaders, *d. Actors of American movies,*
e. General Indian English, *f. Tamilised English.*

Table 17
Examinations in English (N = 58)

What do you feel about the examinations in English?					
	Difficult	**Easy and interesting**	**Threatening**	**It helps us to learn**	**Total**
Female	1	12	2	13	29
Male	6	18	1	3	28
Total	7	30	3	16	57

10. Examinations in English

Evaluation in English seems to be the most troublesome area for the students. However their opinions show that they are satisfied with the existing examination system (Table 17). To the question 'what do you feel about the examinations in English?', most of them said it was easy and interesting and it helped them to learn. Forty-six out of the 57 were happy with the examination system and felt that examinations helped them to learn better.

10.1 Preparation for the examination

Students, who said that examinations were easy and interesting, responded to the question 'How do you prepare for the examination in English?', differently (Table 18). While a majority felt that they understood and wrote on their own in the examination, nearly one-fourth (i.e., 15) of thestudents opined that they mugged up some of the answers and some said they understood answers and then wrote in the examination.

Table 18
How do You Prepare for Examination in English? (N = 58)

How do you prepare for examination in English?	i	ii	iii	Total
Female	2	15	10	27
Male	4	19	5	28
Total	6	34	15	55

i. Memorise and write,
ii. Understand, prepare and write,
iii. Some memorise and some understand.

10.2 Some aspects of teaching, examination, classroom, etc.

In a set of statements, the students were asked to agree or disagree on various aspects of examination and teaching of grammar and teachers' efforts to make them speak in English, the students responded with much insight (Table 19). They feel that there is a direct relation between what is taught and what is tested in the examination and feel that examination is an important aspect of learning and schooling. Thirty-nine out of 58 students agree that examination in English is a must. Majority of them feel that spoken English should also be tested. Students feel that the course book in English serves the purpose of teaching-learning. They do not agree with the statement that "course book is only full of literary pieces, nothing for learning the language".

Table 19
Some Aspects of Teaching, Examination and Classroom (N = 58)

There is no relation between what is taught and what is tested in the examination	**Agree**	**Disagree**	**Total**
Female	8	16	24
Male	11	16	27
Total	19	32	51
There is no need for an examination in English	**Agree**	**Disagree**	**Total**
Female	9	16	25
Male	5	23	28
Total	14	39	53
Spoken English needs to be tested	**Agree**	**Disagree**	**Total**
Female	19	7	26
Male	21	6	27
Total	40	13	53
The English course is only literature, there is no place for language aspects	**Agree**	**Disagree**	**Total**
Female	8	16	24
Male	12	16	28
Total	20	32	52
Grammar should not be taught	**Agree**	**Disagree**	**Total**
Female	4	21	25

Male	16	12	28
Total	20	33	53
Grammar is important for learning English language	**Agree**	**Disagree**	**Total**
Female	22	2	24
Male	18	7	26
Total	40	9	50
My teacher makes efforts to make us speak in English	**Agree**	**Disagree**	**Total**
Female	23	2	25
Male	3	14	17
Total	26	16	42

Teaching of grammar, according to most students, is essential for learning the language. Eighty per cent of them opine that grammar is essential for learning the language.

As far as teachers' efforts in making children speak in English and using the language in the classroom is concerned, students are divided in their opinion. Over 60 per cent of them say their teachers take special efforts to make them speak in English, while 16 of the 42 feel that the teachers do not make an effort to enable children to use the language in the classroom.

11. Opinion about the Continuance of English in India

In their opinion about the continuance or abolition of English in India, students on the whole favoured the continuance of the language. Their responses to the move to abolish English shows a mixed reaction. Table 21 tells us the opinions and the longing for learning English in the country, in general. Only a few said that they would support the abolition of English.

It is also interesting to note that some students have expressed affiliation to the language devotion movement prevalent in the political and social life of the region. The movement launched by Dravidian political parties in the 1950s and 1960s for 'Tamil only' is reflected in their thoughts.

Some of the statements by students are mentioned below:

"We should not forget Tamil. Tamil medium should be continued."

"We need to oppose English as we opposed Hindi. But English is helping us get jobs."

"We are Tamilians, we should be proud of Tamil."

"Without Tamil, there is no life for Tamilians."

Table 20
Speaking to Classmates in English (N = 58)

Do you speak to friends/ classmates in English?	No	Yes	Sometimes	Total
Female	9	19	1	29
Male	10	17		27
Total	19	36	1	56

"English will one day kill Tamil. But we should have both English and Tamil in school."

Perception of Teachers

The most important problem or aspect of English Language Teaching (ELT) in schools is that teachers have not studied English as their specialisation subject in graduation or postgraduation. Baring a few, all of them are teachers of science, social sciences or mathematics. The reason, as described by one of the headmasters, is, "If you appoint a science, social science or mathematics person, he/she can teach English also. If you appoint a trained English teacher, he/she can teach only English. There is always a problem of teacher shortage. We have to manage the classes at least with teachers who can do some justice. So, we prefer a science graduate teaching English."

Of the five teachers I interacted with, except one who holds an M.A. in English, all of them are science or mathematics teachers. Even this teacher, with an M.A. in English, took up the degree to get a promotion. He was a science teacher for long he could not do postgraduation in the subject by distance mode. So, he chose to study English. The teachers are aged between 30 and 55 years, with an experience of 3–30 years. Since these teachers teach Class VI–X, they are designated as B.T. assistant/graduate assistant. B.T. was the nomenclature of the first degree in education, which is now known as B.Ed. All teachers

Table 21
Learners' Opinion on the Continuance of English in India, or move to Abolish English from the Country (N = 58)

Opinion	Female	Male
I would support it	1	5
I would support it to some extent	2	3
It would not make a difference to me	1	1
I would oppose it to some extent	3	2
I would oppose it strongly	20	19

hold a graduation degree and a degree in education i.e., B.Ed., too.

The teachers were given a questionnaire and were interviewed about the status of teaching of English, their perceptions and the problems they face in the classroom and outside. The stage or class at which English needs to be introduced in the school system has been responded by the teachers almost in unison. They feel that the introduction of English from Class I is the most ideal as it will enable the learners to learn the subject from an early school stage. One of the teachers felt that it is better to introduce english from Class V.

Explaining how it will help children in learning the language, the teachers' perceptions differ a little. Some of the opinions are as follows:

"The students know the basic alphabets from the beginning of their curriculum (sic)."

"It would enhance their listening and understanding capacity."

"The foundation of the language is good. They can compare English with their mother tongue. Early learning is good for them."

"The basic foundation will be good. Later, when they enter higher classes, they can speak and write in English well."

Due to parental and societal pressure, teachers feel the need for English in schools to enable children to move forward in the society. They consider English to be important for the 'upward mobility' of students. Instrumental motivation is the major reason for them to support the introduction of English at the early stage of schooling.

i. Facilities

The teachers feel that the school has adequate facilities for the teaching of English. Only one teacher has said that the facilities available in the school are not sufficient for teaching and learning of English. Almost all teachers believe that the school has books for extensive reading in the library. The other facilities which the teachers said should be available in the school are:

(a) Required number of English teachers.

(b) Books for extensive reading in the class and school library.

Though some teachers said the school has both a class and a library with books in English for extensive reading, I could not find any class library. Besides, the school library has books in science, mathematics and social sciences, but not many in English.

Every teacher has said that he/she uses some teaching aids in the classroom and believes that they benefit children in learning the language better. There is a contradiction in the opinions of teachers and students. Students said that most teachers did not use any support material or teaching aid.

The opinion of one teacher given in the following page reflects what the teacher believes or perceives about

the use of other support material and teaching aids as they are referred to generally.

"I cannot use all these things as time factor is important to us. I am teaching only Class X. Studies are carried out but in an exam-oriented mode (sic)."

ii. Objectives of Teaching English

While responding to 'what do you think are the major objectives of teaching English in school?', teachers as we can see, are not clear about it. Some of the objectives mentioned by the teachers are given below:

(i) increase the vocabulary,
(ii) improve spoken English,
(iii) write without grammatical mistakes,
(iv) improve knowledge in learning English,
(v) improve communication skills
(vi) improve understanding,
(vii) since it is a globally accepted language, one should know it,
(viii) enjoy English literature,
(ix) get jobs both in India and abroad, and
(x) keep pace with the changing trends of the modern world (age of computers).

iii. On Textbooks

Teachers believe that textbooks achieve the intended objectives of the syllabi. Textbooks give scope to teachers to realise the objectives of language learning.

