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CONTENTS

Editor's Note

As stated by eminent educationalist Shri J.P. Naik, equality, quality and quantity were crucial issues in the Indian education at the end of the eighteenth century. We have made concerted efforts to address these issues since Independence. Our achievements present a mixed picture. We are able to address the issue of quantity to a great extent, at least at the elementary level, but we are still struggling to achieve the goal of equality and quality in education. Rachel Philip in her article discusses equality and quality in education as conceptualised by Rousseau, Ambedkar and Gandhi. Sambit Kumar Padhi in his research paper reiterates that we are not yet able to provide education to all sections of our society. In that context, he explores the educational status of Scheduled Tribe children of Odisha and concludes that these children are still lagging behind in education due to several reasons which should be addressed at the earliest.

The *National Curriculum Framework 2005* recommends a child-centred approach in the teaching-learning process; however, our classrooms are still teacher-centred. Meenu Dev elaborates a few learner-centred pedagogical inputs for Indian classrooms.

Three papers are related to language education. Sujata Sharma explores the impact of social constructivism on English language learning. She is of the view that English language learners should be allowed to construct knowledge through their experiences and overcome language and cultural barriers.

Pamei Gairanlu traces the roots of English language education in India during the British rule. Yeasmin Sultana's paper highlights the effectiveness of the use of technology supportive materials for developing listening skills in children at the elementary level.

Many psychologists believe that emotional intelligence (EI) is important. It expands our notion of intelligence, it helps us predict important life outcomes and it can be used to help people find the right work and relationship for themselves. Having greater EI can help a person in almost any inter-personal situation where it is important to read others and plan one's action accordingly. Amit Ahuja in his research paper finds out the relationship among emotional intelligence, academic anxiety and adjustment of secondary school students.

Almost all policy documents emphasise on providing guidance and counselling service to school and college students in our country. M.Venkatesan and Anubha Rohtagi in their paper highlight the challenges related to school counselling in India.

Two papers are about mathematics education. K.C. Vashistha and Aditi Bapte in their paper elaborate that life skill instruction proves to be highly beneficial in increasing the decision-making skill of students having difficulty in learning mathematics (dyscalculic students) whereas, effectiveness of web-based instruction for mathematics learning is explored by Balaram Prasad Jhariya and Laxman Shinde.

Mastery of content knowledge and pedagogical skills to transact content are essential components to become a teacher, and hence, included in pre-service teacher preparation programmes. Aparna Kadiyala tries to find out the conceptual knowledge and understanding of the nature of science of student teachers.

In order to improve the validity of current examinations, the entire process of paper-setting needs to be overhauled. K. Chandrasekhar presents the analysis of question papers of different subjects at the secondary level of a state board and concludes that there is enough scope for improving the question papers.

Toolika Wadhwa discusses critical pedagogy and its relevance to commerce stream subjects at the senior secondary level. Ruchi Shukla revisits the readiness for formal schooling among first-generation learners in a rural school of Uttar Pradesh.

The review of Sunita Narain's latest book *Why I Should be Tolerant: On Environment and Environmentalism in the 21st century* is also included in the issue. It is done by Ramanujam Meganathan.

Academic Editor

The Pursuit of Equality and Quality in Education
The Legacies of Rousseau, Ambedkar and Gandhi

RACHEL PHILIP*

Abstract

In the Indian context, the term 'quality' has come to stand for a variety of meanings and approaches that attempt to describe, evaluate and reform the state of education in terms of the nature of its provision (institutions), curriculum and textbooks, the professional competence of teachers and the learning outcomes of students. While these are significant indicators of the health of an educational system, this paper argues that engagements with the idea of 'quality' in education must be contextualised in the light of a society's ideas on what constitutes the desirable human life as well as the role of the State and education in that enterprise. The arguments of Enlightenment philosopher Jean Jacques Rousseau are reprised in this context, considering his influence in shaping the discourse of 'inequality' and its political and educational solutions. The amelioration of inequality was very much a part of engagement with the idea and identity of the India by nationalists during the first decades of the twentieth century. The philosophical positions adopted by Dr. B.R. Ambedkar and Mahatma Gandhi on what constituted an equitable and sustainable social order are examined in this regard. While their visions were diametrically different (especially regarding the nature of the State and the kind of education that was required), revisiting and negotiating with their ideas offer us scope in reordering our priorities with regard to how we conceptualise and locate 'quality' in the public education system.

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INTRODUCTION

The terms of 'quality' discourse have become a familiar terrain for Indian educationists in the past two decades, especially in relation with formulating norms and standards regarding the nature and contexts of the provision and processes of education. However, these norms and standards gain meaning as benchmarks through what they represent in terms of a worthwhile or meaningful educational experience for an individual learner. The issue of what is 'worthwhile' or 'meaningful' needs to be understood with respect to what is valued as the aims of education.

The three thinkers who are the focus of this paper have been selected because they grappled with questions of social justice and the role that education could play in transforming an iniquitous social order. In their exploration of the aims of education, they also help us refine and reformulate the concept of 'quality' associated with it.

Our present ideas of 'equality' and the place of education in pursuit of a socio-political utopia were first forged in the European context during the Enlightenment era and Rousseau as a philosopher played an important role in shaping some of our assumptions about this subject. At the turn of the twentieth century, there was considerable engagement with the idea and basis of the Indian nation. The philosophical positions of Ambedkar and Gandhi are important in their contrasting positions on the role of the State and the kind of education that was necessary to build an equitable social order.

In bringing together their arguments, I hope to reclaim focus on defining and measuring the 'quality of education', in terms of what J.P.Naik in 1975 called, 'its capacity to create a new social order' (1975:61).

ROUSSEAU: RE-FASHIONING 'EQUALITY'

The marriage of the two ideas of 'equality' and 'quality' were historically accomplished in what we now call the 'liberal' point of view, which is based on an idea of desirable human life as one that is concerned with the development and self-fulfilment of an individual. In this context, the Enlightenment philosopher, Jean-Jacques Rousseau (1712–78), deserves credit for reshaping the assumptions that were held till then about the role that education could play in shaping a just social order. His treatise, *A Discourse on Inequality*, is the object of my focus, because philosophically it sets a precedent for how we argue against inequality in favour of the individual. This was an essay written in response to a competition organised by the Academy of Dijon in 1753, on the question, 'What is the origin of inequality among men and is it authorised by Natural Law?' Ironically, Rousseau's seminal piece failed to win.

In this seminal essay, Rousseau explores the conditions required

for individual flourishing. Within the context of a conjectural and evolutionary history of humanity from the state of nature to that of civilisation, Rousseau flags tension between the individual and the society. On one hand, individual flourishing requires a stable social support and context where all members have equal opportunities for improvement, while on the other, the demands of social living ultimately lead individuals to draw their sense of worth from their comparative place in the social order. In his analysis of the trajectory of civilisational development, he argues that there has been a corruption of individual consciousness i.e., what he calls the conversion of *amour de soi* in the state of nature to the hubristic *amour propre*. The psychological price which sociality exacts on individuals is central to Rousseau's conception of 'equality' and 'liberty'.

The way the *Discourse* resolves this conundrum is what makes it seminal. Rousseau argues that differences between individuals i.e., social inequality are a result of conventions that emerge through cultural and historical relationships, rather than through 'natural or physical inequalities' such as 'differences in age, health, strength of body and qualities of the mind or soul' (Rousseau. 1754:77). In other words, Rousseau sets the precedent for arguing that if the present social order is a human product, then this can also be altered by human initiative. In his view, the need to contain and limit human violence, while allowing human flourishing, is at the heart of maintaining a certain social order. It is accomplished by the development of a system which will limit violence while allowing a certain concert between the polity and the economy. This system is the State. Rousseau imagines a particular relationship between the individual and the State as 'a social contract' in his eponymous work. He sets forth his political perspectives in greater detail in *The Social Contract,* where he argues that if individuals voluntarily renounce their natural rights and join to create a social contract as the basis of civil society, then all can find space for personal flourishing and yet remain free. Individuals are protected from being arbitrarily subordinated to the will of the socially powerful. When the law represents the general will of the populace, it secures their voluntary obedience and, therefore, it preserves civic morality. However, Rousseau is clear that this civic morality has to be bolstered and supported by careful education through a civil State. This is an argument that he develops in greater detail in works like *Emile. Emile* argues that a conscientious commitment to education is required in order to at least partially restore to human beings that was lost in the progression from nature to civilisation i.e., independence, equality, compassion and happiness. Therefore, Rousseau presents a powerful vision of the role of the

'State' in resolving the question of individual development without compromising individual integrity and social stability.

What is radical about Rousseau's picture was the notion that every individual has a particular way of being true to one's self, which has to be discovered by him or her (Taylor, 2009). This discourse of 'individualism' then becomes the basis of the exploration of suitable forms of social organisations. The revolutionary challenge to the primacy of a social order based on birth, privilege, religious affiliation and communal identities in the eighteenth century Europe (France to be specific) and in colonial North America was undergirded by this discourse of 'individualism'. This was paralleled by the socio-political transformation of institutional arrangements and conceptions of property, profession and office during the period. Increasingly, primacy was given to the individual over community.

The Individual and the State in Pre-colonial and Colonial India

In the Indian context, it must be remembered that the individual was not the 'basic social unit' of the traditional social order. Additionally, individual atomism was also not considered desirable. For example, the traditional worldview of Hinduism as described by Sudhir Kakar in *The Inner World* (1981), is explicitly oriented towards the fusion of the self with others. This is the fundamental ideal of *moksha*, which is considered the aim of one's existence. This is reflected in traditional Hindu upper caste child rearing practices, which seeks to undo what non-emic theories of psycho-social development would see as the normative individualistic trajectory of ego development, i.e., the gradual constitution of ego boundaries. Arguing that one of the greatest cultural anxieties of the Hindu culture is the isolation and estrangement of the self from others, Kakar holds that this leads to a cultural ideal of the personality characterised by discouragement of autonomy and the development of a strong sense of dependency on others (primarily one's extended family and one's caste group/*jati*). Kakar's analysis helps us to see the extent to which the discourse of individualism was novel in the Indian context, especially in the pre-Colonial period.

Sudipta Kaviraj (2010) Provides a political analogue to Kakar's psycho-social exploration by demonstrating how the Hindu worldview legitimised the subordinate claims of the individual to that of the family, caste and community in the *Manusmriti* idea of '*danda*' or order. Within this worldview, the political power represented by the 'king' or ruler was separate from the moral and social authority embodied by the Brahmin as the 'upholder of *danda*'. Therefore, the 'sovereignty' possessed by the ruler did not include the ability of radically altering social customs and practices,

even though they could collect rent and tributes as well as protect their territory militarily. The demands for justice and redistribution were also often routed through channels other than the king. This separation was also not disturbed with the advent of Islamic kingdoms founded in India from the eleventh century onwards. Islamic rulers also implicitly accepted this kind of limitation of their political power. The Mughals, for example, were considerably influenced by the Aristotelian traditions of Persianate Islam, which recommended that a ruler must provide conditions for the flourishing of his subjects, irrespective of their faith. To such conditions, the added uncertainty of frequent inter-state clashes and conquests was not conducive to the development of the kind of 'political belonging' pre-supposed by the modern nation state i.e., 'the firm identification between people and a form of politicised space' (ibid: 214).

In such a context, the institutions of the State created by the British were radically different in conception as well as influence. However, the British did not conquer India in one swoop, the processes by which power was ultimately annexed by the British crown were gradual and based on governmental practices of administration such as 'mapping territory and enumerative practices for the levy of taxation, the creation of an army for territorial control, the gradual exposure of a limited native segment to modern European education, etc' (ibid.). The subsumption of India under modern administrative protocols eventually laid ground for the state's incursion into the realm of social authority, thereby, overriding the caste-based logic of governance. Therefore, their policies and practices created space for a new discourse on individualism and the concomitant endorsement of the ideal of equality. New English institutions like, courts, civil service, university, schools, etc., along with new conceptions of property (like, land rights) and profession, created possibilities for self-development, distinction and mobility based on the idea of individual merit. These were embraced, not just by the upper castes but also by the elite among the lower castes, who gained concrete benefits from this opening up of education and employment (Beteille, 1983; Omvedt, 2004; Kumar, 2005).

At the same time, the tension between the colonial identity of being a 'subject' versus the promise of 'individual development' played a crucial role in shaping anti-imperialist sentiment and various incipient 'nationalisms' as a response to it. The opportunity which the anti-Colonial struggle offered with respect to imagining the identity of the nation was taken up by a diverse range of stakeholders. Prescient national leaders — be it Gandhi, Ambedkar or Nehru — had realised that the colonial transformation of the country created space for a language of 'nationalism', which could treat India not as a

primordial reality, but as a project which had to be developed. This was an opportunity to imagine the kind of social organisation which could ameliorate inequalities and unleash the potential of the people who had been suppressed both by culture and colonisation. The relationship between the individual, the nation, the state and education was explored in contrasting ways by Ambedkar and Gandhi.

AMBEDKAR: INSTITUTIONALISED INDIVIDUALISM

In the Indian context, Dr. Ambedkar played an important role in using this emergent discourse of individualism to highlight the tyranny of caste-based inequality. The main text that I use as a reference for Ambedkar's thought is his book the *Annihilation of Caste* (1936).

Ambedkar interpreted the traditional caste-based Hindu social order as a system of governance in general and as a system of production, organisation and distribution in particular, which was based on social and economic rights that were fixed, unequal and hierarchical. Simultaneously, the rigidity of this system was bolstered and reproduced by strong instruments of social and economic ostracism along with a philosophical justification in Hindu religious texts. Additionally, a key factor of what sustained the caste system and *Brahminical* power in this context was the denial of access to knowledge. A series of penalties against the study of the *Vedas* by the deprived castes was instrumental in perpetuating illiteracy and ignorance in secular life. Since reading and writing became incidental to the study of the *Vedas* in this system, the ramifications of the restricted access to the scriptures for the deprived castes meant the denial of opportunities to develop human capabilities through education (Thorat and Kumar, 2008). This was more repulsive for Ambedkar because his very idea of liberty as articulated in the *Annihilation of Caste* was the freedom to formulate one's purposes in life, without having to accept it from another. The fixation of rights and its continuance by heredity left no scope for individual capacities or choices. Moreover, the absence of social mobility along with isolation and exclusion prevented an experience of true 'fraternity'.

In contrast, the ideal society that Ambedkar delineates in the *Annihilation of Caste* is based on free and open communication. This creates 'real' relationships based on sharing of purpose and resources, leading to 'like-mindedness'. Democracy for Ambedkar was primarily 'a form of associated living', rather than just a form of government.

The test for an ideal society was the extent to which it permitted what he called 'social endosmosis' (ibid.). Endosmosis is a scientific term, which describes the inward flow of a fluid through a permeable membrane toward a fluid of greater concentration.

Arun Mukherjee (2009) traces how Ambedkar borrows this term from his teacher at Columbia University, John Dewey, who in turn changed its original appropriation by Henri Bergson and William James to describe the interaction of the human mind with nature and applied it to describe the interaction between social groups in 'Democracy' and 'Education'. While Dewey himself only used the term once, Ambedkar frequently drew on this 'fluid' metaphor to describe his vision of democracy where the privacy and integrity of individuals could be preserved and nurtured, but not enclosed and isolated in impermeable social categories.

This understanding of endosmosis is critical in Ambedkar's refusal to countenance claims that India was already a nation, claims that derived from the foundation of a Hindu civilisational identity and assumptions about how various groups cohabited in the past. For him, the nation was a project which had to be consciously undertaken with attention to proper processes of social amalgamation (Omvedt, 2004). Only in such an exercise could a secular basis be found for social organisation and the destruction of caste-based exclusion and discrimination. The State was instrumental in establishing and maintaining institutions which would critically engage with how to realise democracy as a form of 'associated living', while ensuring and protecting the proportionate representation of all members of society through penal sanction.