Teachers also feel that the content of the lessons or poems printed in a textbook is relevant to the children's age group and serves their regional, cultural and language needs. The textbooks, according to the teachers, give scope to them to create their own activities and they are confident that they can explore more activities using textbooks. However, no teacher has given an example of how he/she exploited a unit or a poem to create his/her own activity. Teachers have only cited the title(s) of a poem or two where they designed their activities. While rating the textbook on the five-point scale, almost all teachers found it as 'very useful for teaching-learning English'. We can notice a paradoxical feeling when the teachers describe as "very useful for teaching-learning English". And also, "It is very difficult to learn from it". One or two teachers remark that the content of the book does not facilitate learning.

iv. Language Proficiency of Students

Teachers are unanimous in their opinion when they say their students' proficiency in English is average or poor, barring a few who feel that some of their students are 'good' in English and can communicate with others. Teachers' opinion is more or less the same on all aspects — language skills i.e., understanding, reading with understanding, spoken English and writing skills. However, we may recall what has been mentioned in the students' perceptions section, what the teachers have opined about

their students (that they are not good as they are from low-economic background).

v. Hindrances in Learning the Language

Teachers have listed the possible reasons and causes for bad state of affairs in learning the language. The hindrances for learning the language include:

(i) lack of interest in learning,
(ii) fear of learning the foreign language,
(iii) shortage of teachers, particularly at the primary level,
(iv) lack of basic knowledge,
(v) faulty methodologies,
(vi) importance of learning the language is not realised,
(vii) teachers handling the language classes are not specialised in the language,
(viii) language is taught only with the examination point of view (sic),
(ix) there is not a conducive environment to learn the language.

vi. Strategies Employed by Teachers in the Classroom

Teachers use lecture-cum-discussion as a major method or strategy in the classroom during the teaching-learning process. The other methods or strategies that teachers use in the classroom are — pair work, group work, lecture, etc. Teachers believe that the strategies they use in the classroom help their students learn the language and communicate in English. Two opinions of the teachers would show us how they feel about the effectiveness of their strategies:

"…A good understanding will be there (sic)."

"…It enables them to converse louder in English (sic)."

When asked to describe how they organise pair work, group work, debate, etc., most of the teachers have no response to that, except two who have said the following:

"By forming a group according to their ability, height, etc." (sic)

"Pairing a good student and a below average student and allow them to discuss a known topic." (sic)

vii. Use of Mother Tongue (Tamil) in Classroom

Teachers use the language of children in teaching English as a strategy to facilitate learning of the language. They feel that it is desirable to use the mother tongue while teaching English. Most teachers said they use Tamil 'once in a while'. Teachers say the reasons for using the mother tongue of students or Tamil are:

"It is language problem." (sic)

"The children are from rural areas. They feel uneasy to understand the language." (sic)

viii. Teacher's Role and Relationship with Students

While accepting that the role of a teacher is evolving in the changing scenario, the teachers have attempted to list the different roles a teacher has to play. He/she has to play the role of a facilitator, monitor and co-learner.

One teacher has opined that the role of teacher is to transmit knowledge only.

In their opinion about the kind of relationship the teacher and the student should have, teachers have mixed feelings with some saying 'friendly and as equals' others describing it as 'parent-son/ daughter relationship' 'brotherly' and 'counsellor'. One teacher has said that 'teacher as *guru*, student as *shishya*' and 'teacher as giver of knowledge and students as receivers of knowledge'.

Teachers have also said that they adopt various strategies to identify the needs of students in learning English. The strategies followed are:

(i) talking to students,

(ii) through class discussions,

(iii) through the results of their tests/ examinations, and

(iv) individual discussions with students.

The teachers recognise the roles that they have to play. However, in my interactions with the students, I felt that there is a distance between the teachers and students. Thinking that the students (most of them) cannot do well for they hail from lower middle class and their parents are not highly educated and work in lower positions, teachers have made the students feel that they are not as bright as the wards of officers and those who study in Jawahar Navodaya Vidyalayas or missionary schools.

ix. Research in Classroom by Teachers

No teacher has ever attempted to carry out any kind of research in the classroom on the problems of children or any aspect of teaching-learning of English or even in their own main subjects which they teach as part of their major duty. Most of them have not even heard of action research.

The English Language Classroom

This section presents two of the eight classrooms observed by me during my visit to the two schools. The description of the classrooms is presented as it was. This is followed by reflections of the teacher and the researcher (me).

i. Classroom One

School : NLC Girls Higher Secondary School

Class X

Lesson/Topic: Poem 'Six and Out' (Permission was obtained from the teachers to use their names)

The classroom was spacious and the furniture was old and large in size. The teacher's table was small with an old chair. A large blackboard painted on the wall had on one side the timetable and schedule of the tests and a quote for the day, and on the other side the map of India was drawn. There were three rows of desks, of which two had bigger desks to accommodate five students, while the middle row had smaller desks to

accommodate three students. Each row had seven desks.

The class had the poem 'Six and Out'. The poem was about a street cricket match played by children. The teacher, a woman in her 50s, was present in the class. As I entered the class, she directed the children to get up and wish me, which the students did. She began by saying, "Girls, shall we play some game today?" The girls looked somewhat puzzled and did not reply. They all replied in one tone, "cricket". The teacher went on to say, "Why do you say cricket?" There was silence for some time. She started again, "I know all of us like cricket and India is doing well in the game, isn't it?" Some of them said, "Yes". The teacher then said, "We will play cricket. Are you ready? We will play here in the classroom only." The students were taken aback for a while and said "Yes". "Take your English reader and turn to page 9 and we will play cricket here just now," she said. She started reading the poem a loud giving out relevant information. She did not read the poem as a whole. She read one stanza, and then, started explaining line-by-line. She asked the meaning of the words in the first stanza.

Teacher: "What is a 'pitch'?"

One student: "Playing field."

Teacher: "Is that correct?"

Another student answered in Tamil. The teacher said, "Go ahead, no problem, speak in Tamil or English, whichever language you could express better."

(The teacher herself judiciously used Tamil to enable the students to understand.)

Teacher: "What is crease?"

Students could not get that. She drew a cricket crease on the blackboard with wickets near which two players were seen standing. Moving on, she read out the next stanza, explained it line by line and asked questions:

Teacher: "What do you mean by 'motorcar', 'baker's cart'?"

She kept saying, "Answer either in Tamil or English. I want you to understand and enjoy the poem".

At the end of the second stanza, she asked them to list the rhyming words from the two stanzas. The students in chorus said, "Parts/carts, crease/peace, etc."

She read out the third stanza and made an attempt to sum up the poem by asking three questions:

"What is the poem about? Have you seen such scenes in your neighbourhood? Which cricketer you like the most and why?"

Then, she asked one of the students to read out aloud. When the student completed reading the first paragraph, she asked another child to read. And then, the bell went off.

a. Teacher's Reflections

"I tried to give children an opportunity to speak. This is a good class, where most of the students are good in English. However, they have no support at home. Parents cannot help them in English, and for that matter in any other subject. So, school is the

only place where they can hear and practise English. I make it a point to make them speak in English, and wherever needed, I use Tamil. If I do not use Tamil, they would not understand anything at all. This makes them feel interested and listen to the teacher.

Researcher: "What is the purpose of teaching poetry?"

"I understand poetry is for enjoyment. I don't know whether I was able to make them enjoy the poem. I made the class interactive and the theme of the poem is cricket. This is how they can relate to it. So, there is not much problem. I think they enjoy the ideas of the poem and I made attempts to bring in the language elements of the poem."

b. Researcher's Comments

This is an experienced teacher and has been teaching English for two decades along with science. To some extent, she was able to make children interact with her. The teacher dealt with the poem like a prose piece, though she made attempts to draw the attention of the learners to poetic elements, such as rhyme scheme. She did not even read the complete poem once, nor did she once ask children to read the poem individually or in groups. She gave an introduction through some questions and started explaining line by line. She was happy that the ideas of the poem were made known to the learners. She assumed that the learners were passive recipients with a token participation of responding to some questions asked by her.

The teacher believed that she kept the classroom interactive by posing questions and making them speak. Most children participated while answering the questions or in discussion. The interaction was between the teacher and the learners. There was learner-learner interaction.

The teacher was proficient in English as she spoke well. She spoke in simple language and was able to make the children listen and understand. The students felt at home with the teacher for she had tought in the school for 27 years. Though she spoke in English most of the time, she used Tamil sometimes, which helped the children to understand better. When she used some Tamil words to explain some difficult English words, I saw the faces of some students, who seemed to understand what the teacher spoke. When asked about the use of Tamil in the English language classroom, she said, "These children have not been exposed much to English language. Moreover, I use the vernacular language only as a tool to make them understand and enjoy the ideas of the poem". The teacher does not keep speaking in Tamil as that would be disastrous. "Though I use Tamil to make them understand better, I do not want them to use the language much. Students have to speak in English as an unwritten law. A kind of bilingual approach would help in learning with understanding," she shared.

The teacher tried to use some strategies and was aware of the methods and approaches to be employed in teaching the second language. She said that she had to follow different strategies when she went to a Tamil-medium classroom. In general, she remarked, "Children who come to the school are not bright in terms of the marks they score. Bright children go to Jawahar Navodaya Vidyalaya or Cluny, the missionary school. We get students who could not do well there, and of course, those who cannot afford to study in these schools."

My interaction with the students before and after the teacher taught gave me some impression about the nature of learning and the characteristics of the way the school was being conducted. The general assumption was that the children who came to this school were not so bright — in the sense that they could not compete with children in a better school in the same township and did not get an opportunity to use English outside the classroom. They had to devote time to other subjects, in which they needed to score high marks, so that they could choose science stream, and ultimately, opt for some professional course(s). Most of students were able to speak in English. But they felt that they were not good in it. Teachers were also one of the reasons for this low self-esteem as they felt that they only got children rejected by 'better' schools and lower middle class families, such as children of Class IV employees, technicians, drivers, etc.

ii. Classroom Two

School: NLC Boys Government Higher Secondary School, Neyveli

Class X

Topic/Lesson: Integrated grammar/ Rearranging of sentences.