It is within this paradigm that Ambedkar approaches the place of education in the nation. He placed great importance on State-sponsored schooling in being instrumental in enabling children from the deprived classes opportunities for modern education and avenues for individual mobility, and thus, group mobility. Secondly, in terms of curricular specifications, Ambedkar gave priority to scientific and technical education, which would enable its beneficiaries to critically evaluate their social backgrounds as well as participate in the unfolding processes of building an industrial nation (Thorat and Kumar, 2008). As early as 1924, he helped establish the Bahishkrit Hitkari Sabha, which among other things started industrial and agricultural schools, libraries, social centres and study circles for students of deprived classes. In 1945, he founded the People's Education Society and schools and colleges under its aegis (Siddharta College of Arts and Sciences in 1945, and the Milind College of Science in Aurangabad in 1950) (Kapoor, 2004). Thirdly, he advocated the provision of reservation for students from Dalit backgrounds in institutions for higher learning.

In the context of this paper's discussion, Ambedkar's contribution lies in how he envisaged 'access',

which was an important front on which the battle for equality in 'education' was fought. However, 'access' was not figures of 'enrolment' for him. Rather, access was part of the process of endosmosis which he hoped that the school would facilitate by fostering the 're-socialisation of once socialised attitudes…In place of the old, it creates a new like-mindedness, essential for a harmonious life, social or political…' (quoted in Mukherjee, 2009). Though Ambedkar refrains from entering the processes within the school which must ensure the kind of 'endosmosis' that he imagined, especially pedagogy, engaging with his ideas reminds us of the critical promise embodied in the State, especially in the context of growing disillusionment with the government in our country.

Gandhi: Liberating the Individual

In contrast to the liberal egalitarian vision, which Ambedkar embraced as potentially liberating for the socially marginalised, Gandhi represents a different tradition of radical thought in the early twentieth century. This was a socio-political opposition to the Colonial rule, which took the form of a deeper critique of the 'civilisational, cultural and epistemic domination of the Modern West' (Yadav, 2010). Gandhi's unique contribution to political and philosophical thought lay in his emphasis on the individual as the site and target of change, especially the internalisation and cultivation of those dispositions

which would enable the individual to critically engage with and fight social, political and economic injustice and exploitation. Gandhi's *Hind Swaraj* (1909) was his most elaborate exposition of this position, in relation to several other competing ideas on how to accomplish political and social change in India (including constitutionalism, revolutionary violence, ethnic nationalism, religious separatism and so forth).

While political autonomy, economic self-determination, etc., were important external aspects of '*swaraj*', Gandhi argued that 'true *swaraj*' had to be first experienced by an individual as inner spiritual freedom and autonomy. An individual had to continually strive to be independent of external control and regulation through 'self-discipline and self-transcendence' (Parel, 2009:xix). Self-discipline was to be cultivated by constantly regulating one's actions through dispassionate assessment, correction and self-reliance. Such discipline would lead to the kind of self-transcendence, which would express itself in the 'disinterested service of fellow citizens without regard to their gender, religion, caste or class' as well as the strength to incur personal suffering against the abuses of authority.

This context is essential in reading Gandhi's critique of English education in *Hind Swaraj* because it reflects his conviction that the educational model it represented was ineffectual in creating individual

dispositions required to desire and work for a just social order. Therefore, he felt that English education merely contributed to knowledge of letters but tended to make its beneficiaries self-absorbed in their own futures, rather than considering their duty towards others. Secondly, those who had no access to this education were alienated from the institutions of governance, which regulated their lives. Thirdly, the lack of emphasis on the importance of instruction in one's mother tongue further de-rooted an individual's ties and continuity with his community.

Gandhi does not provide an alternative paradigm of education in *Hind Swaraj*, primarily because his views on what constituted an equitable social order were also in the process of being formulated during his sojourn in South Africa. His reading of John Ruskin's *Unto This Last* and his correspondence with Tolstoy shaped his experiments with organising and living in a rural commune, first at Phoenix Farm which was established in 1904, and later, at Tolstoy Farm in 1910. He was already moving in the direction of concluding that a self-sufficient rural lifestyle, which recognised the dignity of manual labour was the one which best fostered a life and society of peace, freedom and non-violence. The idea of the productive school emerged through these endeavours. Gandhi came to appreciate the pedagogic importance and success of organising the teaching-learning

activity in children's real participation and contribution in various activities involved in the running of the farms. These experiences would shape the project of basic education, which Gandhi would propose nearly 20 years later, when the Congress ministries came to power in the provincial elections of 1937.

Basic education's innovation lay in its introduction of productive handicrafts in the school curriculum and in doing so, Kumar (1993) argues that Gandhi radically overturned some aspects of the education system. It challenged the 'symbolic meaning of education' prevalent in the Indian society, which represented it as mental labour as opposed to manual labour. Gandhi's analysis of the prime cause of caste discrimination being a differential valuation of work underlay this plan. In exposing all children to a curriculum around craft knowledge, which had been the purview of the lowest and often untouchable castes, Gandhi created a unique opportunity for pedagogy of the upper castes as well. Secondly, emphasis on training children for productive work and creating dispositions, which were conducive to living in a co-operative community, were also in line with this vision for India's villages. The empowerment and development of the village community as well as its protection against the imperatives of indiscriminate modernisation was a crucial aspect of what freedom from Colonial rule meant for Gandhi. Thirdly, basic education represented

a concept of learning that could not be implemented fully using textbooks, so there was considerable space for the teacher to exercise creative autonomy in transacting the curriculum. In trusting the teacher's competence and creativity, Gandhi was also simultaneously distancing himself from over-involvement of the State, which he did not trust. Through these aspects, Gandhi saw the possibility of ingraining in children sensitivity, resilience and self-reliance, which would enable them to participate in the construction of an equitable social order.

In so far as this, it represented a radically new way of envisioning the transformative potential of education, a number of concerns were raised in its implementation. For one, those who saw education as a source of mobility like Ambedkar believed that this plan limited options for members of the lower castes if they wished to leave their occupations. Another inherent problem with Gandhi's framework was that because it favoured the rural child from the lowest social strata, many assumed that basic education was a programme that was meant only for the poor, leading to the upper and middle classes dissociating themselves from this endeavour. There was also discomfort with the idea of self-financing and productive school as promoting child labour, with the added suspicion that children from backward classes would end up doing all the work (Sykes, 1988).

However, as Kumar (1993) demonstrates, despite the range of interpretations that Gandhi's proposal received and despite imaginable administrative and financial problems, the scheme of basic schools was implemented on a considerable scale in several parts of India post-Independence. Whether we evaluate it as a success or failure, it nevertheless remains a bold testament to a completely different model of pursuing social equality and quality of life outside the liberal tradition.

Conclusion

We began with Rousseau's contribution that one should consider both the creation and perpetuation of inequality historically, institutionally and individually. With Ambedkar, we moved towards bringing together considerations of equality, especially in terms of access, with 'endosmosis' bringing a quality dimension to the educational experience which was to be safeguarded by the State. For Gandhi, 'equality' had to be internalised as a principle for action, rather than just an ideal or a legal provision and he provides inspiration for an idea of 'quality', whereby an educated person would be judged on the basis of his social commitments and willingness to contribute to social development.

The aim of using the discourse of these thinkers was to highlight a critical absence in current discussions of 'quality' and 'equality'

in education, i.e., the absence of a moral language which engages with the question of what kind of a society we want to become. This absence is all the more critical because the effects of education in the lives of individuals and communities unfold over long periods of time.

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Scheduled Tribe Students in Schools of Odisha
An Analysis through Statistical Spectacles

Sambit Kumar Padhi*

Abstract

Tribes comprise approximately 8.6 per cent of the total population of the country, which probably has the largest number of tribal communities in the world. India, being a classic homeland of Scheduled Tribes, offers a sound human laboratory for conducting a number of researches. The diverse issues of Scheduled Tribes, in general, and their educational development in particular, received wide attention among researchers for a long time because time has shown that education is an inevitable force for the holistic development of people and nation. Odisha occupies a prominent space on the tribal map of India as it consists of a variety of Scheduled Tribe communities. The greatest challenge before the state is to mainstream the socially excluded group like Scheduled Tribe population. A close analysis reveals that literacy and enrolment of tribal children are quite low and considerably lower than the other categories. An attempt has been taken in the first part of this paper to study the sex ratio, overall literacy and gender gap in the literacy rate of Scheduled Tribe population of Odisha. The second part highlights the school education status of Scheduled Tribe children in terms of enrolment, gross enrolment ratio, gender parity index and dropout rate at various levels. Some points have been given in the last part of this paper in order to overcome the upcoming challenges.

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INTRODUCTION

India has the largest concentration of tribal population in the world, except perhaps the African countries. The tribes live mostly in isolated villages or hamlets in various states. In India, they are equated with adivasi, who are primitive and live in hills and forests. 'Adivasi' means the original inhabitants of India. In Sanskrit, the word *atavika* means forest dwellers or *vanavasi*, which closely refers to adivasi. They are scattered all over the country and differ from each other in racial traits, social organisation, cultural pattern, etc. Most of the tribal communities have their own dialects, most of them without a script. More than 90 per cent of Scheduled Tribe workers are engaged in the primary sector or sector of the economy related to the exploitation of natural resources. In view of their socio-economic backwardness, geographical isolation and marginalisation, the Constitution of India has incorporated specific provisions for promoting and safeguarding the interests of tribals. Article 46 of the Constitution envisages that, "The state shall promote with special care the educational and economic interests of the Scheduled Tribes and protect them from social injustice and all forms of exploitation." There are further provisions in Articles 14 and 15 of the Constitution for affirmative State actions in their favour.

At present, there are nearly 645 tribal groups, which constitute 8.6 per cent of India's total population (2011 Census). Nearly three-fourth of India's Scheduled Tribe population is concentrated in seven states in Central India i.e., Madhya Pradesh, Maharashtra, Odisha, Bihar, Gujarat, Rajasthan and Andhra Pradesh. In comparison to other states, Odisha has the highest percentage of tribal population next only to Assam in terms of various economic gradations, ethnic stock and linguistic families.

A PROFILE OF ODISHA

Odisha occupies a prominent place on the tribal map of India as it consists of one of the largest varieties of Scheduled Tribe communities. As far as the geographical location of Odisha is concerned, West Bengal in the North East, Jharkhand in North, Andhra Pradesh in South, Chhattisgarh in West and the Bay of Bengal on East surround the state, which is located on the east coast of India. It lies between 17.48^0 and 22.34^0 North latitude and 81.24^0 and 87.29^0 East longitude. In the past, Odisha was famous as Kalinga, Koshala, Udra and Utkal. All these regions became one and a separate state — Odisha — on 1 April 1936 under the Government of India Act, 1936. It has an area of 155,707 sq. km. i.e., 4.74 per cent of India's land. Odisha is not a homogeneous area due to its mountainous terrain and combined action of its major rivers

(such as Budhabalanga, Baitarani, Brahmani, Mahanadi and Rushi-kulya) and their tributaries. It has a limited area of lower elevations, while about three-fourth of its land surface is hilly and mountainous. It has some narrow river valleys and a few major uplands and subdued plateaus. Odisha now comprises 30 districts and several administrative units with a total population of 36,804,660 according to the 2001 Census and 41,947,358 as per the 2011 Census report. According to the 2001 Census, the Scheduled Tribe population of the state was 8,145,081, which constituted 8.08 per cent of the total population of the country and 22.13 per cent of the total population of the state. As per the 2011 Census, Scheduled Tribes constitute 22.8 per cent of the total population of the state.

Scheduled Tribe Population of Odisha

Odisha is regarded as the homeland of tribes. The tribal population is scattered throughout the state but density is more in southern, western and northern districts. They are found to be thickly concentrated in the districts of Mayurbhanj, Sundargarh, Nayagarh, Nawrangpur, Malkangiri, Keonjhar, Kalahandi, Kandhamal, Gajapati, Koraput, Nuapada, Balangir and very sparsely distributed in Cuttack, Kendrapara, Puri, Jajpur. Most of them have been living in hilly and forest regions. Their economy is largely subsistence-oriented, non-stratified and non-specialised. Their social system is simple and aspirations and needs are not many. Though the Scheduled Tribes in Odisha have suffered social, educational and economic backwardness due to geo-historical reasons, they have their own distinctiveness and social-cultural milieu. The process of socio-economic development has been going on after Independence and has picked up momentum. Their ethos, ideology, worldview, value-orientation and cultural heritage are rich and varied. At one end of the scale, there are nomadic food gatherers and hunters and at the other end, skilled settled agriculturists and horticulturists. The tribal areas of Odisha, therefore, present a diverse socio-economic panorama.

There are 62 tribes in the state, who speak as many as 74 dialects. Of these, 14 major tribes have a distinct culture of their own and belong to separate racial and linguistic groups. They are Kandha, Gond, Savara, Munda, Godaba, Kolha, Oraon, Kissan, Santal, Paraja, Koya, Bhllyon, Juang and Bonda. Apart from these tribes, others like Korwas, Birhor and hill Kharies also live here. Each tribe possesses a distinct identity in terms of social organisation, culture, language, customs and traditions.

Table 1
Scheduled Tribe Population of Odisha and Sex Ratio (1961–2011)

Census Year	Tribal Population	Tribal Sex Ratio
1961	4,223,757	1,016
1971	5,071,937	1,007
1981	5,915,067	1,012
1991	7,032,214	1,002
2001	8,145,081	1,003
2011	9,590,756	1,029

Source: *Census Of India*
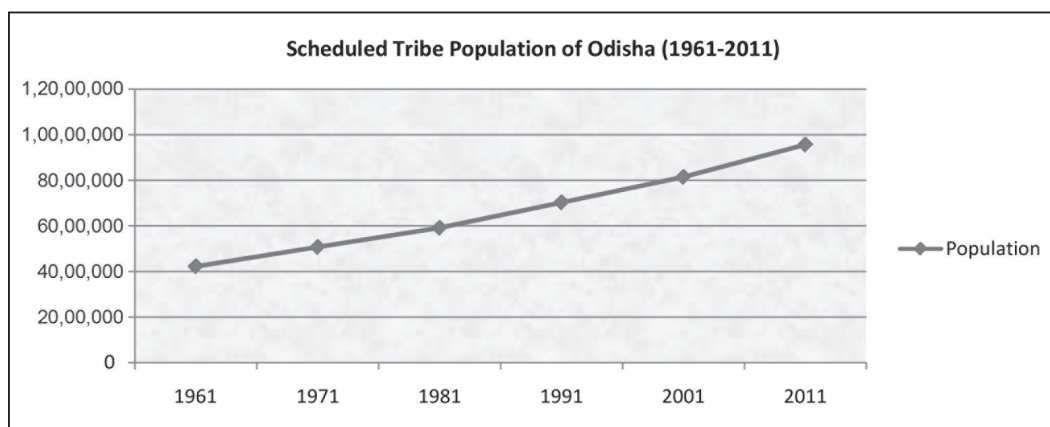
Figure 1

The population of Scheduled Tribes in Odisha consistently increased from 1961 to 2011 (Table 1). An analysis indicates that the Scheduled Tribes population of 2011 increased approximately more than two times compared to the population of 1961 Census. As far as the sex ratio is concerned, a fluctuating trend was reported from 1961 to 2011. As per the 1961 Census, the sex ratio was 1,016 and it was 1,007 in 1971. Table 1 shows that the tribal sex ratio reached 1,012 in 1981, 1,002 in 1991, 1,003 in 2001 and finally 1,029 in 2011. As a whole, the sex ratio of Scheduled Tribes is better in matter of gender equality.

Table 2
Percentage of Schedule Tribes to Total Population of Odisha (2001–2011)

Census Year	Rural	Urban	Total
2001	24.6	8.1	22.1
2011	25.7	8.5	22.8

Table 2 shows the percentage of rural and urban Scheduled Tribe population in Odisha. As per the 2001 Census, the total Scheduled Tribe population was 22.1 per cent, which includes 24.6 per cent and 8.1 per cent of rural and urban Scheduled Tribes population, respectively.

However, by the census year 2011, the overall Scheduled Tribes population reached 22.8 per cent, which includes 25.7 per cent rural and 8.5 urban population. A comparison of Scheduled Tribe population of 2011 Census with 2001 Census revealed that within a decade, there has been an increase of 0.7 per cent. Among rural Scheduled Tribes, the percentage of population went up from 24.6 to 25.7 per cent and among urban Scheduled Tribes it went up from 8.1 to 8.5 per cent for the same period.

This shows the steady increase of Scheduled Tribes' population in rural areas compared to urban areas within a decade.

EDUCATION OF THE SCHEDULED TRIBES

Education has been assigned high priority among the national objectives in India. It has been widely accepted that education is a necessary tool for the attainment of developmental goals. Realising the importance of education for a large, democratic and welfare country like India, the Constitution enshrines certain provisions promising equal educational opportunities to all. In pursuance of these provisions, the State and Central governments have given attention to the promotion of education among all categories, in general, and socially and culturally disadvantaged groups, in particular. Despite incentives for the development of education among the tribes, the progress of educational development is still far from expectation.

Table 3
Overall Literacy and Scheduled Tribes Literacy of Odisha

Census Year	Percentage of Literacy		Literacy Gap
	Total	Scheduled Tribes	
1961	21.66	07.36	14.30
1971	26.18	09.46	16.72

1981	34.23	13.96	20.27
1991	49.09	22.31	26.78
2001	63.08	37.37	25.71
2011	73.45	52.2	21.25

* Census of India, 1961–2011

The tribal disparity in literacy had steadily increased from 1961 to 1991 (Table 3); and it registered a marginal decrease in the census years 2001 and 2011. The tribal literacy was about 25 per cent less than the overall literacy in most census years.

Literacy and education are pre-requisites for the quality of resources to any society. Improvement in the level of these indicators reflects development in a society. The rate of literacy among Scheduled Tribes was 52.2 per cent against the overall rate of 73.45 per cent in the state as per the 2011 Census (Table 4). The tribal male and female literacy rates were 63.7 and 41.2 per cent, respectively. Over the last six decades, there has been a significant improvement in the literacy level among Scheduled Tribes in Odisha, which recorded a jump from 7.36 per cent in 1961 to 52.2 per cent in 2011. As per the 1961 Census, literacy rate among Scheduled Tribes was 7.36 per cent, against the overall 21.66 per cent, of the state. However, it may be noted that literacy rate of Scheduled Tribes population has consistently increased during the last six decades.

An overall analysis of Scheduled Tribes literacy rate to the total figure reveals that there is a great disparity in the literacy rate of general and tribal population. A conspicuous gender inequality in the literacy rate of Scheduled Tribes students has

Table 4
Gender Gap in Literacy Rate of Scheduled Tribes Population of Odisha (in %)

Census year	*Total*	*Male*	*Female*	*Gender Gap*
1961	7.36	13.04	1.77	11.27
1971	9.46	16.30	2.58	13.72
1981	13.96	23.27	4.76	18.51
1991	22.31	34.44	10.21	24.23
2001	37.37	51.48	23.37	28.11
2011	52.2	63.7	41.2	22.5

* Census of India, 1961–2011

been observed. It is evident from Table 4 that in 1961 the literacy rate of males was 13.04 per cent. However, literacy rate of females was only 1.77 per cent. Similarly, in 1971 the corresponding values were 16.30 and 2.58 per cent, respectively. In 1981, it was 23.27 and 4.76 per cent; in 1991, the literacy rate of males and females was 34.44 and 10.21 per cent, respectively; in 2001, it was 51.48 and 23.37 per cent and in the census year 2011 it was found that the literacy rate of males and females was 63.7 and 41.2 per cent, respectively. It is pertinent to note that the literacy rate of both males and females shows an increasing trend from 1961 to 2011. However, gender gap in the literacy rate has not been reduced during these periods. As far as male literacy is concerned, it rose from 13.04 per cent in 1961 to 63.7 per cent in 2011. The corresponding figures for females were 1.77 and 41.2 per cent, respectively. It is disheartening to note that the overall literacy rate has increased within six decades but the gender gap has not decreased as per the expectations, which has widened gender inequality in society.

Table 5 shows the enrolment of Scheduled Tribe students in primary, middle and secondary levels of school. The year-wise analysis provides a mixed picture of growth and decline of students' enrolment. In 2006-07, the total enrolment at the primary stage was 1,276,045. During the subsequent years a mixed trend was observed and by 2010-11 enrolment was 1,338,732. As far the enrolment in middle and secondary levels is

Table 5
Enrolment of Scheduled Tribe Boys and Girls at Different Stages of School Education

Year	Primary (Class I-V)			Middle (Class VI-VIII)			Secondary (Class IX-X)		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
2006-07	677,503 (53.09)	598,542 (46.91)	1,276,045 (100)	186,409 (57.44)	138,101 (42.56)	324,510 (100)	62,240 (57.71)	45,598 (42.29)	107,838 (100)
2007-08	639,338 (51.15)	610,648 (48.85)	1,249,986 (100)	193,073 (55.75)	153,227 (44.25)	346,300 (100)	63,482 (57.95)	46,042 (42.05)	109,524 (100)
2008-09	685,134 (51.06)	656,627 (48.94)	1,341,761 (100)	208,880 (55.22)	169,381 (44.78)	378,261 (100)	66,557 (57.67)	48,852 (42.33)	115,409 (100)
2009-10	679,605 (51.07)	650,906 (48.93)	1,330,511 (100)	213,371 (54.29)	179,644 (45.71)	393,015 (100)	72,991 (55.65)	58,171 (44.35)	131,162 (100)
2010-11	684,634 (51.14)	654,098 (48.86)	1,338,732 (100)	210,031 (53.18)	184,846 (46.82)	394,877 (100)	79,148 (53.74)	68,134 (46.26)	147,282 (100)

Source: Statistics of School Education, Government of India
Figures in parenthesis indicate percentage.

concerned, a consistently increasing trend was observed in both the cases during 2006-07 to 2010-11. In 2006-07, the total enrolment was 324,510 and 107,838 at middle and secondary levels, respectively. During the subsequent years, an increasing trend was observed and by 2010-11 the corresponding figures were 394,877 and 147,282 at the two stages of schooling, respectively.

Further analysis indicates the gender-wise enrolment of Scheduled Tribe students in three stages of school education. It is evident from the table that at the primary stage in the year 2006-07, out of 1,276,045 students, 677,503 were boys and 598,542 were girls, which accounted to 53.09 per cent and 46.91 per cent, respectively. In the successive years, a slight change was observed and finally, in 2010-11, the percentage of enrolment of boys and girls was 51.14 and 48.86 per cent, respectively. The analysis of the percentage of enrolment of boys and girls revealed that the participation of girls had increased slightly in the successive years at primary stages of schooling. At the middle stage in 2006-07, the percentage of enrolment of boys and girls was 57.44 and 42.56 per cent, respectively. In the successive years, the percentage of girls increased and by 2010-11, the percentage of enrolment of boys and girls was 53.18 and 46.82 per cent, respectively. As far as the percentage of enrolment of boys and girls at the secondary level is concerned, in 2006-07, it was reported to be 57.71 per cent and 42.29 per cent, respectively, and by 2010-11, the corresponding figures were 53.74 and 46.26 per cent for boys and girls, respectively. An overall analysis in the increase of enrolment of Scheduled Tribe students in all stages of school education indicates not only larger enrolment of boys and girls but also greater retention of Scheduled Tribe students at all levels of school education. This is a positive trend as far as the education of Scheduled Tribes is concerned.

Table 6
Gross Enrolment Ratio of Scheduled Tribe Students (2006–07 to 2010–11)

Year	Primary (Class I-V)			Middle (Class VI-VIII)			Secondary (Class IX-X)		
	Boys	*Girls*	*Total*	*Boys*	*Girls*	*Total*	*Boys*	*Girls*	*Total*
2006-07	129.84	122.28	126.18	66.21	52.18	59.41	33.82	26.99	30.55
2007-08	124.63	127.22	125.88	69.45	58.71	64.25	34.69	27.41	31.20
2008-09	130.0	133.8	131.8	75.4	65.2	70.5	36.57	29.43	33.16
2009-10	130.40	134.74	132.48	77.73	69.84	73.91	39.85	34.69	37.38
2010-11	132.7	137.4	135.0	77.1	72.5	74.9	43.20	40.70	42.10

Source: *Statistics of School Education, Government of India*

Table 6 shows the gross enrolment ratio (GER) of Schedule Tribe students from 2006-07 to 2010-11. It is evident from the table that there has been good progress in the matter of enrolment in the schools. In 2006-07, the GER of Scheduled Tribe children was 126.18 at primary level, 59.41 at middle level and 30.55 at secondary level. It was found that the GER had increased in all levels from 2006-07 to 2010-11. In 2010-11, it rose to 135, 74.9 and 42.1 at the primary, middle and secondary level, respectively. The GER above hundred indicates the presence of a large number of over-aged children in respective age of schooling. Late enrolment in school and stagnation generally account for the presence of over-aged children in schools. The presence of over-aged children, therefore, is in some way an indication of relative educational backwardness of the Scheduled Tribe population.

Another index to measure gender inequality in schooling is the number of girls per hundred boys enrolled in schools. Table 7 shows that although gender disparity in the schooling of Scheduled Tribe children still exists, there has been a substantial improvement in narrowing down the gap between boys and girls in school enrolment during 2006-11. In 2006-07, the number of girls was 88, 74 and 73 for primary, upper primary and secondary stages of education, respectively. In 2010-11, the corresponding figures were 96, 98 and 86 at the three stages of schooling, respectively. As far as the year-wise analysis is concerned, at the primary level 88 girls were enrolled in 2006-07 and it went up to 96 in 2010-11. Similarly, at the upper primary level, 74 girls were enrolled in 2006-07 and it reached 98 by 2010-11. As far as the secondary level is concerned, it was 73 girls in 2006-07 and 86 in 2010-11. This indicates that there is a positive trend in the enrolment of tribal girls in all stages of school education.

Table 7
Number of Scheduled Tribe Girls per Hundred Boys at Different Stages of School Education (2006–07 to 2010–11)

Year	Primary (Class I-V)	Upper Primary (Class VI-VIII)	Secondary (Class IX-X)
2006-07	88	74	73
2007-08	96	79	73
2008-09	96	81	73
2009-10	96	84	80
2010-11	96	98	86

Source: *Statistics of School Education, Government of India*

Table 8
Gender Parity Index of Scheduled Tribe Students at School Education
(2006–07 to 2010–11)

S. No.	Academic Year	Primary (Class I-V)	Upper primary (Class VI-VIII)	Secondary (Class IX-X)
1	2006-07	0.94	0.79	0.80
2	2007-08	1.02	0.85	0.79
3	2008-09	1.03	0.86	0.79
4	2009-10	1.03	0.90	0.87
5	2010-11	1.04	0.94	0.94

Source: Statistics of School Education, Government of India

Gender Parity Index (GPI) is yet another measure of gender equality in education. It is evident from Table 8 that in all years the GPI of primary level is much higher than that of upper primary and secondary levels. In 2006-07, the GPI was 0.94, 0.79, and 0.80 at the primary, upper primary and secondary stages, respectively. While in 2010-11, the corresponding figures were 1.04, 0.94 and 0.94 at the three stages of schooling, respectively. These findings probably indicate a higher rate of dropout among Scheduled Tribe girls after the primary stage of education compared to boys. As far as the year-wise GPI is concerned, it was observed that there has been a definite rise from 2006-07 to 2010-11 at all levels of school education. The increase has been from 0.94 to 1.04 at primary, from 0.79 to 0.94 at upper primary and from 0.8 to 0.94 at the secondary level from 2006-07 to 2010-11. The findings also indicate a positive trend towards gender equality in successive years among Scheduled Tribe students, although inequality still persists.

Table 9
Dropout Rate of Scheduled Tribe Boys and Girls in School Education
(Classes I–X)

Year	Boys	Girls	Total
2006-07	85.21	83.41	84.52
2007-08	85.55	83.58	84.79
2008-09	86.19	85.19	85.78
2008-10	86.08	85.13	85.68
2010-11	86.40	84.50	85.60

Source: Statistics of School Education, Government of India

It was found that the dropout rate from Classes I-X varied from 84.52 per cent to 85.78 per cent during the assessment period. Dropout rate increased in the successive years and was the highest i.e., 85.78 per cent in 2008-09. The findings revealed that out of every 100 Scheduled Tribe children enrolled in Class I, only 14 to 15 could reach Class X. Another observation indicates that the dropout rate of Scheduled Tribe boys is higher compared to girls. The dropout rate of boys was 85.21, 85.55, 86.19, 86.08 and 86.40 per cent in 2006-07, 2007-08, 2008-09, 2009-10 and 2010-11, respectively. However, in the corresponding years, the dropout rate of girls was 83.41, 83.58, 85.19, 85.13 and 84.50 per cent, respectively. The high dropout rate could be attributed to poor socio-economic condition of the family. In addition to that, poverty, inaccessibility to school, inadequate school infrastructure, ignorance and low emphasis on education may be some of the reasons for high dropout of Scheduled Tribe children in different stages of school education.

Future Perspectives

Education of Scheduled Tribe cannot be left to short-term plans. It is important that planners take a long-term view which is embedded in a meaningful policy framework. Following are some important points emerging from the analysis.

• Emphasis should be on quality and equality rather than quantity as has been the case in the past. The prime focus should be on the provision of quality education that makes tribal communities economically effective and independent.

• In the tribal context, it is essential that the school schedule be prepared as per the local requirement, rather than following a directive from the state as it has been found that vacations and holidays are planned without taking into consideration the local contexts.

• Though it has been highlighted time and again, no concrete step has been taken to provide locally relevant materials to tribal students. Availability of locally relevant materials will not only facilitate faster learning but also help children develop a sense of affiliation to school.

• In order to make education effective and sustainable, building partnerships between the community and the government is important. Results from pilot projects in various states show that community partnerships not only augment state expenditure on education but also guarantee supervision and monitoring, thus, addressing an intractable problem for the state.

• Environment building is of imme-nse importance in the context of educational development among tribal communities. Community awareness and community

mobilisation, which are its core elements, should receive adequate importance and attention.

- Decentralisation of education management is another aspect that needs special consideration in the context of tribal areas. In fact, considering the geographical terrain and communication problems in tribal areas, it is crucial to restructure the existing system of educational management. Adaptation of structures such as school complexes and VECs to tribal areas needs careful consideration.

- Skill development, competency building and teachers' motivation also need to be strengthened for sustaining educational development. Teachers should be made the centre of educational transformation and therefore, must remain the primary facilitators.

Conclusion

Education of tribals is an important task before the nation. Unfortunately, the literacy rate of the tribal population is very low. It has been observed that the extent and pace of education has also remained slow among tribals. The reasons for this can be categorised as external, internal, socio-economic and psychological. The external constraints are related to problems and difficulties at the policy level, planning, implementation and at the administrative level. Internal constraints refer to problems related to the school system, content, curriculum, and medium of instruction, pedagogy, teacher-related problems, academic supervision and monitoring. The third set of problems is related to social, economic and cultural background of tribal and the psychological problems of first-generation learners. The state literacy rate of scheduled tribes, according to the 2011 Census, is 52.2 per cent, which is much lower than the overall 73.45 per cent. Therefore, an educational plan for such a vast group of individuals should aim at educating all its members in the school-going age-group. Education is, in fact, an input not only for the economic development of tribes but also for the inner strength of tribal communities. It also helps them face the new challenges of life. Education of Scheduled Tribe children is considered important not only because of constitutional obligation but also as a crucial input for the all-round development of tribal communities. Careful educational planning and mapping are required for developing among tribal children the habit of attending schools regularly. This will solve the problems of attendance, achievement, retention and dropouts of Scheduled Tribe children.

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Pedagogical Inputs for Child Development

Meenu Dev*

┌─ **Abstract** ─┐

Children are natural learners. They construct their own knowledge and actively engage with the world around by exploring, responding, inventing and working things out to frame their own meaning. Modern pedagogy, strongly influenced by Piaget's cognivitism and social interactionalist theories of Bruner and the social and cultural theories of Vygotsky, has laid a new foundation for pedagogy, where sequential development of individual mental processes such as recognise, recall, analyse, reflect, apply, create, understand and evaluate are scaffolded. Students learn as they internalise the procedures, organisation and structures encountered in social context as to their own schema. They learn to integrate their prior knowledge with new knowledge and also develop their meta-cognition, ability to learn how to learn. The NCERT National Curriculum Framework (NCF 2005), too, emphasises on learner-centred approach to achieve the objectives of the curriculum and child development in all aspects.