The classroom was spacious with big desks for learners. The class had a strength of about 30 boys accommodated on 12 desks. It also had a table and a chair for the teacher, a blackboard and three charts on science. It was the English grammar class and the teacher was teaching 'jumbled-up sentences'. Jumbled-up sentences have to be rearranged in a way to make the events of a story in order. The processes of the class are described below.

The teacher was received with a loud chorus of "Good morning, sir!". Having said, "Sit down", he opened the grammar workbook that he had in his hand and told the students, "Today, we are going to do rearranging of jumbled sentences." All students took out their notebooks and started copying what the teacher was writing on the blackboard. The teacher wrote the rubrics on the blackboard. "Rewrite the following statements in a meaningful order. This carries 3 marks i.e., $6 \times ½ = 3$," the teacher said.

Teacher: "Boys. This question, rewriting the jumbled statements in an order carries three marks. It is easy as most of the questions are

narrating an event in order. (The children listened to him in rapt attention.) I am going to dictate the statements in a jumbled order. Write them down in your notebooks."

The teacher dictated the statements as he went around the class. Here are the sentences which the teacher dictated:

(i) It fell into the river.

(ii) It threw the leaves down into water. (The teacher said: throw, threw, thrown)

(iii) Once an ant felt thirsty.

(iv) A dove was sitting on the tree.

(v) The ant climbed on the leaf and reached the branch safely.

(vi) It went to the river to drink water.

The teacher now talked about coherence.

Teacher: "Coherence is important for making sense in any language. Coherence has to be in meaning as well as in language. Students, let me now tell you the story in Tamil and you try to understand it. (Teacher narrate the story in Tamil.) Now, you do it."

The students started rearranging the sentences as they discussed it in Tamil. Once they finished, the teacher asked them to come forward one-by-one and read out aloud. One student came and started reading. He said, "a ant". The teacher went near him and said, "an ant". "You know the word 'ant' begins with a vowel 'a', we should use 'an', okay. The students came out individually with their rearranged narratives. Once the class completed the work, the teacher read out the rearranged order of sentences and asked them to correct, if there were mistakes. Then, he read out the rearranged statements and asked the students to repeat after him. He again narrated the rearranged statements in Tamil. He then asked them to read out the rearranged statements in English. The activity took about 55 minutes. He gave another exercise as homework from the workbook.

a. Teacher's Reflections

When asked why the student chose the activity and why he did the activity the way he did. The teacher reflected, "I did not have any special preparation or decision to choose this activity. This is what I planned to do as this carries three marks in the annual examination. Also, this is Class X and English is a difficult subject for them. You must have noticed, I had to read out the whole narration in Tamil to make them understand. So, I prepare them for the examination and how to get a good percentage. This is important for me as a teacher that they all pass and with a good percentage."

About the group work, he said, "See, the group work does not work most of the time. You must have noticed that I did not insist on their discussing in English. They can speak in English, but not well. There is no environment to speak in English. So, we manage using Tamil most of the time. What to do! This is a rural school."

b. Researcher's Comments

The teacher's language was good. He used both English and Tamil — almost each sentence he spoke in English, he translated that into Tamil. This made the students get the meaning of the narrative cohesively. Students' English was poor and there were mistakes in most of the sentences they spoke. Almost everyone said, "He do not speak (sic)". Though the teacher, noticed it, he did not pay much attention to the mistakes. When asked later what he thought about the mistakes committed by students, he said, "If I tell them anything, they will not try to speak in English. Generally, in most of the classes (science, social science and mathematics), they do not speak in English at all. They are not allowed to speak as most of our teachers simply follow the lecture method."

The teacher in this class was seen interacting with the students. The interaction was between the teacher on one side and the students on the other. The teacher asked for an answer (what comes next while rearranging the sentences) to which some students answered it as a whole. She did not devise any strategy (like pair or group work) to discuss and rearrange the sentences. The importance of teacher-learner and learner-learner interactions was not felt by the teacher. The teacher had to supply most of the sentences in order.

Discussion and Conclusion

The learners' language profile and perception on various aspects of English language education in the two schools show that they know at least two languages. It also shows that language in the state education policy has an impact on the number of languages known to learners. None of the learners have marked Hindi as a language known to them. This is the result of the State language policy, the three language formula, which rejected the study of Hindi in schools.

Learners, in general, believe that the material and methods used in teaching English are good and serve the purpose. Teachers also have more or less the same opinion about the material used. Learners' views on many aspects reveal how the teachers of English have an impact on their perception. Since they do not have much exposure to any method, except what their teachers follow, they feel that whatever happens in their classroom is good. We can also notice more or less the same in the opinion of teachers. None of the teachers have undergone any training since the beginning of their appointment. So, they teach either 'the way they were taught', or do whatever way it comes to them. This is revealed when teachers answered the question — 'what would be the objectives of English language teaching and the methods they follow in their classrooms'.

The analysis of the perceptions of learners does not show much difference between female and male

learners, except in a few aspects, such as the one about the discontinuance of English in India. Reading habits also show some difference as more female learners read than males.

Two classrooms presented and analysed in the previous sections show how two experienced teachers understand and practise actual teaching in their classrooms. Teachers lack an understanding of what language is, how a language is learnt, why interaction is important for language learning, what should be the objectives of language teaching and what material for teaching of English should do. No training, lack of resources and 'faulty' methods are the order of the day for the teaching-learning of English as a language in the two English-medium classes. Every teacher was aiming to teach for examinations and the examination wash-back effect was felt in every day teaching in Class X. This has led to teaching English language as a content subject.

Teachers feel that they try their best to support learners in their venture of learning the language. However, their opinion about learners is that they have no support at home to learn the language and they are not the brighter lot. This affects the self-esteem of learners. The irony is that there is not much opportunity to learn the language even in school. Teachers, who blame or regret that the home environment of learners is not supportive for learning English language do not provide much for learners to use the language in school. This shows how teachers feel that they are not part of the problem (low proficiency of learners). But at the same time they do not want to be a part of the solution or attempting to arrive at a solution. This cyclical blame goes on.

The analysis of the perceptions of learners and teachers and the two classroom processes presented in this paper tells us many things. Firstly, how teachers who are not meant to be teaching English are teaching the language with no understanding of what the language is and how it is learnt (assumptions about language and learning). It is not the lack of training; it is no training in any form for any one. There is an urgent need to orient English teachers on language pedagogy, in general, and strategies for teaching-learning of various components of the language, viz. teaching of reading, poetry, grammar, pronunciation, etc, in particular.

Schools need to provide an enabling environment for the learning of English language. Learners need exposure to English language through various means viz. print, visual and other media. Peer interaction (learner-learner and learner-teacher) in the language is essential for learning English. These opportunities to use the language would support learning it better.

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Neuro-education
The Myths and Realities

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K. Chellamani**

Abstract

Neuro-education being a relatively new discipline is faced with many obstacles, which are termed as 'neuromyths' in the teaching-learning practice. The present paper speaks about the prevalence of neuromyths in the minds of teachers and educationists. It mainly deals with the myths, which act as a hindrance in the effective functioning of the education system, and how these are said to be discarded by different researchers to be just named as neuromyths and not reality. Hence, it can be concluded that neuromyths are superfluous, which create misconceptions.

Introduction

The evolving field 'neuro-education' referred to as 'mind brain education' or 'educational neuroscience' has become one of the key talking points in the present teaching-learning scenario. Neuro-education is an emerging scientific field that includes cognitive neuroscience, developmental cognitive neuroscience, educational psychology, educational technology, educational theory and other related disciplines to explore the interactions between biological processes and education. It is an interdisciplinary field that intends to create improved teaching methods and curricula by combining neuroscience, psychology and education. Neuro-education believes that as neuroscience is essential for the progress of science, it will also give education a firmer

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empirical basis and help in bringing out appropriate pedagogical reforms. Nouri (2013) defines neuro-education as a "growing interdisciplinary field based on synergetic connection between neuroscience, cognitive science, psychology and education in an effort to improve our theoretical and practical understanding of learning and education". Neuro-education investigates some of the basic processes involved in learning to become literate and numerate, but beyond this, it also explores learning to learn, cognitive control and flexibility, motivation, as well as, social and emotional experience.

Neuro-education helps in creating improved teaching methods and curricula. It is moving closer to prime time as researchers gain more sophisticated understanding of how young minds develop and learn. It helps to explore how children learn and what practices promote and sustain learning problems. It also allows how brain works and where learning takes place by offering a variety of techniques that may teach teachers to improve children's learning capacity. Neuro-education is also referred to as the application of findings of the language of cognitive neuroscience to educational questions and problems.

It is a welcome move that teachers in educational institutions are becoming aware of the application of neuro-education. Even the educational system includes neuro-education in its curricula. It is reverberated in NCF–2005 and NCTE–2009. Though a group of teachers have started applying neuro-education in their pedagogical platform, the loud spoken 'neuromyths' stand as a barrier in accomplishing the focus. It leads to building a gulf between neuroscience and education. Neuromyths were found to be prevalent among trainee-teachers as well (Howard Jones, et al. 2009). The educational scientists have already started working on the 'neuromyths'.