INTRODUCTION

Development refers to the biological, psychological and emotional changes that occur in human beings from birth till the end of adolescence as the individual progresses from dependency to increasing autonomy. Human development is the scientific study of the changes that occur with age, from conception until adolescence. Development takes place in all manners — cognitive, emotional and social. Child development in all spheres of life is a natural

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phenomenon. Teacher can help a child shape his/her innate abilities to attain desirable behaviour. Teaching methodology and effective pedagogy are tools in the hands of teachers, who can facilitate the learner to achieve the goal and nurture qualities. Selection and utilisation of right approach and effective pedagogy and attitudes of the teacher play an important role in child development.

Effectiveness Contested

The terms 'effectiveness' and 'pedagogy' are contested. The ultimate goal of any pedagogy is to develop students' learning. Pedagogy, though a contested term, involves activities that evoke changes in the child. Watkins and Martimore (1999, P.3) define pedagogy as any conscious activity to enhance learning.

Teachers' thinking and ideas are manifested in their overall pedagogic approaches garnered from the kinds of teaching and learning experienced as children themselves.

Knowledge of theoretical schools of thoughts and associated knowledge of pedagogies — both are important for a teacher to help the child develop. Children are natural learners. They construct their own knowledge if they are actively engaged with the world around — exploring, responding, inventing and working things out and framing their own meaning.

New Inputs

Modern pedagogy, influenced by the coginitivism of Piaget, the social-interactionalist theories of Bruner and the social and cultural theories of Vygotsky, has laid a foundation for pedagogy where sequential development of the child's mental processes such as recognise, recall, analyse, reflect, apply, create, understand and evaluate are scaffolded. Students learn as they internalise the procedures, organisation and structures encountered in social contexts as to their own schema. They learn to integrate their prior knowledge with new knowledge and also develop their meta-cognition, the ability to learn how to learn.

NCF 2005 vs. Child Development

The National Council of Educational Research and Training's (NCERT)'s National Curriculum Framework (NCF 2005), too, emphasises on 'learner-centred approaches' to achieve objectives of the curriculum. Curriculum is the key reference point for teachers, particularly in child development. Teachers' pedagogic approaches, strategies and practices serve to enact the curriculum for child development.

The implementation of pedagogy in the context of curriculum and child need involves quality teaching by the teacher who can use different teaching methodology and pedagogy for the all-round-development of the child. Learner-centred pedagogy, critical pedagogy, participatory learning, experiential learning, problem-solving, investigatory approach, concept-mapping, social inquiry approach, creative writing, peer

learning, collaborative learning and cooperative learning are the different teaching methodologies for child development.

LEARNER-CENTRED PEDAGOGY

Teacher can use different pedagogies as per needs of the child and content. Learner-centred pedagogy means giving primacy to learners' experiences, their voices and their active participation. It requires a teacher to plan learning in keeping with children's psychological development and interest, responding to their physical, cultural and social preferences and needs. School pedagogic practices, learning tasks and text created for learners focus on the socialisation of children and on the 'receptive' features of children's learning.

The aim of education or schooling is development of the child in a desirable manner for survival in society. School being a miniature society, the child learns what is required to survive in the society, for which all-round development is necessary. The uses of right pedagogy and right approach have a unique place in the development of children. Learning should be active and social in character. Children learn only in an atmosphere where they feel they are valued. Fear, discipline and stress are not suitable for learning. Teachers recognise that they have to sustain the attention of each child. The ways in which children learn and develop vary greatly from one child to another. There is a need to explore

individual and viable child-centred pedagogy.

Paulo-Freire uses the term 'Critical Pedagogy' as a venture for an opportunity to learn by reflecting critically on issues in terms of their political, social, economic and moral aspects. It entails the acceptance of multiple views on social issues and a commitment to democratic forms of interaction in which the schools function.

A critical framework helps children see social issues from different perspectives and understand how such issues are connected with life that is helpful for the all-round development of the child. Critical pedagogy facilitates collective decision-making through open discussion and by encouraging and recognising multiple views.

SHARING TEACHER-TAUGHT EXPERIENCES

Participation is a powerful strategy. It loses its pedagogic edge when it is ritualised. It helps teachers meet their own ends. True participation starts from the experiences of both learners and teachers when children and teachers share their experiences without fear and reflect on them, provide opportunity to learn about others who may not be part of their own social reality. If children's experiences are to be brought into the classroom, it is inevitable to address issues of conflict. Learners must be encouraged to comment, compare

and think about elements that exist in their own environments. It brings out social and moral development of the child.

Experiencing learning involves four steps — concrete experience, observation and reflection, formulation of new concepts and ideas, and validating new ideas. The process of learning starts with action. The learner then reflects upon and provides adequate explanation. This type of learning allows divergent learning styles in the classroom to be helpful in the cognitive development of children. Teachers can use project method for concrete learning.

Child-centred pedagogy, critical pedagogy, participatory learning, problem-solving approach, investigatory approach, social enquiry approach, co-operative learning, etc. All are tools in the hands of teachers for the all-round development of the child.

Problem-solving

Problem-solving approach helps develop higher cognitive abilities of thinking as well as transfer and participation of knowledge to new knowledge. It makes learning more meaningful and permanent and invites students' participation in the construction of new knowledge. It is helpful in developing higher cognitive abilities.

Creative Writing

Creative writing can be used to teach all subjects such as language, science, social science and mathematics. Creative writing helps develop abilities of reporting, arguing, explaining, persuading, reflecting, coping and evaluating. It gives opportunities of free expression of thought, feeling and emotions involving all those methods requiring learners' initiatives and efforts. It develops the decision-making power of the child. Teacher can use this approach at all levels for students to develop their power of expression and self-confidence.

Peer learning is also an educational practice, in which a student interacts with other students to attain his/her educational goal. It enhances the value of student-to-student interaction and results in advantageous learning outcomes as well as social and moral development of learners.

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The Social World of a Child and Language Learning
A Socio-constructivist Perspective

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Abstract

English language learning has undergone a major change in the way knowledge is transacted and acquired, with social constructivism being a crucial backdrop, wherein learners negotiate and arrive at shared meaning through peer and group activities. This paper explores the journey of social constructivism as a major impact on language learning. How meaningful negotiation by learners in groups through teacher intervention acts as a support for enhanced acquisition of language is highlighted in the paper with illustrations.

INTRODUCTION

Social constructivism has become a catchword in the field of education in recent years. It was the outcome of development in cognitive educational psychology, which marked a shift from teacher and teaching to learner and learning. It signified the growing importance of a learner-centred approach. It is important to understand the applicability of social constructivism as a philosophy to understand its applicability to our English language classrooms. The term has been used by philosophers, curriculum-planners and educators. The social constructivist's perspective is grounded in the works of theorists such as Piaget, Vygotsky and Bruner as well as the philosophy of John Dewey. An in depth study of the existing literature revealed that there is no one constructivist theory of learning. However, most theorists adhere to two ideas (i) Learners are active in constructing their own

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knowledge (ii) Social interactions are important in the process of knowledge construction (Bruning, Schraw and Norby 2011, in Woolfolk 2014)

Social negotiation and interaction are key components of a constructivist classroom. Thus, learners understand the importance of their contribution to the classroom's process. As Prawat (1994) says, "Constructivist theory involves a dramatic change in the focus of teaching, putting the learners' own efforts to understand at the centre of the educational enterprise."

A learner comes to a learning situation with existing ideas, which may be temporary or deeply-rooted and well-established in his/her mind. Learners carry their own individual ideas about the world, but some of these are socially and culturally shared. The teacher needs to give precedence to the learners' ideas and challenge them. Teachers have an important role in changing a monotonous classroom into a dynamic unit through various activities (Shukla 2013). Thus, according to Taber (2007), knowledge, in one sense, is personal and individual but, in another, learners construct knowledge through their interaction with the physical world, collaboratively in social settings and in a cultural and linguistic environment.

Before looking into the effectiveness of the social constructivist learning theory in the English language classroom, it is important to take a close look at various forms of constructivism.

The decade of the 1940s and 1950s advocated the structural or descriptive school of linguistics, (Bloomfield) and the 1960s boast of the generative transformational school of linguistics, which emerged through the influence of Noam Chomsky. In later years, cognitive psychologists sought to understand the deeper structures of human behaviour with keywords such as logic, reason and inference. There is, now, an expansive body of research on student-learning, which focuses on the ideas learners bring with them to the classroom and the way these affect 'how and what' they learn. Learners come to classes with a range of ideas. It was necessary, in the context of the present research, that learners show awareness and concern for the learning process. They are not 'empty vessels' waiting to be filled. As teachers, we should recognise the richness and variability of learners' ideas and find ways both to challenge and make use of their ideas.

From the beginning, researchers recognised that learning should not be seen as some sort of 'conceptual implanting process' (the 'jug and mug' metaphor), but involved an interplay between the learners' existing ideas and the knowledge or experiences they are exposed to in the classroom. From this perspective, learning is viewed as the construction of personal meaning and learning in classroom is simply

an extension of the same process, by which the existing ideas are developed from the learners' active engagement and meaning making with the world from the earliest age.

This personal constructivist view of learning can be summed up in the following points, adapted from a document produced by an influential children's learning science group based in Britain. The view pertains to learning and knowledge, and lies firmly in the Piagetian tradition focusing on the development of the individual mind. A personal constructivist view of learning emphasises the following:

- Learner outcomes depend not only on the learning environment, but also on the knowledge of learners. The knowledge of learners can assist or can interfere with learning.
- Learning involves the construction of meaning. Meaning constructed by learners from what they see or hear may be different from those intended, and are influenced by existing knowledge.
- The construction of meaning is a continuous and active process. Learners begin learning from the time they are born and struggle to construct meaning about their world, and this process continues, both inside and out of school, throughout their lives.
- Learners have the final responsi-bility for their own learning. Thus, teachers can never learn for a learner and teaching is more

often promotion of opportunities and support for learning.

Among current approaches to teaching, constructivism advocates learning, where learners actively construct things and learn from their own experience; they actively build and create meaning and knowledge; can hypothesise, question, investigate, imagine, invent and reflect (Ojha 2011). Philips (1995) identified three distinct roles in constructivism viz. the active learner, the social learner and the creative learner. An active learner, instead of just listening, reading and working through routine exercises, discusses, debates, investigates, hypothesises and takes a stand on issues. A social learner co-constructs knowledge through dialogues with others. A creative learner creates and recreates knowledge.

LANGUAGE LEARNING AND SOCIAL CONSTRUCTIVISM

The field of language learning is vast and is growing at a fast pace. The classroom pedagogy is a dynamic source of action, wherein learners and teachers align to make learning possible. Coleman (1996) in his book, *Society and the Language Classroom*, delved into the topic of language classrooms and everyday practices. Language learning has often, been described as one of the most impressive "mental operations of the human mind, in view of the complexity of grammatical structures, the size of the mental lexicon and

multiple functionality learners of any language are confronted with" (Schwarz 1992). English language education is a complex field of teaching and learning. Education in English language borrows its theories from a range of disciplines, numerous theorists and innumerable translators of theory such as constructivism and social constructivism. It draws on the developmental work of Piaget (1977) and Kelly (1991). Fosnot (1989) defines constructivism by referring to four principles: learning in an important way depends on what we already know; new ideas occur as we adapt and change our ideas; learning involves investing ideas rather than mechanically accumulating facts; meaningful learning occurs through rethinking old ideas and coming to a conclusion about new ideas, which conflict with our old ideas.

There has been a distinct change from teachers' acceptance of learners' passive presence in class towards active learners' participation in class. Learners tend to interact and become autonomous and learning occurs through dialogue. This dialogue can be between the teacher and learners or between two or more learners.

A study of various research projects, taken up on English language learning, suggests that mere training in structural (grammatical) and vocabulary knowledge will not result in real linguistic competence and language proficiency. The aim is to have greater learner autonomy in language learning. The social constructivist view of language learning emphasises on experience and interaction with others in a child's language development.

Language and thinking are dynamically related. A typical learner brings to school a healthy and confident grasp of the powers of language and how it can be used to communicate with others and think about the world. Over the years, the school has played a distinct, formative role in his/her learning process. Amid social interaction with peers, meaningful learning may be facilitated through authentic tasks in any language learning activity. The teacher helps in the developmental process of learners with subtle initiation towards knowledge construction and self-regulation. It is crucial for English Language Learners (ELL) to be allowed to construct knowledge through their personal lives and to overcome language and culture barriers, in order to personally construct knowledge in the English language.

In cognitive psychology, there is a strong leaning towards social constructivism, which is a variety of cognitive constructivism that emphasises on the collaborative nature of learning.

Thus, education can become an enriching experience for learners. Constructing knowledge, then, can become a socio-linguistic process, where there is a gradual advancement

of understanding built upon previous knowledge resulting in "multiple dimensions of truth" Spiro and Jehng, (1990). The influence of constructivism in education today can be seen in a variety of published curricula, as well as instructional practices. Social constructivist applications can be used through the widespread use of cooperative and collaborative teaching strategies such as — team games and tournament, student/teams achievement division, peer-peer tutoring (Slavin 1980).

The theory of language learning has seen a shift from the highly guided to the more open learning environment through constructivism, as a learner-centred paradigm for learning. The aim is to initiate learners into self-structured and self-motivated process of knowledge construction. He/she becomes a self-governed creator of knowledge through discovery learning. Translated into language learning such an approach favours project-based, process-oriented, product-centred learning within a rich and facilitative learning environment (Wheatley, 1991). Thus, as Lipman (1991) says, "Much of the impetus for constructivism stems from a reaction to over-reliance in classrooms on rote memorisation, which is regarded as a serious problem in education." It hinders a child's capability to think and impedes his/her problem-solving ability. The need is to develop English language curricula based on learner-centred constructivism to promote

learners, who can successfully function in real-world contexts. It is also for teachers to help learners to "improve thinking."

We can distinguish between 'cognitive constructivism,' which is about how the individual learner understands things in terms of developmental stages and learning styles, and social constructivism, which emphasises how meaning and understanding grow out of social encounters. The emphasis is on the learner as an active maker of meaning. The role of the teacher is to enter into a dialogue with the learner trying to understand the meaning of the material to be learnt and to help him/her to refine his/her understanding, until it corresponds with that of the teacher.

Vygotsky was a cognitivist, but he rejected the assumption made by cognitivists such as Piaget and Perry that it was possible to separate learning from its social context. He argued that all cognitive functions originate in the mind, and must, therefore, be explained as products of social interactions and that learning was not simply the assimilation of new knowledge by learners; it was the process by which they were integrated into a knowledge community. It reiterates the need for active learners, linking of new knowledge to prior knowledge and the application of understanding to authentic situations.

Vygotsky's main interest was the study of language development.

He claimed that learning occurs through dialogue. Engaging in talking certainly helped the learners to extend and consolidate their understanding of the concepts involved in investigation. According to Wilson (1999), this dialogue is initially inter-mental. It takes place between teachers and learners, between learners themselves or even between the text and the reader. Vygotsky proposes that the learner makes sense of what is said or written through internal or intramental dialogue. Thus, learning is both interacting with ideas or knowledge in social settings as well as in the sense that they must take an active part in reconstructing ideas or knowledge within their own minds.

Language allows the child to imagine, manipulate, create new ideas and share those with others. Language acts as a cultural tool because it is created and shared by all members of a specific culture. It is also a mental tool because each member of the culture uses language to think. In the course of daily interaction, the teacher or parent can provide the child with new or appropriate words and phrases in a language. They can jointly reconstruct shared experiences.

This principle of collectively constructed support affirms that learners themselves provide guided support to each other, hence,

furthering their learning (Donato 2000). The learners can act as a good source of L2 knowledge, while working in a group to bring about a developmental change not only in themselves but also in others. This enables them to guide themselves in problem-solving activities and provide support to other learners in a group task.