Neuromyths

Neuromyths are generally defined as false ideas, beliefs, interpretations or extrapolations that have permeated the opinions of people, though they have been invalidated by neuroscience. The common misconceptions, misunderstandings, misreadings, which deliberately warp scientifically established facts is coined as 'neuromyths' by the Organisation for Economic Cooperation and Development (OECD) (2002). The delusions which are acting as a barrier in changing and improving education can be termed as 'neuromyths'. The popular media is responsible for creating such misconceptions (Wallace, 1993; Beck, 2010). The OECD's Brain and Learning Project (2002) emphasised on the concept of 'neuromyths' that create a number of misconceptions among educationists and professionals, leading to adverse effects on educational practices. The neuromyths, which act as hindrance for improving the teaching methods and curricula in the educational

system, are many. The neuromyths mentioned by the OECD (2002) and others are:

Neuromyth 1: People Use Only 10 per cent of the Brain

Wanjek (2002) says the idea that "we use only 10 per cent of the brain" is one of the most popular myths in neuroscience. But with the development of newer and more sophisticated tools by neuroscientists to look at brain function, they found that the cortex is far from 'uncommitted'. Marcus Raichle, a neuroscientist at the Washington University in St. Louis and a member of the Dana Alliance for Brain Initiatives (DABI), was one of the first scientists to find that our brain works full capacity even during rest. Since then, neuroscientists have accepted that the brain has a so-called 'default mode', a sophisticated network of areas that remains active even while resting. According to Beyerstein (2004), researchers have conducted millions of studies related to the brain and no one has ever found an unused portion of the brain. In 2003, Nyhus and Sobel remarked, "It is unfortunate that teachers are constantly subjected to such pervasive nonsense about the brain, so it is worth pausing to investigate the various sources of the '10 per cent myth' (Beyerstein, 1999 and OECD, 2007). Science has shown that although people can live with severe trauma, this does not confirm the existence of 'useless areas' and that all areas in the brain have a known function. It is interesting to note that once Albert Einstein underlined the existing neuromyth and it attracted the attention of educational scientists.

Neuromyth 2: Hemispheric Dominance

The idea of hemispheric dominance came from the study 'split-brain' undertaken by Roger Sperry, Joseph Bogen and Michael Gazzaniga (1965). Ninety-one per cent of the teachers believe that the difference between the left hemisphere and right hemisphere creates individual differences among learners. The neuromyth 'left-brain versus right-brain' probably has its basis in studies of hemisphere specialisation (e.g., the left hemisphere subtends language processes and the right hemisphere is implicated in spatial awareness). The hemispheric differences do not exist but the brain function should be considered as a whole (Geake, 2004). Neuro-imaging studies have also clarified this issue by showing that both the hemispheres work together and are always involved in all cognitive tasks (Goswami, 2004). Kurt W. Fischer (2009) in his article, 'Mind, Brain and Education: Building a Scientific Groundwork for Learning and Teaching', talks about two boys named Nico and Brooke. Nico had to remove his 'right hemisphere' to prevent the recurring of severe epileptic seizures when he was three years old. According to neurologists, people without 'right hemisphere' will have poor visual-spatial skills

and those without 'left hemisphere' will have poor intonation in speech. Brooke at the age of 11 years had to remove his 'left hemisphere' due to severe epilepsy. The results revealed that despite Nico did not have the 'right hemisphere', he was able to perform some skills better with the help of his family members. He was able to perform certain visual-spatial skills, such as physical activities and drawing. Brooke, even after getting operated upon, was unable to speak. After a certain period, he became skilled at both speech and reading. In his article, Kurt W. Fischer (2009) said despite their loss of hemisphere, they functioned well in school and family, and also became almost normal in their educational skills. So, according to researchers, neither hemisphere is solely responsible for one type of personality.

Neuromyth 3: VAK Learning Styles (Visual, Auditory and Kinaesthetic)

Despite its lack of evidence, the educational community has been flooded with information concerning a multi-sensory model called VAK learning styles (Dunn, Dunn and Price, 1984). According to this model, visual learners learn better through pictorial information, so showing diagrams and colour images to them will allow stronger memory traces due to crossed modular learning; auditory learners acquire knowledge by storing sounds; and kinaesthetic learners are more successful if they do things practically by means of body movement. Strictly following a VAK regime appears to bring dilemmas to the teacher, for example, what should be done with 'V' and 'K' learners in a music lesson? (Geake, 2008). Clearly, it is a simplistic model and requires further research as there is no data showing an educational advantage of teaching in the preferred learning style. As pointed out by Howard-Jones (2008), neuroscience or any other science has, so far, not found support for the educational value of categorising learners by their sensory modality or any other type of learning style.

Neuromyth 4: Myths about Multilingualism

Neuromyth 4 (i): It is impossible or difficult to achieve competency in a foreign language after a certain age

It is often heard that it is difficult to learn a new language after attaining a certain age. Certain researches have also shown that there is a particular time referred to as 'critical periods' in one's life when one can learn skills and abilities, such as second language more effortlessly and completely. If these experiences happen to be absent or occur later in the course of human development, it will be impossible for a child to ever acquire those skills and abilities (Blakemore and Frith, 2005; OECD 2007; Worden, Hinton and Fischer, 2011). It is never too late to learn a foreign language. Goswami (2008) implies that if a particular ability is the best forever, the 'biological window' for that ability

is missed. Moreover, no evidence supports 'biological critical periods' for acquiring non-native languages (Bruer, 1999; Worden, Hinton and Fischer, 2011). They say neuromyths rest on a static conception of the brain, which they know to be false. The fact is that the brain can adapt to any environment and is capable of learning throughout the lifespan as it is plastic and that educational rehabilitation in adulthood is possible and worth investment (Blackmore and Frith, 2005). The brain's plasticity is of two types. They are — 'experience-expectant' and 'experience-dependent'. the OECD (2002, 2007) says experience-expectant learning takes place when the brain encounters the relevant experience, ideally at an optimal stage of development. These periods are also known as 'sensitive periods' or 'windows of opportunity' because they are the optimum movements for individuals to learn specific skills, such as oral language. They take place with natural development but experiences are required to make the learning more effective. 'Experience-dependent' is just the opposite, which takes place at any moment in an individual's life.

Neuromyth 4 (ii): Exposing children to foreign language interrupts knowledge of the first language

Another misconception is introducing a foreign or second language when a child has learnt the first language as it interrupts his/her language development and creates confusion. So, it is better to speak the native language until high school (Frey and Fischer, 2013; Petitto, 2009; OECD, 2007). The false inference is that the native language had to be grasped 'correctly' before learning another language (OECD, 2007). Though children are found to have problems in learning a second language in school, it is found that some educational systems expose them to foreign language too early. This helps them to avoid difficulty in learning a foreign language. De Jong, et al., 2009; Petitto, 2009. OECD (2007), in its research, found that human beings can have strong command in more than one language at a time, and hence, it is stored in areas far from the area reserved for languages. Hence, children, who are exposed to the two languages at an early stage, do not get weaker in the first language, but are able to grasp the fundamentals of both the languages (Petitto, 2009). The OECD (2007) says when the second language is acquired early, multilingual education does not lead to a delay in development. Hence, the myth is counteracted by studies showing that children who have mastery in two languages can understand the structure of each language in a better way and can apply them more consciously.

Neuromyth 4 (iii): It is impossible to learn a second language while sleeping

The history of research speaks that sleep is one of the primary sources of learning throughout one's lifespan.

Research on the role of sleep in memory functions, especially to memory consolidation (Peigneux, Laureys, Delbeuck and Maquet, 2001) often cited as evidence in support of the idea that foreign language learners are able to learn English during sleep. The OECD (2007) implies that the act of learning always begins with an unconscious process and it is more efficient during sleep than while being awake. Though there is evidence that sleep plays a significant role in the development of the functioning of the brain and memory, some individuals are capable of problem-solving while they are a sleep, but new researchers, Arzi, et al. (2012), argue that sleeping participants can form a link between a particular tone and a pleasant and an unpleasant smell. They added that it is also possible to acquire a simple association while being asleep, but learning more complex skills, like new language, cannot be acquired while sleeping as one needs to consciously memorise numerous new words and their meanings, develop a learning strategy and continuously restructure the newly acquired information in a fashion coherent with the pre-existing knowledge base (Peigneux, Laureys, Delbeuck and Maquet, 2001).

Neuromyth 5: High Consumption of Water Enhances Learning

No direct evidence or link has been found that high consumption of water will help enhance learning. Though 'brain-based' learning programmes have promoted drinking plenty of water as it helps improve learning. Howard-Jones (2009) ensures that children drink at least six to eight glasses of water. The fact that it helps prevent the brain from shrinking is not supported by neuroscience. Though dehydration restricts proper cognitive function of the brain, the myth speaks that encouraging children to drink extra water will lead to better learning. Howard-Jones (2010) says that drinking water is beneficial for the body and keeps it hydrated, but going beyond that would mean entering the ground of extrapolation. Miyamoto, et al. (2012), Boetzkes (2010) and Manz (2007) said that taking too much fluid leads to negative consequences, like water intoxication and hyponatremia. So, the myth that high consumption of water enhances learning has not been proven by neuroscientists to be true.