Conclusion

The field of language education is changing at an ever-increasing pace. Traditional notions of education are giving way to newer, more innovative ways of thinking about how we learn, teach and acquire knowledge. In an Indian classroom, the challenges of learning another language are immense. Moreover, English language is known for its global presence. Language proficiency is essential for learners. Oral and written communication, along with critical thinking and problem-solving skills, are important for success in every field. Significant observations concluded upon by many research studies on English language teaching and learning in India are low confidence level of learners, inadequate exposure to and practise of language skills, lack of students' participation in classroom discussions due to lack of vocabulary.

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English Language in the Educational Enterprise of British India

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Abstract

English in India was and still is "the Command of Language and the Language of Command" (Cohn, 1996). During the British rule, English education was designed as a mass project to train Indians for the service of their Colonial masters. The Minute on Education (Macaulay, 1835) was a harbinger of the colonising of the minds, language and identity through institutionalised system of schooling and higher learning. In the guise of a benevolent provision, knowledge dissemination became a strategy of control. Collective mission of translating and interpreting texts of Indians into the language of the Master and vice-versa was initiated. It facilitated the effective accomplishment of English as the qualifier of the erudite and the elite. This became a goal to be pursued by the masses. English education in British India was not merely an educational enterprise but an existential exercise, which left indelible imprints on the psyche of the people.

INTRODUCTION

The debate of education in India has been convoluted with a plethora of problems identified and possible solutions suggested. From school to higher education, challenges have been encountered, diagnosed and changes attempted. Be it classroom practice, content of curriculum, method of instruction, assessment, and parameters of promotion — in all of these aspects, the central role of language is undisputed. In India, corresponding to its diverse culture

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and geography, there are different languages and dialects, officially recognised or not. Amidst such a whirlpool of diversity, the English language is arguably used as a unifying tool via the educational enterprise. But the consistently contested issue remains whether the introduction and perhaps the enforcement of this foreign language has created a rift between the epistemic of academics and the ecologies of students. To attain a better understanding of this matter, a systematic study through the lens of history is essential. The paper is an attempt to examine the role of English language in the educational landscape during the British rule in India through its historical timeline.

THE 1835 MINUTE ON EDUCATION: INITIATING PRELUDE OR FINALISING PRECURSOR?

The Minute on Education delivered in 1835 by Macaulay is identified as a pivotal event in educational discourse in Colonial India. The expressed agenda of Macaulay was to train those who could be Indians organically in blood and colour but English in language, intellect and morals. Considering his influential position, his words were taken in their literality and finality. Satish Chandra Mukherjee (1906) described Macaulay's thought as "mechanical... forcible". Asserting the significance of the Minute was a formulaic interpretation in most works studying the history of education in India, particularly during the British

rule. Such a miniaturist analysis has a possibility of overlooking and undermining various other concurrent factors that have had equal, if not greater influence on the dissemination of English language. Scholars such as Zastoupil, Moir and Dodson contested the undue magnitude of historical importance accorded to this event by post-Colonial studies. They argued that the examination of educational policy post-1835 revealed that it was not a final 'victory for the partisans of English' (Majeed, 2009).

THE BRITISH: THE NATIONAL INSTRUCTORS OR CONSTRUCTORS OF INDIA?

Colonial pedagogy, according to Prakash (1999) has two aims: natives' knowledge organisation and legitimisation adhering to the coloniser's rubric of scientific parameters, and the application of the approved knowledge systems to generate greater gains for the Raj. Cohn (1996) wrote, "The conquest of India was a conquest of knowledge". He then presented an account of Sir Thomas Roe who went as an agent of the Company to the Mughal court in 1615 and the inconveniences he suffered due to his lack of knowledge in Persian, which was the language of the court and 'want of an interpreter' (Cohn, 1996). From 1770 to 1785, considered the formative period of the appropriation of (classical) Indian languages, the production of 'grammars, dictionaries, treatises,

textbooks and translations' was carried out. This activity led to the establishment of an epistemological space and the beginning of a new discursive tradition. What began as an instrumental mission to fill the need of employees to run their Colonial system resulted in a conflicting transformation of their own linguistic and intellectual artifacts. The years of appropriating the local language and knowledge yielded in the legitimisation of the British's system with their different 'pedagogical and scholarly apparatus' (Prakash, 1999).

With appropriated theoretical and practical machinery of education, and a great sense of entitlement to the knowledge resources of Indians, the British considered themselves competent to be, as C.E. Trevely referred, the 'national instructors of India'. The Court of Directors at London had 'the question of language learning at the top of its priorities', while the British scholars at universities in India and the Asiatic Society of Bengal were primarily interested in the construction of knowledge to be disseminated. This difference in priorities created a conflict between these authorities under the British rule. Nevertheless, the cardinal ideological purpose of Colonial education was the creation of an 'English' civil society. The idea of English politics, economics, morality, religion, art and science was sought to be sown to eventually serve the purpose of 'character formation' of the supposedly 'intellectually bankrupt' (Kumar, 2006) natives of India. At the core of a civil

administration are members, who are of fine moral and rational faculties. Instruction in the superior language of English is recognised to be essential for training these members. All of their educational expositions, experimentations and implementations were designed to cohere to the conducive construction of the ideal society. In professing to provide education, improvement of conduct was the implicit agenda. Panikkar (1920) argued that this holds true for the missionaries who endeavoured for English education and the government which supported them.

English Language: Purported Tool of the Civilising Education

Seth (2007) identified the British government's instruction to the Company in 1854 to impart 'European knowledge' in India as the pivotal prelude of "its current status as the obvious and almost the only mode of knowing about India". The mode of knowing encompasses the medium of language used for teaching and learning, and most notably, thinking. Scientific investigations and philosophical deliberations have examined the relationship between thought and language (Vygotsky, 2012). The common thesis of these arguments is the dialectical relationship between these two distinct entities. Besides being the exclusive natural prerogative of humans, language is the chief artifact of their society. Contained in it is an almost infinite repository of a culture's socio-

historical stories, histories, myths and all kinds of narratives. In this line of reasoning, divorce of the learners' native language from their scholastic discourse might be equivalent to alienation and discrimination. Their identity and meaning-making system are almost eradicated and excluded in the pursuit of knowledge that was to purportedly better their lives. In the British's endeavour to appropriately identify and locate solutions to 'what to teach' and 'how to teach', the two major foci of education in Colonial India and perhaps, till today, the fundamental aspect of students 'who am I' has been neglected. The expressed purpose of civilising has, however, been reduced to the re-creation of English-educated Indians at the expense of dissolution or renunciation of their Indianness.

One of the earliest advocates of English education in India, the Rt. Hon'ble Charles Grant, vehemently expressed the sovereignty of their language to 'silently undermine and at length subvert the fabric of error' (Krishna, 2005). This undermining of the Indian system of knowledge and beliefs often border on ridicule. This was also echoed in many of the infamous statements made by Macaulay. But it is noteworthy that in his writings (1836, 1837) after the 1835 Minute, there was an expression of the inevitable need to educate a class of Indians who could relay European knowledge in vernacular dialects. In fulfilling the 'want of an interpreter', a widespread dissemination of western ideas by the English-educated Indian middlemen was the targeted outcome. He opined that 'a good vernacular literature in this country' would be possible only by first reading and learning the 'noblest literature in the world', that is the European. In this manner, civilising the Indians was to be carried out. Satish Chandra Mukherjee in his reply to George Birdwood on the issue of indigenisation of Indian education rightly expressed the need for learning the lessons of English education 'in a critical spirit and in a comparative method'. He asserted the significance of understanding and appreciating the English life and civilisation by drawing a parallel reference to that of India's culture. The implementation of English language in educational discourse on the basis of arguments made by Satish Chandra Mukherjee might render possible the purported goal of civilising and 'awakening a purer and higher thought' in Indians.

Henry Whitehead, one of the pioneering champions of the deprived castes, highlighted the damage created by the substitution of English in place of vernacular languages in the educational practice 'under the spell of Lord Macaulay's rhetoric'. The lack of relatedness between academic activities at school and village life looms large across the country. In the indigenous system, the basic needs of the masses to learn read and write were met owing to their lesser needs and simpler lives as well as the family-based occupational pursuits. The prevailing equilibrium

of socio-economic undertakings and minimalistic personal endeavours was disrupted with the enforcement of a new educational regime with English language as its tool.

English Language: Its Dynamics as Medium of Instruction of the Subject Matter or Mode of Imprisoning the Mind

William D. Arnold, *Director* of Public Instruction in Punjab in 1856, noted the inconsistency between the British's 'idea of education' and that of the Indians. He reported his arguments based on the observations pertaining to language and reading, and science. The former is pertinent to the present discussion hence, the evidential and analytical aspects of language would be considered here. Two basic points Arnold noted were the inability of Indians to derive meaning from the words they read, and the inconsistency of vernacular like Urdu with the idea of erudition and learning. Reading for Indians was merely for its phonetic accuracy and was devoid of the process of meaning comprehension and implication for moral improvement. These recognised aspects of literacy, coupled with the inadequacy of vernaculars for rational scholastic discourse, were enough to convince Arnold to prioritise the pedagogical exercise exclusively centred on English language. As they justified their self-accorded supremacy in educational discourse of Indians,

the British gradually legitimised and normalised their absolute autonomy and authority of 'what is to be taught' and 'how'. The increased translation and production of textbooks in English by Christian missionaries aided by government authorities was chiefly driven by the agenda to unpack the meanings of texts that were to intellectually and morally upgrade the Indian minds to the level of the English (Christian) philosophy. The prescribed curriculum and texts, the implemented method and medium of teaching were intended to serve this purpose. However, there was resistance to English education mainly because of the suspicions that it was equivalent to Christianity.

The notion reflecting a quote cited by Chaturvedi (1930) 'Learn English and you lose your humanity', popular during this resistant phase, was shared by a sizeable portion of people. A conflict over the issue of 'what was worth learning' arose between the Orientalists and the Anglicists. Parents and students were aware of the social and economic lucrative benefits of studying in English-medium schools. So, despite their hesitation and resistance, they succumbed to the play of colonisers. It led to increased memorisation of facts and less understanding of meaning by students. Such an instrumental approach to education was destined to have detrimental effects not only on the recipients of educational service of that time, but also for the

future generation who followed the set template of expectations.

V. S. Apte (1884) in his critique on the English models of teaching and learning discussed the restrained natural growth of Indian students. Besides limiting the educational and professional promotion, if proficiency in spoken and written English is not attained, regardless of conceptual competency in the language, the natural psycho-social domains such as their nationality, identity, and way of life, valued beliefs and practices were severely undermined. He remarked that it was as though 'the object of the university was to send forth into the world every year a lot of Anglicised graduates instead of graduated Natives!'. Realisation of the shortcoming of such an educational practice resulted in the publication of journals like *Dawn* by Satish Chandra Mukherjee in 1897. There was resurgence for the reclamation of their identities, leading to demand for the establishment of Islamic schools and *pathshalas*. These movements were supported by leaders like Gandhi, who called for an education system that incorporated the natives' faiths.

Panikkar pointed out the undue importance attached to English as a course of study and as a medium of instruction. He also highlighted the formal and stereotyped methodology as one of the defects of the educational system in India. It is one of the major remnants of Macaulay's Minute that ushered in Lord William Bentick's Resolution of March 1835, which decided in favour of English education to the entire neglect of oriental and vernacular instruction. The likes of Munro and Elphinstone advocated the preservation of indigenous education and oriental learning. It was reflected in the concerns addressed in the Educational Dispatch of the Directors, 1854, to provide epistemological and ontological space for languages and system of knowledge, besides English, and to care 'for the educational interests of the entire community' (Seal, 1892).

Nandy (1983) precisely dissected the functional anatomy of the colonised mind and traced its genealogy from the Colonial roots to the post-Colonial practices that perpetuate it. Conceptualising colonialism as 'a view of mind and history promoted by colonialism itself', he described its impact on the personal psyche and public consciousness of both the ruler and the ruled. The deeply rooted and widespread impact of English language in India is the undisputed stamp sealed by the British. From being implemented as a medium of learning and teaching to educate a class of Indians, it has consolidated into the shared mode of thinking. The epistemic conquest has expanded into the psychological and social terrain, and economic capital. A perpetual dissonance to either glorify English in all its utility, majesty and idiosyncrasy, or to revitalise the vernacular language persists. It was neither then, nor now, merely a matter of officially recognising a language of

communication. But an assertion of one's value of human existence, inclusive of the grandeur and pride associated with its unique socio-cultural artifacts. As concurred by Sen (2005), the quest for redemption from the bondage of the colonised mind and reclaiming self-respect fuelled by an identity and autonomy of self-sufficiency and efficacy has become central to Indians' way of thinking and living. English language is the part and parcel of this struggle. Transcending it, might mean being deprived of a relationship with our past.

Conclusion

One of the major challenges of Indian intellectual history is to find a scholastic balance, theoretically and methodologically robust between 'modern' and 'traditional' knowledge. English language has a pervasive role in the growth of India both during the Colonial and contemporary times. The syncretistic and dialogical tradition of India's past provides a hope for appropriately dealing with this legacy of the British, justifiably attending to its natural and civilisational significance. The paper is one such attempt. Examining the history of English language in British India reveals not only its significance in the educational enterprise but that of existential exercise.

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Effectiveness of Using Technology Supportive Materials for Developing Listening Skills among School Children

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Abstract

Listening occupies a central place in everyday communication as most of our knowledge of the world is derived from listening input. Despite the centrality of listening, it has received an unfair treatment in second language classrooms. This paper discusses why it is imperative to develop listening skills among learners. Besides, it aims to study the effectiveness of using technology supportive materials for developing listening skills in English among school students. Two groups — pre-test and post-test design — was followed in the study. The experiment was conducted for 30 days. Students of two sections of Class VIII constituted the sampling group. An analysis of the data was done using both descriptive and inferential statistics. It is found that the use of technology supportive materials is more effective than the traditional method for developing listening skills in English among school students.

INTRODUCTION

Listening is one of the basic language skills that plays a key role in almost all activities in our lives. It is a medium through which people develop an understanding of the world and of human affairs. That is why, listening is a skill which we all need to develop.

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Unlike hearing, which is a passive physiological activity, listening is an active cognitive process. The difference between hearing and listening can be as big as the contrast between night and day. Hearing happens automatically, requires no deliberate effort and happens because our ears are open. On the other hand, listening, too, is a deliberate activity but requires energy and effort. It demands willingness, interest and desire to understand.

The behaviourists' school strongly supports the role of 'stimulus' in eliciting 'response' in language learning. Theories on English as a second language also recognises the importance of the role of learners' interest, attitude and motivation as instrumental to effective language learning. Therefore, it can be argued that materials to be used in language classroom ought to be interesting and also thought-provoking. In this context, technology supportive materials i.e., animated tales may be considered as a source of productive materials for promoting language learning. So, this researcher wanted to see the effectiveness of using technology supportive materials for the development of listening skills in English.

What Do Previous Studies Say?

Many teachers believe that listening is a natural process, so they need not teach listening skills to learners. As a result, there has been a paucity of research into listening (LeLoup and Ponterio, 2003; Clement, 2007; Vandergrift, 2007). However, the review of literature shows that listening can be taught and evaluated (Ober, 2001).

Funk and Funk (1989) suggest to language teachers that listening can be taught. According to them, for creating good listeners, firstly, teachers have to provide a purpose for listening, give proper guidelines and use teaching methodology that promotes positive listening habits in the classroom.

Thompson, Leintz, Nevers and Witkowski (2004) suggest Integrative Listening Model (ILM) for teaching listening skills. This listening model means a systematic developmental approach. ILM includes four stages: preparing for listening, applying the listening process model, assessing listening effectiveness, and establishing goals for future listening. It is found that good listeners plan to listen, deal with filters and methodically apply the listening process.

Chang and Read (2006) examined the effects of four different forms of listening support on listening comprehension of English as a Foreign Language (EFL) in college students. The participants in the study were 160 business majors at a college in

Taipei, Taiwan. They were all taking a required semester-long course in English listening procedure. The results showed that the most effective type of support overall was providing information about the topic followed by repetition of the input.

Chen (2009) investigated the impact of strategy instruction in a regular college EFL class in Taiwan. Rather than examining a cause-effect relationship, this study focused on exploring learners' listening strategy development over a 47-week span. The participants were 31 non-English major students enrolled in an EFL listening course, and their language proficiency levels varied. The instruction was integrated as an extension of the listening curriculum, and metacognitive, cognitive, and social-affective listening strategies were taught in the strategy instruction. Within each strategy category, the researcher demonstrated selective strategies that had been proven effective.

Renandya and Farrell (2010) carried out a study, in which they provided ample listening inputs, exposed students to a variety of listening texts and spent a considerably long span on listening activities. The control group was given listening inputs like the earlier students were given. The experimental group was exposed to extensive listening without bothering about strategies. The results showed a noticeable difference between the development of listening skills of the two groups. The experimental group was found to be better at listening than the control group. Finally, the researchers concluded that in order to significantly refine the listening skills of students, teachers need to expose them to varied meaningful, realistic and enjoyable listening texts without being distracted by listening strategies, which are hard to gain access to.

Wagner (2010) reported that the visual components of spoken texts are useful to the listener in comprehending aural information. For proving the above assumption, an experimental study, the effect of the use of video texts on EFL listening test-taker performance, was carried out. A quasi-experimental non-randomised group design was used to investigate how the use of video texts affected L2 test-taker performance. An experimental (video) group and a control (audio-only) group were created. The two groups were given a pre-test and a post-test. The videos used for the experimental group were designed and created specifically for this study by the researcher. A total of eight video texts were used (one dialogue and one lecturette text for the pre-test, and three dialogue and three lecturette texts for the post-test). Multi-variant Analysis of Covariance (MANCOVA) was used to compare the two groups' performance, and it was found that the video (experimental) group scored 6.5 per cent higher than the audio-only (control) group on the the overall post-test. This difference

was statistically significant. The results of the study suggest that non-verbal information in the video texts contributed to the video group's superior performance.

THE PROCESSES OF THE STUDY

OBJECTIVE AND HYPOTHESIS OF THE STUDY

The objective of the present study is to find out the effectiveness of using technology supportive materials for the development of listening skills among school students.

The hypothesis of the present study is that there exists a significant difference between mean scores of listening skills developed through the use of technology supportive materials and mean scores of listening skills developed through traditional method in English with regard to pre-test and post-test scores.

METHODOLOGY OF THE STUDY

In the present experimental study, the researcher had used two-group pre-test and post-test design. The relative effectiveness of the use of Technology Supportive Materials (TSM) and Usual Learning Method (ULM) for the development of listening skills in English of Class VIII students was studied in the present study. In this study, ULM and TSL were considered as independent variables and the development of listening skills in English was considered as a dependent variable.

SAMPLE

In the present study, the researcher had followed the random sampling method. The researcher took two sections of Class VIII of Kendriya Vidyalaya, Malda, i.e., Section A as a control group and Section B as an experimental group. A total of 62 students were there in the entire sampling group at the beginning of the experiment. However, 59 students were present in all stages of the experiment. The details of the sample of the present study are given below:

Table 1
Description of the Sample

Purposively selected schools	Name of the learning stage	No. of the sections/ classes taken for experiment	Name/ Category of sections	No. of students	Sections forming the treatment groups
Kendriya Vidyalaya, Malda	Class VIII	2	Sec- A	30	Control Group
			Sec- B	29	Experimental Group

CONTROL AND EXPERIMENTAL GROUP BACKGROUND

It is important to consider the background of the control and experimental groups in the context of English as a second language as the teaching materials and methods that are suitable in the inner circle countries may not be fully suitable in the outer and expanding circle countries (Kachru, 1992). In West Bengal, English is taught as a compulsory subject from grade one in schools. The control group salected for the study is from a similar background. All students in the group are from KV, Malda, West Bengal. They are in their early teens and have been learning English for 7-8 years. However, they get exposure to English only at school.

MATERIALS USED FOR INTERVENTION

Here, animated *Panchatantra* tales were used for developing listening skills. These animations are available on www.youtube.com. The selected animated tales are designed by Rajashree Production, especially for children.

DATA COLLECTION PROCEDURE

In the beginning of the present research, a pre-test was conducted in the classroom to know the level of proficiency in listening skills in English. After the results of the pre-test, a 30-day teaching course was designed. It includes the use of animated tales to improve the listening skills so that students are able to comprehend speeches and try to speak English in their everyday life. At the end of the course, a post-test was conducted and the results of the pre-test and the post-test were compared.

DATA ANALYSIS

For the present research work, the researcher has used descriptive statistics like mean, standard deviation (SD), graphical representation of data, etc., and inferential statistics like 't' test for the analysis of data. Effectiveness of TSM over ULM for the development of listening skills in English with regard to pre-test and post-test scores is shown with the help of a table.

Table 2

't' Test Results of Control and Experimental Groups at Pre-test Level.									
Level of test	Groups	N	Mean	SD	SEM	't' value	Table value of 't' at 0.05 level	DF	Sig
Pre-test level	CG	30	55.23	13.912	1.767	1.861	0.98	120	*
	EG	29	55.38	8.824	1.139				

't' Test Results of Control and Experimental Groups at Post-test Level								
Level of test	Groups	N	Mean	SD	SEM	't' value	DF	Sig
Post-test level	CG	30	58.13	12.393	1.574	4.840	120	#
	EG	29	61.63	8.963	1.157			

The table states that there exists no significant difference between the pre-test results of the control group and the pre-test results of the experimental group. Because, from the same section (i.e., Section-A) of Table 2 (Part-I), it is evident that the obtained 't' ratio between the pre-test scores of the control group and the pre-test scores of the experimental group is 1.861; and this is less than the table value of 't' at 0.05 level of confidence for 120 DF. For 120 DF, the table value of 't' at 0.05 level of confidence is 0.98. Since the table value of 't' is more than the obtained 't' ratio between the pre-test scores of the control group and the pre-test scores of the experimental group, so the null hypothesis is accepted.

Hence, it is concluded that at the initial stage of treatment there exists no significant difference between mean listening skills (m=55.23) of the control group and that (m=55.38) of the experimental group. But there exists a significant difference between the post-test results of the control group and that of the experimental group. It is found that the obtained 't' ratio between the results of the control group and that of the experimental group is 4.84, and this

't' ratio is more than the table value of 't' at 0.05 level of confidence for 120 DF. For 120 DF, the table value of 't' at 0.05 level of confidence is 0.98. Since the calculated 't' ratio between the mean results of the control and experimental groups is more than the table value of 't' at 0.05 level of confidence, so the null hypothesis is rejected. Hence, it is inferred that at the post-test stage of treatment, there exists a significant difference between the mean scores of listening skills (m=55.23) of the control group and that (m=61.63) of the experimental group. From Part-I of Table I, it is found that at the pre-test level there exists no significant difference between the control group and the experimental group with regard to their mean listening skills scores, but at the post-test level, there exists a significant difference between the control group and the experimental group with regard to their mean listening skills scores.

CONCLUSION

Active and effective listening is a key to academic, professional and social success. That is why, it is imperative to develop listening skills. Fortunately, listening skills can be
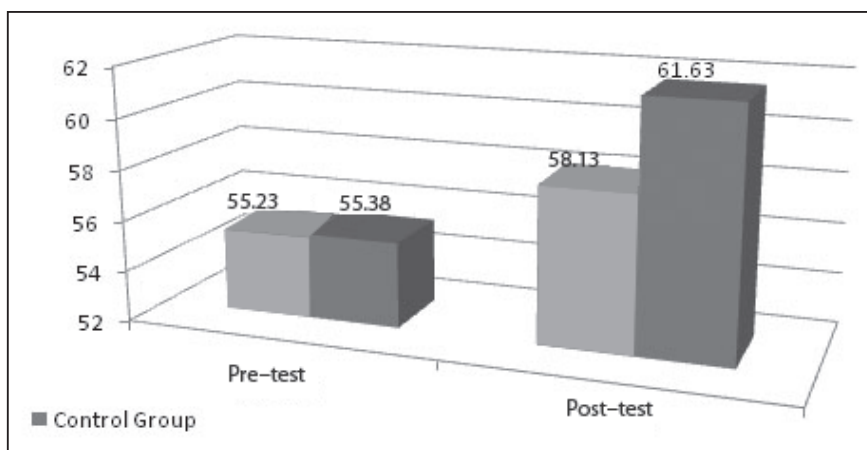
Figure.1 Mean level performance of control group and experimental group showing the development of listening comprehension skills in English.

trained/developed. However, there are no foolproof ways of developing listening skills. The old saying that practice makes a man perfect applies to listening skills as well. Teachers may try different strategies and techniques to help their students get rid of the various listening problems and inculcate good listening habits in them. A teacher can administer various exercises, like the ones discussed above, to make his learners better listeners.

The present study at the same time highlights the effectiveness of the use of technology supportive materials over Usual Learning Method (ULM) for the development of listening skills in English at the elementary stage. The data analysis referring to the experimental effect has been made using 't' test as well. Data analysis done at the mean level and 't' test level show that there is a significant difference between the control and the experimental groups in terms of development of listening comprehension in English. Taking into consideration all these inferences, it is summarised that the use of TSM is more effective than ULM for developing listening comprehension in English at the elementary stage.

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A Study of Emotional Intelligence among Secondary School Students in Relation to Academic Anxiety and Adjustment

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Abstract

The aim of the present paper is to probe emotional intelligence, academic anxiety and adjustment among students at the secondary school level. Random sampling was exercised in the selection of sample, which comprised 100 boys and 100 girls of Class IX in two government schools in Delhi state. Emotional Intelligence scale (Singh and Narain, 2014), Academic Anxiety Scale (Singh and Sen Gupta, 2013) and Adjustment Inventory for School Students (Sinha and Singh, 2013) were used as tools for data collection. The collected data was analysed by t-test and Karl Pearson's Coefficient of correlation (r). It was found that girls had higher emotional intelligence scores than boys but in adjustment, boys significantly outperformed girls. There was no statistically significant difference between both the genders with respect to academic anxiety. Further, emotional intelligence and academic anxiety were not significantly related. However, a statistically significant positive correlation was found between emotional intelligence and adjustment of students. Also, academic anxiety was negatively co-related to adjustment of secondary school students.

Introduction

Emotional Intelligence (EI) is the ability of a person to monitor one's own as well as others' feelings. This also comprises an individual's ability to discriminate among these feelings or emotions and on that basis guide one's own thinking and actions

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(Salovey and Mayer,1990). The term emotional intelligence was first coined by Salovey and Mayer (1990). According to them, there exists a bond between cognition and emotion. Emotional intelligence comprises qualities such as positive attitude, empathy, conscientiousness, social competence, motivation, etc.

An individual equipped with profound emotional intelligence base is more optimistic, ongoing, motivated, empathetic and happier and is likely to be skilled in personal and social competence. Personal competence implies self-awareness and self-regulation. Social competence comprises empathy and social skills like tendency to nurture desired responses from others (Kierstead, 1999; Bhalla and Nauriyal, 2004).

For Bar-On (1997), emotional intelligence is related to understanding oneself and others and it is concerned with people and, thus, helps in adapting to and coping with the immediate environment. Students with low emotional intelligence may experience difficulty in dealing with peers and teachers, which may undermine their academic motivation (Drago, 2004). Emotional intelligence helps in controlling emotional impulses such as anxiety, stress, fear, strain, etc. It also facilitates in explaining the role of emotions in advancing life goals as it acts as an adaptive capability for an individual which helps in his/her social life.

There are five characteristics of emotional intelligence, namely (a) Self-awareness: being aware of one's emotions, recognising feelings and ability to discriminate between them; (b) Self-motivation: gearing up one's own feelings or emotions and channelising towards the goal despite obstructions; (c) Mood management: handling emotions so that there is compatibility between emotions on one side and response on the other; (d) Empathy: recognising others' emotions or feelings; (e) Managing relations: managing conflicts, negotiations, inter-personal interactions, etc.

Emotional intelligence, as a concept, focuses on the deliberate use of feelings and emotions thus, harnessing messages coded in these emotions in decision-making (Ciarrochi and Mayer, 2007). Schools may also act as catalytic agents in promoting emotional intelligence among students (Tiwari and Shrivastava, 2004; Svetlana, 2007). Even Goleman (1998) visualised school as an agency that can minimise students' deficiencies in social and emotional competence. It also helps to successfully predict scholastic performance. Besides intelligence discussed here as emotional, anxiety as a feature of personality must be deliberated upon as it is a common phenomenon of life. It can be related to either trait or state. The former is known as trait anxiety and the latter as state anxiety. Trait anxiety is a comparatively stable feature of an individual concerned but state anxiety is aroused by some kind(s) of temporary aspects

of surroundings that is something adverse like accident, penalty, etc. By nature, academic anxiety is a kind of state anxiety related to the impending dangers from scenario of educational institutes, which may include examination, certain subjects and teachers, etc. It may also arise because of some other factors such as poor time management on the part of students, parents' over-expectation, enhanced perception of academic load, poor performance in the past, etc.

Academic anxiety is a normal response to academic stress, but it is problematic when a student is unable to work productively as it generates an inhibitive tendency in him, which is reflected in examination, teaching-learning situations, peer group interactions, etc. It has symptoms of common anxiety such as sleep loss, increased heartbeat, sweating, uncertainty, loss of appetite, etc. The higher level of academic anxiety obstructs the performance of students because during learning it can affect information acquisition, processing, retrieval, etc., (Tobias, 1983), attention span and may even lead to poor recall or forgetfulness (Hashempour and Mehrad, 2014). But a moderate level of academic anxiety proves somewhat motivational for students to work and may enhance their learning ability thus, improving their academic performance (Kaplon and Saddok, 2000; Neelam and Attri, 2013).

Another feature besides intelligence and anxiety, discussed here as emotional intelligence and academic anxiety, respectively, is adjustment because the factor that students are unable to adjust in academic institutions is a common problem. Generally, students suffer from stress, strain, anxiety, depression, insecurity, etc., which disturb them in delievering their best to achieve academically. Adjustment means a psychological tendency, which as a process helps to cope, manage disturbances, challenges, tasks and daily life requirements (Halonen and Santrok, 1997). So, facilitating students in exercising their emotional intelligence in facilitating adjustment and minimising anxiety are the prime concerns for professionals. Thus, the need was felt by the investigator to probe the profound role of emotional intelligence among boys and girls with respect to adjustment and anxiety.

Review of Related Literature

Studies have explored that emotional intelligence competencies are instrumental in promoting dynamic leadership styles (Goleman 1998, 2000; Goleman, Boyatzis and Mckee, 2002; Emmerling and Goleman, 2005; Rosete and Ciarrochi, 2005) and satisfactory personal life experiences and, hence, leading to adjustment (Goleman, 1995; Marques, 2006; Wing, Schutte and Byrne, 2006). Even at workplace, the significance of emotional intelligence as an imperative personality trait has been explored (Kirch, Tucker and Kirch, 2001; Rozell, Pettijohn and Parker,

2002). Researches (Svetlana, 2007; Ogundokun and Adeyemo, 2010) have suggested that emotional intelligence training should be introduced in the secondary school curriculum as such skills enrich students and facilitate their academic achievement (Low and Nelson, 2005). With respect to emotional intelligence, academic anxiety and academic achievement, some gender studies have also been conducted and it was found that girls had more emotional intelligence scores than boys (Hasson, Sulaiman and Ishak, 2009), girls were more academically anxious than boys (Das, 2014; Joshi, 2013; Neelam and Attri, 2013), had better attention (Bastian, 2005) and academic achievement at the secondary school level (Neelam and Attri, 2013). However, a few studies found hardly any significant difference among high school boys and girls with respect to emotional intelligence (Rani and Manita, 2015), academic anxiety (Banga, 2014; Rani and Manita, 2015) and social and academic adjustment of university students (Malek, Ishak, Taamneh, Gharaibeh and Rababah, 2011).