Neuromyth 6: Men and Boys have Different Brains from Women and Girls

Lise Eliot (2011), a neuroscientist at the Chicago Medical School, says some modest disparities have been found, such as men tend to have a larger amygdala, a region associated with emotion. These types of differences are small and highly influenced by the environment. Daniel Amen (2013) says 'male brains' are about 10 per cent larger than 'female brains'. The terms 'male brain' and 'female brain' were coined to refer

to differences in cognitive style rather than biological differences (Baron-Cohen, 2003). He even argued that men were better 'systemisers' (good at understanding mechanical systems) and women were better 'empathisers' (good at communicating and understanding others). However, he did not argue that male and female brains were radically different, but used the terms male and female brain as psychological shorthand for (overlapping) cognitive profiles. Elizabeth Spelke (2005), in her study, found that male and female, on the whole, possess an equal aptitude in both math and science. Despite such evidence, gender differences existed. In 2007, Diane Halperm, Hyde and others in their research found that women tend to score higher on verbal abilities, while men tend to have a slight edge when it came to visuo-spatial skills. In 2008, a study conducted by Hyde and colleagues found that there was no gender difference in math skills from grades II to XI. In 2009, Hyde and Janet Mertz said the gender gap has been closed overtime and in the study both the groups scored the highest level in mathematics. The evidence speaks that both boys and girls are capable of doing anything.

Neuromyth 7: 'Enriched Environments' Enhance the Brain Capacity for Learning

This neuromyth has its origin in the studies of rats brought up in 'enriched' or 'deprived' environments (Diamond, et al., 1987). In his study, rats brought up in an enriched environment were found to have greater synaptic density in their brains. Hence, the theories of education state that a child should be exposed to enriched environments in order to enhance his/her learning potential (Whitebread, 2002). But soon after, the OECD (2002) proved this neuromyth to be false, making it clear that there was no evidence in humans linking synaptic densities and improved learning, and there was no evidence relating synaptic densities in early life with those later in life. The theory was even criticised and it was said that the rat was exposed to an artificially 'deprived environment' so it showed greater synaptic density. The neuromyth was further supported by a study where Romanian orphans were brought up in an impoverished environment, which suffered from ill-effects, showed possibility of rehabilitation in many cases (O' Connor, et al., 1999).

Neuromyth 8: Critical Time Period

The idea that there are critical time periods for brain development derives from the study of visual deprivation in kittens cited earlier (Cragg, 1975A). The critical time period suggests that if the timeframe for learning a particular information is missed, the learning opportunity is lost forever. Goswami (2004) ensures, "Neuroplasticity allows learning to occur at anytime during a person's lifespan and is a strong evidence against the existence of strict critical learning periods in an individual's life." Bruer (1999) said 'critical

periods' help in understanding the processes of synaptogenesis and pruning in the developing brain. In its extreme form, this neuromyth becomes the 'myth of the first three years' which states that the brain will learn the maximum in these three years, else the opportunity for the development of the brain is lost forever. Neuroscientists shield away from the term 'critical periods' and have identified certain types of learning subject to 'sensitive periods', i.e., times when the brain appears to be particularly primed for certain types of input and is ready to adapt itself to meet such demands, but which are not a case of 'all or nothing' (OECD 2002). Hence, it proves that any human beings can be an expert in areas, such as phonology and syntax of language, even after his/her early teenage years.

Conclusion

Neuromyths are misconceptions, which are prevailing among teachers, as well as, teacher-trainees. The implementation of these myths should be prevented from classrooms as they result in diminishing the teacher's confidence in a successful collaboration between the fields of neuroscience and education (Sylvan and Christodoulou, 2010; Pasquinelli, 2012). To eradicate the neuromyths that proliferate within schools, proper education to teachers should be given. Hence, to avoid the misconception in future, there should be proper communication among neuroscientists and practitioners to bring about an enhancement in neuroscience literacy of teachers. Lelienfeld, et al. (2012) says that incorporating neuroscience courses into initial teacher training should include the skills needed to evaluate scientific research. The gap between neuroscience and education is almost removed as scientists have already alerted the society to the neuromyths that are dominant in education. If researchers and practitioners collaboratively conduct research, it will help in bringing educational reforms and removing the neuromyths from the minds of teachers and teacher-trainees. Therefore, it is important to support a translational process and provide opportunities to teachers and neuroscientists to collaborate.

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Impact of Barriers Encountered by Students with Disabilities on their Learning Experiences in Higher Education Institutions

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Abstract

The present study is exploratory in nature. The paper aims to understand the barriers encountered by students with disabilities and their impact on the learning experiences of these students at higher education institutions. The study was conducted in the erstwhile State of Andhra Pradesh (now, bifurcated into Andhra Pradesh and Telangana). For this study, firstly, we selected three universities from different parts of Andhra Pradesh by using purposive sampling. Secondly, we interviewed 100 students with disabilities from selected universities by using snowball sampling. The mixed method approach, i.e., both quantitative and qualitative data analysis were employed in this study, and in most cases, the quotes of narratives for each theme were maintained and used extensively. The findings of the paper covered physical, academic and attitudinal barriers faced by the students with disabilities and their impact on the learning experiences of these students in obtaining higher education. Overall, these findings highlighted the inherent limitations in the current institutional arrangements on the basis of students, their parents, the attitude of university management and staff because these factors affected the learning experiences of the differently abled students in higher education institutions. A comprehensive access service is required for addressing the needs of these students, which should become an integral part of the institutions.

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Background of the Study

People with disabilities in India are generally imperceptible to the rest of the society because they get less or no attention from the administration, activists and academicians. According to the Persons with Disability Act (Equal Opportunities, Protection of Rights and Full Participation) of India (1995), "a person with disability" means "a person suffering from not less than 40 per cent of any disability, as certified by a medical authority". The conditions of disability include blindness, low-vision, hearing impairment, locomotor disability, mental retardation, leprosy and mental illness. According to the Census 2001 (Registrar General of India), there were 21.9 million people with disabilities, wherein those suffering from visual, speech, hearing, mental and locomotor impairment have been considered. As per the survey conducted by the National Centre for Promotion of Employment for Disabled People (2004), only 0.1 per cent of the students with disability are enrolled in various universities and they face many barriers in higher education institutions. Only six per cent of the youth in India have access to higher education, and if this six per cent is applied to the disabled youth population, then 1.44 million disabled youth should have access to higher education. But the reality presents a different picture. At the higher education level, the infrastructure needs to be designed in such a manner that it enables these students to access classrooms, laboratories, toilets, etc., easily. But there is a dearth of research in this area, specifically in the Indian context. The study aims to explore the educational experiences of students with disabilities in higher education institutions in Andhra Pradesh.

Students with Disabilities in Higher Education Institutions

Physical barriers continue to exist in higher education institutions for these students. The physical barriers faced by them are lack of access to buildings, classrooms, restrooms and other public facilities due to the non-existence of elevators and parking facilities within a university (Brown, 1992; Schneid, 1992). Paul's (1998) study indicates that students using wheelchairs have to struggle due to inaccessible classrooms and restrooms. A study conducted by West, et al. (1993) further demonstrates that barriers identified by students with disabilities have been their inability to access buildings and classrooms, and lack of other accommodations. Further, Howell and Lazarus (2003) suggested that changes are needed to be made not only in the physical environment, where both teaching and learning take place simultaneously, but also through the organisation, delivery and accessibility of higher education curriculum. Disability service providers also play an important role in the success of these students at higher education institutions (Reber, 2007). Many students due to fear of being labelled and of the

stigma attached avoid disclosing their disability and needs to higher authorities, teachers and friends in higher education. Hence, they face many problems in higher education institutions. Similarly, Fichten, et. al. (1990), in their study, observe that staff and students without disabilities are concerned about the needs of differently abled students in higher education institutions, which have developed an accessible environment and generated support services on their campuses. A study conducted by Moisey (2004) demonstrated that students with visual impairment in higher education institutions have been facing academic barriers because of inappropriate learning resources, teachers' lack of experience in teaching students with special needs, as well as, lack of discussion with these students regarding their problems and needs. Students, who received better assistance, had more success and lesser barriers in pursuing higher education. However, there is a dearth of research on this issue in the Indian context. Therefore, the researcher attempts to understand the impact of the barriers encountered by students with disabilities as regards to their learning experiences in higher education institutions.

Objectives

1. To examine the demographic profile and educational status of students with disabilities, who have enrolled in higher education institutions in the erstwhile state of Andhra Pradesh,
2. To understand the barriers encountered by these students and their impact on their learning experiences in higher education institutions.

Methodology

The present study is exploratory in nature and employs mixed method approach that involves the procedure of collecting, analysing and mixing or integrating both quantitative and qualitative data at different stages of the research process. For this study, we collected data from three universities — one Central and two State universities located in different parts of Andhra Pradesh, before it was bifurcated. Of the three universities, the Central university and State university 'A' have a Disability Cell as well as a coordinator to look into the needs of differently abled students. However, State university 'B' neither has a Disability Cell, nor a disability coordinator. Subsequent to the selection of the universities, we interviewed all students with disabilities from each university using snowball sampling. We conducted semi-structured in-depth interviews of those students, which we scheduled by taking their consent. For the study, we interviewed 100 students (48 from the Central university and 26 each from the two State universities A and B). Both quantitative and qualitative data analysis were used, and in most cases, the quotes of real text for each theme were maintained and used extensively.

Findings

The findings of the study are presented in two sections. The first section deals with the demographic profile and educational status of the respondents selected from the three universities. The second section presents the perception of these students on the support services provided to them in their respective universities.

1. Characteristics of Students with Disabilities

Table 1 provides a brief description of the respondents by the nature of their impairment.

As per the table, among the total number of students with disabilities, male students constitute a greater proportion (66 per cent). The dip in the number of enrolment of female students with disabilities is based on varied reasons, which include negative attitude towards girl education, less expectation from girls, over-protectiveness towards girls and underestimating the talent of female students by their parents. It is also seen that 72 per cent of the respondents were orthopaedically-impaired and 28 per cent were visually impaired. The number of

Table 1
Characteristics of Students with Disabilities

Variables		Nature of impairment		Total (100)
		Orthopaedic impairment (72)	Visual impairment (28)	
Gender	Male	48 (73)	18 (27)	66 (100)
	Female	24 (71)	10 (29)	34 (100)
Age	Below 25 years	34 (72)	13 (28)	47 (100)
	26–30 years	36 (84)	07 (16)	43 (100)
	31 years	02 (20)	08 (80)	10 (100)
Course of study	M.A. /M.Sc.	62 (81)	14 (11)	76 (100)
	M.Phil	3 (38)	5 (62)	8 (100)
	Ph.D	7 (44)	9 (56)	16 (100)

(Note: The figures in the parenthesis are percentage)

orthopaedically impaired students is nearly two times higher than that of visually-impaired ones. Students with other types of impairment were not found during the period of data collection. It is possible that some students did not want to disclose their disability.

Higher education tends to attract various social groups constituting people of different age groups due to multiple factors. Table 1 also provides a brief description of the gender composition of the respondents by the age bracket. It is observed that about half (47) of the students are aged 25 years, and a negligible number are above 31 years. Similarly, it is found that the maximum number of orthopaedic impaired students are aged between 26 and 30 years. It was also found that a greater number of visually-impaired students were above 31 years of age. This data indicate that visually-impaired students have to face more hurdles, so there is more gap in their education compared to orthopaedically-impaired students. It is possible that these students might have joined schools late because of their parents' over-protective nature, lack of proper support services that include assistive devices and lack of awareness about policies and support services. We can conclude that there are more orthopaedically-impaired students in the younger and middle age group and more visually-impaired students in the older age group in the study conducted.

Table 1 further shows that more students have enrolled for Masters courses, whereas a few have registered for M.Phil programmes. Moreover, the number of orthopaedically-impaired students enrolled in the courses is more than the visually-impaired ones. However, more visually-impaired students have registered for Ph.D courses, followed by M.Phil courses. Thus, as per the data collected, more number of visually-impaired students pursue higher education than orthopaedically-impaired students.

2. Barriers Encountered by Students and Their Impact on Learning Experiences

In this section, we attempted to find out from the students about reflections on their educational experiences and understand the barriers that affect their educational advancement in different universities. The factors that emerged from the interviews are classified into two broad categories. These are:

2.1. Physical Barriers, and
2.2. Academic Barriers.

2.1. Physical Barriers

One of the most important factors that leads to poor attendance of students with physical impairment was physical accessibility (Hammal Jarvis and Colver, 2004). In the study we conducted, it was observed that physical barriers were faced by both visually impaired and orthopaedically handicapped students. Majority of the students with physical impairment

stated that their impairment did not affect their academic life, rather they faced problems related to accessibility, as there was no facility for accessing computer centres, libraries and attending classes on the first or the second floor without the minimal support of lifts, elevators and transport facility to and from classrooms, restrooms and hostels. All three institutions did not have good facilities relating to transportation and accessibility, but the distance between classrooms, library, restrooms and academic and administration buildings, as well as, hostels, was substantial even within the universities.

Some of these students stopped going to the library for getting books issued because of their physical impairment. Procuring books from the library was not easy for them. Even if their friends agreed to help them, there were other issues, such as selecting a book from the catalogue, or tracing the book. Besides, there were restrictions, such as the cardholder should be present while the book was being issued. It was a big process and took a lot of time. On the other hand, nearly 70 per cent of the students with visual impairment said that they had visited the library hardly two to three times. The following narratives represent the response of a group of respondents:

"Till now, I (student with visual impairment) haven't gone to my library because the way to the library is not accessible to me. In case, the university management makes it an accessible environment with facilities, like proper footpaths and roads with special indicators and without major obstacles on the way/path to reach important places, including classrooms, library and other important places, it could help me a lot. Then, I can go wherever I need, without my friend's help. But the situation is entirely different. I have to depend on others for wherever I need to go."

"Being a wheelchair user, I can not access the library and computer terminals on my campus. Since the computers in my department and the computer centre are situated on the second floor, it is not easy for me go there every day. I rarely go and work on computers."

For a student's active participation in educational institutions, there are various aspects that need to be addressed in natural and constructed educational environments. All three university buildings were only partly accessible to students with disabilities. Accessibility in these institutions was poor not only because the buildings or their parts were old and no modifications had been made to make them suitable for disabled students, but also because the new buildings were inaccessible as no lifts or elevators were in place. Similarly, a study by Paul (1998) indicated that students, who used wheelchairs, struggled due to inaccessible classrooms and restrooms. Further, a study by West, et al. (1993) suggests that although the inclusion of students with special needs in higher education has been

advocated for years, the buildings were constructed without taking into account the needs of students with physical and sensory impairment and the problems faced by them.

For some respondents, the distance between classrooms and restrooms was substantial, which added to their inaccessibility. As the universities had huge premises, so hostels, academic buildings and libraries were located in different parts of the campus; hence, it was problematic for the students to attend classes regularly without proper transport facility and accessibility. Moreover, the effects of students' impairment, in the current study, was also striking and their participation in educational activities was complicated as it involved excessive effort, fatigue, pain and tiredness, which occasionally led to disengagement or withdrawal. The following narratives represent the feelings of a group of students:

"Recently, my hostel was renovated and expanded. I thought the authorities will put in place a ramp facility at least this time, but they did not do that. Whenever I go to the dining hall, I have to leave my wheelchair and I take my crutches. Since it is a huge dining hall, I could have easily gone and come if they had built ramps."

"I did not find that my disability had affected my studies in any case. But my department was situated on the second floor, so I had to climb many steps to attend classes. After climbing all these steps, I cannot immediately concentrate on what is being taught in the class due to fatigue. I also feel uncomfortable to sit in the class."

"There was a ramp at the entrance of the department but we did not have any lift facility inside the department. It was tiring for me to climb up the steps without proper accessible support."

From our study, we understood that majority of the students were concerned about the classroom arrangement and its accessibility. Two of the respondents informed their course teacher about their problems and requested him/her to change the classroom, but the response was: "This is the only classroom allotted to our department in this building, so we don't have an option. It's better if you could talk to the higher authorities."

The students had a choice of choosing convenient rooms on the ground floor in a hostel, but it was not possible for them to choose convenient and accessible classrooms. Some of the students from Central and State university 'A' stated that they were happy with the initiative taken by the university management as special bus services within the campus were arranged for them. These buses ferried them from the hostel to the department, and then, back to the hostel. It reduced their problems, such as long walks, fatigue and pain. Some of the students from state university 'B' stated that their university constructed disabled-friendly hostel for students with physical impairment.

Disabled-friendly hostels include facilities, such as ramps, railing system, accessible bathrooms, wheelchair accessibility to hostel rooms, washing rooms and bathrooms, and terrace.

2.2. Academic Barriers

The educational experiences of students with visual impairment are different from those with orthopaedic impairment. The learning experience of visually-impaired students in higher education institutions mostly depend on the availability of learning resources and their utilisation. For improving the academic outcome of these students in higher education, it is crucial to take advantage of assistive technology because without its use, students with disabilities will be at a more disadvantageous position than those without disabilities (Getzel and Thoma, 2008). Therefore, in this section, we analysed the data based on the number of students with visual impairment having their own assistive technology.

Assistive technology is a way to help students with visual impairment, so that it becomes possible to provide compensation for the difficulties they face in carrying out their academic work as well as support them in different academic areas. The provision of assistive technology changes the educational experiences of these students while they pursue higher education (Burgstahler, 2002; Goldberg and O'Neil, 2000). Assistive technologies considered in this study are those that are available to the students and help them to maximise their ability to effectively complete the course requirements. Some of the adaptive resources and services include adaptive computers, tape recorders, sound amplification systems, voice synthesisers, calculators or keyboards with bigger buttons, switches and technology assessment and evaluation. The visually-impaired students have to depend on assistive devices, such as computers, speech softwares, and their friends or family members for studies, whereas students with orthopaedic impairment have a problem with accessibility issues, such as accessing the computer centre, library and classroom.

In order to understand the educational experiences of visually-impaired students with and without the usage of assistive devices, we enquired whether the respondents have their own assistive technology or devices. The following section represents the results of respondents having their own technical assistive devices.