Besides these, correlational studies have been conducted where emotional intelligence was explored in relation to academic anxiety, academic adjustment, academic performance, academic achievement, motivation, etc., and it was found that emotional intelligence is significantly positively related to academic achievement (Farooq, 2003; Drago, 2004; Parker, Duffy, Wood, Bond and Hogan, 2005; Kattekar, 2010; Ogundokun and Adeymo, 2010; Tamannaifar, Sedighi and Salami, 2010; Chamundeswari, 2013). Academic achievement motivation (Roy, Sinha and Suman, 2013) is significantly negatively correlated to anxiety (Joshi, 2013) and not correlated to academic anxiety (Rani and Manita, 2015). Emotional intelligence training programmes for university-level students improved the levels of emotional intelligence, excluding adjustment on their part in academics and social areas (Malek et al, 2011). Emotional intervention training programmes have also been found to improve emotional intelligence of students (Kaur and Kaur, 2008; Lone, 2014). Similarly, cognitive-effective course, in foreign language context, improved emotional intelligence scores and decreased anxiety scores of university students (Rouhani, Tabatabaii and Shahrekord, 2008). Correlational studies between anxiety and overall adjustment showed that high achievers had high intensity of anxiety, which significantly improved with respect to the levels of achievement (Singh, 2013). Anxiety is one among several factors affecting students' performance (Afolayan, Donald, Onasoga, Babafemi and Juan, 2013). Baker and Siryk (1999) identified and divided adjustment into different categories such as social, academic, personal, emotional, etc.

Objectives of the Study

1. To study gender differences among secondary school-level students with respect to emotional intelligence.
2. To study gender differences among secondary school-level students with respect to academic anxiety.
3. To study gender differences among secondary school-level students with respect to adjustment.
4. To study the correlation between emotional intelligence and academic anxiety among secondary school students.
5. To study the correlation between emotional intelligence and adjustment among secondary school students.
6. To study the correlation between academic anxiety and adjustment among secondary school students.

Hypotheses

Following null hypotheses were formulated to explore the above objectives —

H_{01}: There is no statistically significant difference between emotional intelligence scores of girls and boys at the secondary school level.

H_{02}: There is no statistically significant difference between the academic anxiety scores of girls and boys at the secondary school level.

H_{03}: There is no statistically significant difference between the adjustment scores of girls and boys at the secondary school level.

H_{04}: There is no statistically significant correlation between emotional intelligence and academic anxiety scores of secondary school students.

H_{05}: There is no statistically significant correlation between emotional intelligence and adjustment scores of secondary school students.

H_{06}: There is no statistically significant correlation between academic anxiety and adjustment scores of secondary school students.

Delimitation

The following delimitation, with respect to the present study, were taken into account —

1. The study was conducted at the secondary school level.
2. It was conducted at Class IX level.

Methodology

Research Design

A descriptive survey research design was adopted in the present study, in which the investigator attempted to find the difference between emotional intelligence, academic anxiety and adjustment levels of secondary school students (boys and girls) studying in Class IX of two senior secondary schools in Delhi. The relationship between emotional intelligence, academic anxiety and adjustment levels of these students were also explored.

Sample

There are 13 districts in the Directorate of Education, Delhi. Of these districts,

one was randomly selected. In that district, there were three zones and of these, two were randomly selected. In one zone, there were seven government boys' schools out of total 18. One such school was randomly selected. In the other zone, there were nine government girls' schools out of total 19. One government girls' school was randomly selected. Now, 100 boys in government boys school and 100 girls in government girls school were randomly selected for the study. So, in total, a random sampling was exercised in the selection of the final sample for the study. All students were of Class IX aged 13+ years as it generally marks the beginning of adoloscence stage in the Indian society. Since, teenage ranges from 13-19 years, the thirteenth year is the first year in that continuum, so that was also the rationale for the selection of Class IX students.

Variables

1. Independent variable: It was gender and had two levels, namely boys and girls.

2. Dependent variable: These were emotional intelligence, academic anxiety and academic adjustment.

3. Intervening variables like motivational levels, previous achievements, fatigue, boredom, family background, etc., as intervening variables were assumed to be present in boys and girls at the secondary school level.

Tools

Following standardised tools were used for data collection —

1. Emotional Intelligence Scale (2014) by Arun Kumar Singh and Shruti Narain. This scale consists of 31 items in total and all items are divided into four areas, namely (a) understanding emotions, (b) understanding motivation, (c) empathy, and (d) handling relations. The scale can be administered on students aged 12+ years. The reliability, by test-retest method, and concurrent validity of the scale is 0.86 (both) and it is significant at 0.01 level. The concurrent validity of the scale is 0.86, which is significant at 0.01 level.

2. Academic Anxiety Scale for Children (2013) by A.K. Singh and A. Sen Gupta: There are 20 items and the items, nature-wise, are either positive or negative. This scale can be administered on students the age group of 13-16 years. The reliability was found by test-retest as well as split half method and corresponding values of coefficient of co-relation were 0.60 and 0.65, respectively, which were significant beyond 0.01 level of significance. The test was validated against Sinha-Anxiety test and Neuroticism scale and the values of correlation coefficient were found to be 0.41 and 0.31, respectively, and these values were significant at 0.01 level.

3. Adjustment Inventory for School Students by A.K.P. Sinha and R.P. Singh (2013): There are 60

items in this inventory and the items pertain to three adjustment areas, namely (a) emotional, (b) social, and (c) educational. The reliability of the total test was calculated by test-retest method, split half method and K-S formula 20 and the values of the reliability coefficients were 0.95, 0.93 and 0.94, respectively, and these were significant at 0.01 level. The item analysis validity coefficients were determined by biserial correlation method and only those items were retained in the final test which had biserial correlation with both the criteria that is area score and total score and the level of significance was 0.001.

Procedure

As per their manual, the above tests were administered on the selected sample. Scoring of response sheets was also done as per guidelines in the manual. Then, skewness of emotional intelligence, academic anxiety and adjustment inventory scores of boys and girls were calculated and the skewness value for emotional intelligence score was −0.23, for academic anxiety, it was −0.12 and for adjustment inventory, the score was 0.02, which indicates that the selected sample is approximately symmetrical hence, the collected data can be treated through parametric tests, namely 't' test, which was applied to find out the significance of difference with respect to the variables under study among boys and girls at the secondary school level and Karl Pearson's Product Moment Coefficient of Correlation (r) was computed to check statistical significance of correlation between two variables under study for secondary school students.

Results and Discussion

With respect to gender, Table 1 shows the obtained t-test values for the scores of dependent variables, namely emotional intelligence, academic anxiety and adjustment scores.

Table 1
t-test for emotional intelligence, academic anxiety and adjustment scores of boys and girls at secondary school level

S.N.	Dependent Variable	Gender	Mean	S.D.	σd	D	t-value
1	Emotional Intelligence	Boys	19.025	3.37	0.44	3.685	8.375*
		Girls	22.71	2.83			
2	Academic Anxiety	Boys	10.81	2.62	0.402	0.62	1.55
		Girls	11.43	3.01			
3	Adjustment Scores	Boys	16.35	5.2	0.702	3.43	4.88*
		Girls	12.92	4.64			

 # .01 level of significance   ** .05 level of significance*

(σ_d is the standard error of difference between the means and D is the difference between the means).

With reference to Table 1, the following sub-section discusses the testing of hypotheses framed with respect to the scores of dependent variables involved in the present study.

H_{01}: There is no statistically significant difference between the emotional intelligence scores of boys and girls at the secondary school level.

The obtained t-value 8.375 is significant at 0.05 and 0.01 levels of significance in favour of girls at the secondary school level. So, the null hypothesis is rejected. This finding is in accordance with Hasson et. al. (2009) but it differs from the research work by Rani and Manita (2015). The plausible reason for the above finding may be the fact that cognition is individual-centred and because of their experiences at home, school, etc., girls could score better than boys.

H_{02}: There is no statistically significant difference between the academic anxiety scores of boys and girls at the secondary school level.

The obtained t-value 1.55 is not significant at either level of significance so, this null hypothesis is not rejected. Studies by Afolyan et. al. (2013); Banga (2014), and Rani and Manita (2015) support the findings of this study. However, Joshi (2013), Neelam and Attri (2013), and Das (2014) found such findings in favour of girls. So, the findings of the present study are antagonistic to some studies but in support of some other studies. Both the genders were of almost the same age group and studied in almost similar institutions. Physical (classrooms, etc.) and academic infrastructure (teachers, library facilities, etc.) were almost alike for both so, academic anxiety was obstructing them almost equally. Hence, in this aspect (anxiety) no significant difference was found between them.

H_{03}: There is no statistically significant difference between the adjustment scores of boys and girls at the secondary school level.

The obtained t-value is significant at 0.05 and 0.01 levels of significance in favour of boys at the secondary school level, hence, this null hypothesis is rejected. This finding doesn't support Malek et. al. (2011), in which it was found that with respect to adjustment, the two genders don't differ significantly. Generally, in the society, it is assumed that males have to perform outside jobs and females are supposed to know household work so, by virtue of this fact, boys get comparatively more opportunities to interact with people, face situations, etc., and over time it may help them adjust to the scenario and girls by being restricted within the four-walls may not get such opportunities, and hence, it may restrict their social skills.

Table 2
Coefficient of correlation (r) between scores of two dependent variables

S.N.	Dependent Variables	r-value
1	Emotional intelligence and academic anxiety scores	-0.02
2	Emotional intelligence and adjustment scores	0.47*
3	Academic anxiety and adjustment scores	-0.18*

 # .01 level of significance   ** .05 level of significance*

Table 2 shows the obtained values for the coefficient of correlation (r) between scores of any two dependent variables that is emotional intelligence and academic anxiety, emotional intelligence and adjustment, and academic anxiety and adjustment.

With reference to Table 2, the following sub-section discusses the testing of hypotheses framed with respect to coefficient of correlation (r) between the scores of any two dependent variables involved in the present study.

H_{04}: There is no statistically significant correlation between emotional intelligence and academic anxiety scores of secondary school students.

Obtained value of Karl Pearson's Product Moment Coefficient of Correlation (r) that is at -0.02 is not significant at either level of significance that is at 0.05 and at 0.01 levels, hence, this null hypothesis is accepted. This finding is in support of findings by Rani and Manita (2015) but in opposition to findings by Joshi (2013). The plausible reason behind this finding may be the fact that there was no significant difference with respect to academic anxiety between two genders but emotional intelligence scores were significantly in favour of girls. In other words, considering academic anxiety as a dependent variable, intervening variable like exposure to similar environmental conditions in terms of physical and academic infrastructure of institutions might have intervened so significantly that it nullified the effect of gender on emotional intelligence (a dependent variable) while finding a co-relation between them.

H_{05}: There is no statistically significant correlation between emotional intelligence and adjustment scores of secondary school students.

Obtained value 'r', which is at 0.47, is significant at 0.01 level of significance so, this null hypothesis is not accepted. These results support the findings by Marques (2006) and Wing, Schutte and Byrne (2006). This finding is in consonance with the other findings of the present study also because girls had significantly higher emotional intelligence scores than boys and with respect to adjustment, they significantly outshined. So,

while considering these two dependent variables, individually, both genders differed significantly from each other. Hence, when the combined scores as regards to emotional intelligence and adjustment for both the genders were co-related, a significant positive co-relation was found between them.

H$_{06}$: There is no statistically significant correlation between academic anxiety and adjustment scores of secondary school students.

The obtained value of 'r', which is at -0.18, is significant at 0.01 level, so this null hypothesis is not accepted. Study by Singh (2013) had similar findings. The plausible reason behind this finding may be the fact that the two genders were found more or less equally academically anxious but boys had significantly higher adjustment scores than girls. While considering the effect of an independent variable (gender) on a dependent variable (adjustment), intervening variable like family, where a division of labour among male and female members usually takes place, might have favoured boys and the effect of this intervening variable might have dominated the non-significant effect of gender on anxiety.

IMPLICATIONS

For Students: Students need to accept the situations as such, rather than criticising them and ultimately giving up. They should try to overcome their shortcomings as such efforts will shape their struggling capacity, rather than intentions of surrender or escape. At the cognitive level, they may be motivated and perceive that they are capable of doing something. They can be encouraged to rehearse reading-writing, enhance vocabulary skills, etc. They can be encouraged to build a habit of thinking beyond conventions. A helping hand may be given to set up realistic goals before them, without any peer or parental pressure, etc., and develop a work plan for their achievement. After the attainment of even a single or small success, they may be motivated to cheer themselves as it will help develop intrinsic motivation among them. All these initiatives will ultimately foster their emotional intelligence, which acts as a predicator of their academic motivation, performance and achievements.

For Teachers: A good rapport between teachers and students can minimise certain adverse aspects, which generally hinder the latter's development. Rapport between teachers and students can be established when the former understand the latter in totality and respect their individuality as it may help them to relax and overcome unnecessary levels of anxiety. Acknowledging students' ideas or thoughts and giving opportunities to express themselves may develop confidence among them, hence, facilitating their emotional intelligence.

For School Administrators: At the school level, provision of guidance and counselling services may relax students and as a first measure it requires that the school timetable, at the class level, must reflect an arrangement of guidance and counselling hours. Otherwise, when a student needs guidance or counselling, then he/she would have to visit the counsellor during some class. Thus, school administrators (principals) should reorganise the timetable so that in a week/fortnight/month on a particular day and time a particular class gets a chance to interact with the counsellor.

For Curriculum Planners: The curriculum planners must assure that across different levels of schooling, there is a uniform academic workload among students. They must see to it that till the upper primary level there is Continuous and Comprehensive Evaluation (CCE) and under this there is a non-detention policy. But when a student is promoted to the secondary level, there is a sudden introduction of conventional examination-oriented curriculum and a student's achievements are assessed in terms of his/her performance, which is the marks obtained in unit or term-end examinations. Hence, a state of turmoil arises and students develop doubts regarding their capability, which may affect their emotions or feelings towards themselves. So, a balanced school curriculum with respect to content, teaching, learning and evaluation, etc., may resolve this.

For Parents: Parents may realise that their child is also a human being and imposing their unfulfilled desires may pressurise him/her, hence, his/her normal and natural performance may get paralysed. So, it is better that parents help their child in setting a realistic goal, keeping in view his/her capabilities, and support him/her by making him/her realise that nothing wrong will happen if he/she is unable to achieve that goal. Ultimately, the child and his/her health, happiness, etc., are more important for parents than any materialistic achievement. Thus, all these efforts on the part of parents may support a student by boosting his/her emotional intelligence, adjustment skills and coping abilities.

CONCLUSION

In this world, where changes are taking place exponentially, there is a dire need to view emotional intelligence, anxiety and adjustment as inborn personality traits of students. Researches and literature in these domains are substantially enriching professionals. As far as a student, as an individual, is concerned his/her emotional intelligence (feelings or emotions), inter-personal adjustment and inter-personal skills (like, ability to cope with anxiety) must be supported by family, schools and society so that it may help him/her to grow, develop and contribute to the society. The Theory of Emotional Intelligence given by Mayer and

Salovey (1990) and Goleman (1995) visualised that intelligence alone does not guarantee success but emotional intelligence, adjustment, etc., are the determining factors. Emotional intelligence supports an individual in monitoring his/her own and others' emotions and enables him/her to differentiate among people and, thus, help in guiding one's own thoughts and actions. Emotional intelligence as an inborn or latent trait profoundly affects other capabilities of humans by either facilitating or obstructing them. So, the need of the hour is to gauge the emotional intelligence, academic anxiety and adjustment among students with some constructive outlook. Adopting the same outlook, the present study was conducted and it was found that girls of secondary school had higher emotional intelligence than boys, while a reverse trend was observed in adjustment as, here, boys excelled girls. However, both boys and girls were more or less equally academically anxious. Emotional intelligence helps students to adjust and adjustment is negatively related to anxiety.