We found that more than 75 per cent of the visually-impaired students did not have any kind of assistive devices, such as personal computers with speech softwares, scanners and Braille. It was also found that more than 96 per cent of them used recording devices, such as tape recorders or walkman sets. However, those who had a computer also had scanners, as well as, speech softwares. Students in the Central university had more assistive devices compared to those in the State universities (A and B). It was

found that some respondents from the Central university got this speech software's copy or dummy from the university management, whereas, some got it from their friend circle as it is expensive to buy an original copy. Furthermore, it is seen that neither visually-impaired students from both the State universities (A and B), nor the university management itself had any special software or speech synthesiser.

Learning Experiences of Visually Impaired Students with and without Assistive Technology

In this study, it was found that respondents from both the State universities said that neither the universities, nor students with visual impairment had access to assistive technology or devices, hence they could not scan or read the material. Therefore, issuing books is hardly of any use to them. Some students, who did not use assistive devices, said their educational success depended on the mercy of their friends and peer group members. These students have to approach their classmates during exams. Every time requesting or troubling their friends for help made them feel bad but they had no other choice. It was apparent from the students' responses about the problems they faced, which included limited opportunities to complete their syllabus and rejection from friends. They also said that some of their friends stopped talking or greeting them, fearing that they would be asked for help. The following narratives represent the group of respondents:

"Other than exam time, I am not able to study any other time. In fact, that is discussion only. My friends discuss with me whatever they are reading at the time of exams."

"While in school, I studied with the help of my parents and friends. Now, too, I am taking help from friends, but in the university, everyone will be assigned different work. So, it is not necessary that my friends may also do or read the same work as me. It is not fair to ask them every time to read or record all material related to my assignment or work for me at the cost of their own work."

"If I read for long, my eyes start getting watery. Sometimes, I get a headache, so I have to stop for some time and apply eye drops (as prescribed by doctors). Sometimes, I cannot read and work. I, especially, face problems during the exam time. This is a bad situation for me and it is mainly because of my visual impairment."

"Not only education (reading and writing), but everything is a problem for me. If I need to go to some place, I need someone to escort me. I need to ask my friends if they are ready to help me. If I get someone, I finish my work early, but if nobody is ready to come, or they are busy with their own work, I have to postpone my work for the next day or to some other day."

"Some of my friends even stopped talking to me, fearing that I will

seek their help for reading, writing, recording or some other academic or administrative work."

"Several times, I have asked my friends to help me go to the library, but was often suggested that there was no use of a book after getting it issued, as they would only read it for me. They got the books issued and whenever they would get time, they would read it to me. So, there is no need of going to the library at this moment."

"Till now, I have not been to the library because even if I have books issued, who will read to me? If I had a computer along with a scanner and other assistive devices, I would have got books issued and scanned by this time. But I did not have any assistive devices."

We further enquired about the learning experiences of visually-impaired students, as well as, those who had assistive devices in the learning centre that was specifically arranged with all type of assistive technology, which included scanners, printers and speech softwares. From the data gathered, it was clear that 90 per cent of the participants who used assistive technology were from the Central university. The participants' narratives demonstrated that the provision of assistive devices and their usage influenced their participation in universities. The students who shared their experiences mainly stated that the support of assistive devices facilitated better educational experiences. These included — (a) enhancement of opportunities; (b) helping one to become independent; and (c) augmentation of career and life-flexibility, freedom and autonomy. They noted that the end result was their academic success. Some of the students said that they had good learning experience in their universities because they were getting quality and sufficient support. They believed that support from family members, friends and university management had helped them cope up with the problems that they experienced in higher education had institutions. Moreover, having a number of friends or network also helped them to manage their studies easily. Similarly, the availability of technology helped them to balance their studies and achieve their targets. The following narratives amply bring this out:

"I am always looking for some alternative and that makes it easy for me to complete my studies. I have more friends. If one says that he/she is busy or avoids me, I talk to other friends. Due to my good friend circle, I don't face any problem."

"Till my graduation, I had many problems regarding my studies. But at present, due to technical advancement and its availability on my campus, I do not have major problems regarding studies."

"Till I came here, I used the Braille machine and normal paper for studies. But due to the amount of text and the things I have to write, this machine is not of much help. It consumes much time and energy.

But after coming here, I started using a computer with speech softwares, which has enabled me to reach my targets. It is now easier to write, scan and organise materials with the help of computer technology."

It was apparent from the students' comments that many of the visually-impaired students wanted to be independent. Students who were using assistive technology could not spend sufficient time with their friends or get involved in activities other than studies, because they had to spend a good time collecting course material, scanning, editing or organising the collected text. It was apparent that they had strong motivation not to depend on others for small things. Even though they wanted to be self-sufficient in their work and were determined, their impairment had affected their studies. Due to their physical limitations, they faced problems, such as headache, watery eyes, etc. In the next section, we showed that some of the students did not get a chance of choosing subjects of their interest, whereas, some were more concerned about the completion of the course.

The learning experiences of the visually-impaired students in the Central university have been based on the condition that the university provided them with computer terminals, especially in the library and at the computer centre. It was apparent that the condition of computer terminals or systems, which were provided to them, was not good, and most of the time the computers did not work properly. For some of them, their physical limitations and impairment acted as barriers in accessing the learning resources available in their respective universities. Similarly, a few respondents reported that the library management did not take the responsibility of providing adequate technical assistance whilst the systems were not in a working condition. Most of the students were not taking cassettes from the library because it was not issuing quality cassettes. The following narrative represents the view of a group of respondents:

"There is only one computer system in the library with all kinds of assistive devices, including scanners, printer and speech softwares. Most of the time, a notice is attached to it, which says it is under repair. Since most of the students (student with visual impairment) are not using computers in the library, and, at the same time, there is no demand from their side, nobody is taking the responsibility to repair it."

Since the learning experiences of visually-impaired students with and without the usage of assistive devices were understood, it is important to know the facilitating and hindering factors that affect these students.

Conclusion

Overall, from the students' narratives, it was observed that all three universities have taken up some initiative towards supporting them and provided assistance in accessing the college campus by constructing ramps in most of the buildings, developing disabled-friendly hostels, and accommodating the students in the hostel rooms on the ground floor. However, two universities (Central and State university 'A', which have a disability cell and a coordinator, went a little ahead and arranged special transport facility for the students on their campus. On the other hand, it was also obvious that these students have been facing barriers in accessing classrooms, computer centres, libraries and other administrative buildings in their universities. Despite focused support from the disability coordinator, the physical environment was inadequately adapted for these students; hence, the full inclusion of these students needs to be ensured. A comprehensive access service is required for addressing the needs of all these students, so that they become an integral part of the institution.

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Is it alright to mix Qualitative and Quantitative Methods?

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Abstract

The paper explores the various dimensions of the debate on the mixing of qualitative and quantitative methods. Broadly, the two positions involved in the debate are — mixing of qualitative and quantitative methods causes epistemological damage; the choice of the method and the epistemological position are not necessarily linked. The paper deconstructs the positions and argues that the choice of the method is essentially rooted in the epistemological stance of the researcher.

Introduction

Acutely conscious of the scepticism as expressed by Bryman (1984, p. 75) "about the extent to which a neat correspondence can currently be established" between epistemological position and associated techniques, I started out with a hunch bordering on conviction that epistemology is at the heart of the issue. But as Bryman (1984) repeatedly points out that there is a "tendency for epistemological and technical issues to be treated simultaneously and occasionally to be confused" (p. 75), sorting out and thinking through ideas was a tedious process. I cling to my hunch and explicate the arguments given in favour of the significance of epistemology. To support my arguments, I have drawn inferences from research studies in the areas of literacy and reading.

The Origins of the Conflict

The debate between qualitative and quantitative research is an old one. It is certainly half-a-century old, since the resurgence of qualitative research around the early 1960s (Bryman and Burgess, 1999). The reasons for its coming back are interesting and to an extent explain the origin of the debate. The key factors responsible for the return of qualitative research have been enumerated as follows:

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"A certain amount of disillusionment with the output of quantitative research" and "the pretensions of much quantitative research to adopt the characteristics of the natural sciences" (ibid. 1999, xi). This was coupled with strident critiques, drawing attention to the limitations of research methods, like social survey in failing to elicit social meanings constructed by the participants. A growing awareness about epistemological viewpoints that looked at social reality alternatively is another factor mentioned in the review.

The early 1960s was a time when qualitative research acquired a definite existence and identity. One can say this because the history of qualitative research has been described to be diffused before this period. In a way, its origins are rooted in the conflict with quantitative research because it stood up as an alternative to the prevalent research tradition. The fact that the debate continues is indicative of the vigorous existence of both kinds of research. Earlier, the focus of the debate was the epistemological superiority of the two. Now, the focus has shifted to a seemingly more pragmatic issue — is it alright to combine or mix methods? This is the question posed by the above mentioned positions. I will examine the underlying assumptions in the question and deconstruct the two positions to arrive at my position.

Is It Alright to Combine or Mix Methods?

At the first glance, it appears to be a question of technique because it is talking about methods. A closer examination reveals that it is a question revolving around epistemology. Let me explain how. One is questioning the mixing of methods because one is assuming that there are methods of two (or more) kinds. And that distinction between the methods is created because of the assumption that each kind falls within the realm of a specific epistemological position. In other words, we are debating about mixing methods because we are aware of the epistemological moorings of methods. So, what is being suggested is the embededness of methodology in epistemology. Now, the question can be put this way:

"Is it alright to mix or combine methods affiliated to distinct epistemological positions?"

I will pick up the strand of the argument of embededness of methodology in epistemology later and currently proceed to deconstruct the two positions.

Deconstructing the Two Positions

The first position says that the two represent 'virtually different worldviews'. This is agreeable. But what should not be let out of sight is that they are views of/on the same world. All research, irrespective of its epistemological orientation, has a larger objective of understanding reality in its complete form. But all research can only be an 'approximation of that reality' because of the ever-changing nature of social reality. Multiple points of view add to the richness of attempts to understand the reality and urge each other to find better ways of defining, explaining and understanding that reality.

In that sense, 'competing paradigms' do not 'obscure diversity and complexity', which is a claim made by the second position. It is difficult to

bypass Kuhn's concept of paradigms at this juncture. My interpretation of Kuhn's concept of paradigms presents a paradox of sorts. I would like to return to it once my analysis of the two positions is done with.

Clarity in one's epistemological position will not allow a 'mixing of methods'. Mixing of research methods indicates a mixed-up epistemological stance. At the same time, I believe that neither quantification by a qualitative researcher, nor a little 'scratching of the surface' by a quantitative researcher leads to epistemological damage, provided that one has stated one's epistemological position with utmost clarity and transparency. The possibility of epistemological damage arises when there is a gross mismatch between the research question and the method employed to answer it. The research question reflects the epistemological stance of the researcher and a confused question can lead to an error of this kind.

I must clarify here that I make a clear distinction between the research problem and the research question. A research problem can lead to several research questions, each of which can have a distinct epistemological orientation but the research problem is neutral. Here, I find myself completely aligned with Bryman (1984) in dismissing Trow's observation that "it is the problem that determines the technique to be employed" (p. 79) and asserting "it is not so much a problem that determines the use of a particular technique but a prior intellectual commitment to a philosophical position" (p. 80).

In support of my argument, I would like to mention the celebrated ethnographic work of Shirley Brice Heath (1983), *Ways with Words*. In documenting her 13-year-long studies of two communities, she has tabulated a number of topics of all play-songs heard in one of the communities and the approximate percentage of each of these along with a comparison of those recorded in schools. This is one of the two tabulated tables she has used in documenting her entire study. The table has been placed in the midst of thick descriptions of how children use play-songs. The descriptions are replete with details.

For instance, "The jump-rope play-songs are performed with either double or single ropes, with one girl turning at each of the two ends of the rope or ropes, and one or two girls jumping. The usual routine requires that a girl jumps and carries out actions named in the play-song. When she misses her turn, another girl enters" (Heath, 1983, p. 100).

It would take a dogmatic purist to believe that this 'harmless' quantification has caused epistemological damage to the ethnographic nature of the study. In this illustrative example, the table does not go against 'the grain' of the study but merges effortlessly with the flow of the study. In this case, the presence or absence of quantification does not change the epistemological orientation of the research question. I am not creating a case for predominant research technique "buttressed" with another technique because it would overthrow the epistemological position (Bryman, 1999, p. 48). It is possible to have a study which neither quantifies data, nor captures the meanings and interpretations of the participants. How is one going to label such a study?

I will examine the claim of 'competing paradigms obscure diversity and complexity' in the second position and interpret this in terms of Kuhn's evolution of paradigms.

The Paradox: Competition and Evolution

The classic, *The Structure of Scientific Revolutions* by Thomas Kuhn, ran counter to the philosophical convictions about science in the 1960s. He questioned the tenability of the view that science describes what is really 'out there', independent of any observer. He urged researchers to conceive scientific progress not as teleological, i.e., goal-directed but as evolutionary. Therefore, there is no 'set goal, a permanent fixed scientific truth', but 'an increase in articulation and specialisation' (Kuhn, 1970, pp. 172–173).

Evolution in Action

Evolution makes a fundamental change and not a surface-level superficial one.

Are the two 'competing paradigms' or one evolved into another, while the vestiges of the former continue to exist? One way of looking at it is as an evolutionary process of the society and the research community and its practices. The society has thrown issues that need the research lens to be positioned in multiple ways. With social and economic changes, more researchers are being drawn to consider people on the margins of the society. For instance, it is worth studying the influence mass literacy or liberalisation has had on research trends. The distance between the haves and have-nots has increasingly widened across the world. Qualitative research being humane and concerned about the people represents the lesser heard, the lesser seen and the rarely understood perspectives and voices.

The other way of conceptualising the situation is that the quantitative tradition had reached its pinnacle or become completely saturated because it was unable to answer the problems posed by an evolving society and an alternative point of view was much needed. This is within the scheme of revolutions proposed by Kuhn. In other words, the inadequacy of quantitative research led to the evolution of qualitative research, rendering them incommensurable at the same time. In my interpretation, here lies the paradox of evolution and competition in action, simultaneously.

In this evolutionary process, the quantified, supported with descriptions stands richer and better understood. Duke and Mallette (2004) in preface to their book, *Literacy Research Methodologies,* urge the readers to "listen to each other" instead of "dismissing each other's work on the grounds of incommensurability" (p.xv). I will use Durkin's much acclaimed quantitative study of comprehension as an illustrative example.

When Dolores Durkin's classic study of reading comprehension instruction was published in the late 1970s, it shook the literary community. Durkin's (1978–79 research had revealed that less than 28 of 4,469 minutes (less than 1 per cent) observed during reading periods in 24 fourth-grade classrooms in 13 districts in the USA were devoted to teaching students how to comprehend. Instead, the maximum time in the class was devoted to assessment of comprehension where teacher questions dominated. Teachers assigned students

to read, and then, asked them questions about what they had read. This finding resulted in great attention to research in comprehension instruction over the next couple of decades — a time that has been referred to as the Golden Age of comprehension because so much was learned about comprehension processes and the teaching of comprehension.

A lesson we have from this example is simple and profound. A researcher may subscribe to an epistemological position and choose to carry out research that is in consonance with the worldview informed by that epistemological position. But it will not be wise to dismiss or ignore the research informed by other epistemological position(s). Needless to say, one has to be critical in examining every piece of research. Concluding this argument here, I would like to highlight that the paradigms are not just competing but one has led to the other's evolution. Durkin's study shows that competing and evolving paradigms enhance diversity and complexity. A step ahead in this evolution has been the emergence of critical theorists, who take on the cause of the marginal groups they study. This is quite unlike the qualitative researchers who describe the lives of these groups.

In the preceding section, I have examined the central question and deconstructed the two positions to highlight the significance of epistemology. I would like to return to the other argument I had kept on hold — the embededness of methodology in epistemology.

Embededness of Methodology in Epistemology

In the following section, I try to resolve the tension between methodology and epistemology by dwelling on the embeddedness of methodology in epistemology. Corbin and Strauss have started the introductory chapter of their book on techniques for developing grounded theory with the sentence, "Every methodology rests on the nature of knowledge and of knowing, and so does ours" (2008, p. 1). A detailed explication of the idea has been provided by Cohen and Manion (1994, p. 3) in their borrowing of the philosophical framework from Hitchcock and Hughes. To further approach and explore the issue in a more nuanced manner, I have drawn liberally from a framework of four hypothetical studies developed by Dressman and McCarthey (Duke and Mallette, 2001). This is the example I have used to illustrate my point in this section.

Hitchcock and Hughes (1995, p. 21) suggest that ontological assumptions give rise to epistemological assumptions; these, in turn, give rise to methodological considerations; and these to issues of instrumentation and data collection. This view moves us beyond regarding research methods as simply a technical exercise. It recognises that research is concerned with understanding the world and that this is informed by how we view our world." This states with precision how methodological concerns flow from the viewpoint held about the nature of reality.

To elaborate on the idea, I will proceed with the illustrative example. Dressman and McCarthey explore the topic — class size and literacy teaching and learning — using experimental and quasi-experimental designs, formative experiments, case studies, discourse analysis, and conversation. This hypothetical exercise is undertaken

to examine the epistemological weaknesses and strengths of each method. To do this, they discussed the epistemological assumptions underlying each method, which give rise to the relative weaknesses and strengths of each method. "Underlying each of these methods is a view of knowledge that influences the development of the research questions, the data sources, the data collection procedures and types of analysis (p. 340)." They proceed to argue that different epistemological assumptions among the methods should be considered as a strength rather than a liability because one method alone cannot address all aspects of a research problem. Moreover, different methods produce different kinds of knowledge. They conclude with a word of caution. They argue against the 'mixing of methods' in a single research study because the way each researcher perceives the nature of reality is different. The data from such a study "may result in hodgepodge of information without theoretical grounding (p. 344)". This brings me to the conclusion of my argument.

Conclusion

The primary argument I have used is the relationship between methodology and epistemology, and the 'rootedness' of the first in the latter. It is an issue or debate which cannot be understood without delving into philosophical issues. A comparison of the characteristics of qualitative and quantitative research seems a simplistic exercise to meet the desirable end. The varying characteristics are a result of one fundamental difference — the distinctive epistemological positions. A clear epistemological position seems to be the key to resolve or at least understand the tussle between methodology and epistemology.

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