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Role of School Counselling in India Opportunities and Challenges

M. Venkatesan*, Anubha Rohatgi**

Abstract

The liberalised economy, growing market pressure, change in curriculum, unpredictable future, etc., has made it really tough for Indian school children to perform. The role of schools in channelising energy of their wards and preparing them to face the competitive world, besides contributing productively in the society are crucial. Unfortunately, the growth of school counselling in India is not properly addressed. Indeed, the services are rendered only on demand basis, and for the remaining time, school counsellors' services are utilised for inconsequential purposes. Sensitisation of counselling at the school level is not great as evident from the case study of schools in Delhi-NCR. This is because the services offered by school counsellors are restricted to vocational counselling and to some extent with behavioural issues. However, the school policy is being reviewed in order to make counselling 'compulsory sessions' in schools. This move will bring in a healthy atmosphere and confidence in school children to face the competitive world. This study is aimed at addressing the aforesaid issues in detail in order to deliberate on the unrelenting challenges posed by various groups and how to handle them meaningfully.

Introduction

Counselling plays an important role in contemporary India. School counselling is a relatively young profession. The history of counselling in India can be traced to the establishment of the Central Bureau of Educational and Vocational

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Guidance in 1954 by the Ministry of Education. In 1961, during the third Five Year Plan, guidance services were initiated in schools by trained counsellors and career masters with assistance from teachers. And, by the end of the third Five Year Plan (1966), there were 3,000 schools in the country that started providing guidance services in one form or the other. But they mostly focussed on providing vocational information.

Commissions that focussed on the need to provide counselling services to students date back to as early as 1948–49 when the Radhakrishan University Education Commission realised the need for providing student services in schools and colleges. Similarly, the Kothari Education Commission in 1966, which emphasised on guidance and counselling programme for assisting students in their choice of courses, indicated that remedial action and help in dealing with emotional and psychological problems should be an integral part of educational facilities provided in institutions of higher education. They believed that there should be one counsellor per thousand students.

In 1984, the National Commission of School Teachers met a group of 150 meritorious students who had secured top positions in higher secondary education in different states of India to know what they thought about their teachers. One of their important suggestions to the commission was that an informal atmosphere should

be created to discuss various options about their future. Whenever asked, students have voiced the need for guidance and counselling services.

Policy-makers' view on Counselling in India

Commissions such as Education Commission (1964-66), National Policy of Education (NPE, 1986) and Programme of Action (POA, 1992), National Curriculum Framework (NCF, 2005), and Rashtriya Madhyamik Shiksha Abhiyan (RMSA, 2012) — all focused on having a trained counsellor in school and believed that this would help students to cope with the increasing academic and social pressures.

Moreover, in the last few years, different committees have also realised the need and made it mandatory to have school counsellors. The Associated Chambers of Commerce and Industry of India (ASSOCHAM) Health Committee Chairman, Dr. B.K. Rao, highlights that making counselling available to every secondary school child will lead to a dramatic reduction in his/her stress level and improve his/her behaviour. He believed that the most common problems children face nowadays are scholastic performance pressure, lack of inter-personal communication, nuclear families and failure in relationships. The ASSOCHAM conducted a survey, in which it found that only 3 per cent of private schools in Delhi- NCR have counsellors. In 2012, the R.K. Raghavan Committee

was constituted, following the orders of the Supreme Court of India and the Ministry of Human Resource Development, Government of India. It also highlighted the need of counsellors in secondary and senior secondary schools. The Committee mandated the arrangement of a specified number of regular and periodic psychological counselling sessions per year for every student till they exit school with the involvement of parents and teachers during each exercise. The Central Board of Secondary Education (CBSE), under the Ministry of Human Resource Development, has passed rules year after year to mandate the appointment of a full-time counsellor for secondary and senior secondary schools. Even the Council of Indian School Certificate Examinations — India's other exam board which has 1,571 premier affiliated schools — has also issued a directive to its schools to offer counselling facilities to students.

The need for counselling was addressed by different states, which is evident from an article in the *Times of India* in 2013, such as secondary education department in Hyderabad proposed to make it compulsory from 2014 onwards. The Goa Education Development Corporation (GEDC) also said that it would be training one teacher in each government and government-aided school and higher secondary school, who will guide students on courses of their interests. The Board of Governors of Kendriya Vidyalaya Sangathan Kochi, Kerala, ordered that secondary and senior secondary classes of all central schools should be equipped with a counsellor.

NEED OF COUNSELLING IN SCHOOLS IN INDIA

Nowadays, there is a growing need for counsellors in schools because of an increase in the pressure that students face due to the expectations of parents and teachers. Other reasons can be stress, loneliness, bullying, ragging, peer adjustment problems that they face in and around school premises. Now, adding up some facts and statistics that are forcing schools and universities in India to make counselling services mandatory is a report by the World Health Organisation (WHO).

India has the highest suicide rate in the world in the age group of 15 to 29 years. It stands at 35.5 per 100,000 people for 2012. A report by the Indian Council of Medical Research says around 12 to 13 per cent of the students suffer from emotional, behavioural and learning problems. Another report by the Counselling and Psychological Science (CAPS) in 2006 states that 5,857 students committed suicide due to exam stress. In 2014, 11 per cent college students and 7-8 per cent high school students tried to kill themselves.

According to the National Crime Records Bureau, the number of students who committed suicide increased 26.58 per cent between

2012 and 2013 from 6,654 to 8,423. It reports that the common cause of concern is the pressure from parents to do well in the board examinations, especially for Class XII. As scores in these exams determine college admissions and subsequent employment opportunities, students aged 16-18 years are often subjected to undue pressure at home to succeed. When they don't, suicide becomes a way out. As evident from 2013 statistics, 2,471 students committed suicide because of "failure in examination".

MISMATCH IN COUNSELLING SERVICES ABROAD AND IN INDIA

In India, the term 'counselling' is misunderstood by many school authorities. For example, some still see counselling as a stigma. On the other side of the spectrum, there are some schools and parents who define counselling as an academic coaching. Although the actual role of a counsellor is to focus on the all-round and healthy development of children and adoloscents, the focus is also shifted to their academic success by helping them realise their full potential, guide them in choosing the right career based on suitable aptitude tests, improving their communication and inter-personal skills and help them deal with problems such as stress, loneliness, bullying, ragging, peer adjustment, parental and teacher pressure. Ironically, in the current scenario, many schools and parents have a different notion on the role

of a counsellor i.e., they expect that a counsellor should not only focus on students' problems but should also act as a channel for the flow of information among teachers, handle parent/student registration queries, advance students in academics, and substitute a class in the absence of a teacher.

Sydow and Reimer (1998) analysed 60 studies that were published regarding attitudes toward psychotherapists, psychologists, psy-chiatrists and psychoanalysts. The results indicated that the relative status of psychologists, psychiatrists, psychoanalysts, psychotherapists, and counsellors was ambiguous. They also found that psychologists were considered to be involved with research, diagnostics, counselling and work with children. Psychiatrists were perceived as clinical practitioners, who tried to cure mental disorders by psychoanalysis, psychotherapy, hypnosis, medication and electro-convulsive therapy. Counsellors were found to be preferred for the treatment of marital problems.

A recent study has indicated that teachers felt that higher secondary school students needed counselling support to tackle behavioural and emotional problems, to be understood, loved and for belongingness. They also need it for security, approval, achievement, freedom and vocation (P.V.A. Abdul, and Sumangala, V. 2015). Yet the question arises: is this need actually taken into consideration by school teachers or school

authorities; or is it just felt and abandoned, thinking that other school staff can take care of it?

In recent years, the Indian society seems to have undergone a metamorphosis with the changing roles of women, a breakdown of the joint family system, increased competitiveness in schools, increased sociability of children, immense technological advances, peer and parental pressures, resulting in an environment laden with stress and strain for children. School counsellor is like a blessing to students and parents to cope with the increased stress and strain of the younger generation. But unfortunately, after repeated circulars from the CBSE, there are many schools in India that are unaware of counselling services and thus, lack a full-time counsellor. Shockingly, in the country's 1,073 Central government-promoted Kendriya Vidyalayas, student counselling is an unknown concept. India's 135 million children enrolled in 1.09 million government schools despite having to bear with a plethora of problems, including teacher shortage and truancy, inadequate infrastructure and poor learning outcomes, seldom have recourse to any form of counselling services or advice.

But fortunately, a change can be seen in India's 188,000 private school managements, which are getting ready to implement the Right to Education (RTE) Act, which mandates induction of children from underprivileged background into elite private schools and demand a professional counsellor in order to deal with the issues of students' integration, adjustment and diversity. The country's 1,000,000– plus government schools, 509 universities and 31,000 colleges have realised the need to provide counselling services. The schools and university authorities have realised that the problems faced by students are diverse in nature and can't be dealt with a causal teacher-student interaction. It calls for active intervention of a full- time counsellor.

Although the need for counsellors is fast increasing, unfortunately, in India, only a handful of higher educational institutions (NIMHANS, Bangalore Bharathiar University, Christ University) offer post-graduate and doctoral study programmes in student counselling. Mostly, it is studied as a subject in Masters of Psychology in universities. Thus, leaving the Government of India with a question: how this demand for counsellors should be met. In other words, the government should focus on higher educational institutes and colleges that can provide exclusive degree in counselling, thereby, meeting the need of school authorities for the betterment of students. Although there are some institutes such as the Indian Institute of Counselling in New Delhi, Indian Institute of School Psychology, School Counselling and Guidance in Secunderabad; yet some more institutes need to be set up, focussing on students.

The government should focus on micro-level management of counselling, which means that students should be provided with regular counselling services, so that it helps them improve their performance and deal with the problems they face on a regular basis. A school counsellor should also try to provide one-to-one counselling to students, so that the issues which can't be discussed in a group can be resolved. At times, a counsellor should arrange workshops for parents as well as teachers, making them understand the undue pressure they put on children and the impact that it can have on their mental as well as physical health. Moreover, the micro-level management of counselling will help the government understand the utilisation of resources available in the country and their shortage as well as and how they can reduce the gap that persists.

Review of Literature

The need for counselling in today's era has been further reiterated by the review of literature. Vogel et. al. (2005) in a study found that there are positive relationships between fear of social stigma and help-seeking behaviour, demonstrating that social stigma can predict attitudes towards approaching a counsellor.

It is also believed and proved by various researches that whether a person approaches or avoids professional help depends on his or her willingness to express an emotion openly (Vogel and Wester, 2003). Succinctly, another research, which showed that those who were more comfortable with disclosing information to a counsellor also had more positive attitude and intention towards seeking help (Hinson and Swanson, 1993).

In 2001, a study by Andrews, Issakidis and Carter found that approximately only one-third of the people facing emotional and psychological distress consulted professionals.

Gender differences are also evident when we talk about likelihood to access counselling services. One such study is by Henderson and Lyddon (1997), who sought to examine the effects of counsellor gender, client gender, and client gender role attitude on clients' perceptions of counsellors. They found that female clients rated their counsellors significantly more positively than males. It was also noted that gender role attitude of a client influences the perception of female counsellors, therefore, indicating that they may need to spend more time establishing rapport and credibility with clients who have a stereotypical view of women. Another study is a 13-year comparative study of attitudes towards counselling conducted by Rule and Gandy (1994). They found that females were more likely to seek a counsellor's help.

Ketaki and Shivangi (2014), from India, in a study, focussed on investigating the awareness levels and attitude towards professional

counselling in urban undergraduates in Mumbai. They found that undergraduates show high awareness levels and a positive attitude while seeking help from a counsellor. They also found that 58 per cent of the sample had approached a counsellor before, 75 per cent of subject's friends had approached a counsellor and 61 per cent of the subject's families had also approached a counsellor.

However, another study by Manjot Kaur Parhar, Khushwinder Kaur and Pushpinder Kaur (2013) found that there was no significant difference between guidance needs (physical, social, psychological, educational and vocational) of male and female secondary school students.

Das and Panda (2012), investigated the impact of individual counselling on the academic achievement of students. Thirty-six adolescents of Bhubaneswar from KIIT International School were randomly selected as sample for the study. Of these, individual counselling was provided to only 21. Cognitive behaviour therapy was used in individual counselling session for reducing academic stress and anxiety. Twenty-one students in the experimental group improved their academic performance after counselling was provided to them compared with the 15 in the control group who did not turn up for the session.

Further research done by Kumari and Chhikara (1997) demonstrated that psychological intervention was effective in enhancing their cognitive development and functioning. Dogra and Veeraraghavan (1994) in a study found that eight weeks of play therapy and parental counselling was effective in reducing aggressive conduct and improving the overall adjustment in children aged 8-12 years.

Case Study of Counselling in Delhi

A Delhi-based school managed by a defence organisation claims to have professional counsellors on its payroll. Further, the counsellors reported that "their main role is to counsel students, parents and teachers, testing students, liasioning with clinical psychologists, special educators and psychiatrists, and arranging workshops. However, school authorities ask them to do other inconsequential tasks such as substitutions, invigilation during exams, taking students for external competitions. Students seek help whenever they face behavioural, emotional, career, family-related concerns. It was also reported that they find it difficult to counsel with students and teachers because of time constraints. They also reported that both girls and boys seek help". The trend was observed in other leading public schools.

A senior faculty member from India's leading educational research institute reported that while interacting with one of the researchers of the present study, it was found that "it is the teacher who should be trained in counselling skills. As students spend most of

their developmental age in schools and with teachers, they should try to resolve the issues of students without discriminating among them. If teachers feel that they can't resolve students' issues, then professional counsellors should be approached. School counselling is the part and parcel of every school teacher's role. She believes that students' problems should be looked into by teachers. She also conducted a counselling programme for principals of Navodaya Vidyalaya in 2015, where they were taught skills necessary for counselling. She believed that one should focus on social, contextual and environmental areas, in which the problem or issues are operating and should use the standard methods that can help them solve their problems".

In a nutshell, all educational institutional heads and teachers, in general, are advised to acquire counselling skills from professional counsellors so as to relate to students' problems and issues and address the same.

Discussion

In this millennium age, the average age of an Indian is 27 years as reported by the Indian Demographic Profile 2014, which shows that young Indians might be aspiring for a quality and healthy lifestyle, besides aspiring for better job opportunities. Globalisation, which started in India in the 1990s, also put pressure on youths, besides making

them strive for equal opportunities in employment, human rights and sustainable democratic process, which must be followed in all their endeavours.

Having said this, the expectations of youths and opportunities given to them by the Government of India have certainly seen a void. The expectations of educational institutions, societal and peer pressure as well as individual expectations are mounting pressure on the youths. In order to face this crisis, they are looking for advice, guidance and counselling from authentic sources such as schools, colleges and universities.

Although the Government of India has taken steps since early 1950s in establishing counselling and guidance centres in educational institutions across the country, the work is not yet complete. Thus, most youths are still looking for proper guidance and counselling services from different sources.

If the trend continues, five years down the line, we would be crossing the average age of 29 years, which would lead to further complications not only in schools, colleges and university life, but would also penetrate into the society, in general. In order to avoid this scenario, it's better to provide counselling services at an earlier stage in life.

Findings and Implications

• An educational policy should focus on ensuring that each school and university has a full-

time counsellor whom students can approach whenever they face any problem, which is outside their control.

- The schools that already have a counsellor should give him/her opportunities to interact with students, so that he/she can make them aware of counselling and when they should approach the counsellor.

- A school counsellor should try to organise workshops not only for students but also for teachers, parents and school management.

- Government institutes such as NCERT, DIET, etc., should frequently organise workshops and seminars for training teachers and other school staff in counselling. They should also organise refresher programmes for counsellors.

- Counselling students is not the only the role of a counsellor, rather it is the collective role of the counsellor, teachers and school authorities. School authorities and teachers should be trained in necessary counselling skills, so that they can deal with students' problems and issues.

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The Effect of Life Skills Training on Decision-making Skills of Dyscalculic Students

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Abstract

The objective of the present paper is to examine the efficacy of life skills training on the decision-making skills of dyscalculics at the elementary level. This research is quasi-experimental in nature, based on pre-test and post-test design. Thirty dyscalculic students from the elementary level in Agra city were selected and divided into two equal groups of Experimental (n=15) and Control (n=15). Training sessions on life skills were administered on the Experimental group for a period of one month in their schools. The tools used were (i) Dyscalculic identification scale, (ii) Making decisions in everyday life, and (iii) Life skills training through self-constructed lesson plans. The statistical analysis exhibited that the Experimental group showed a positive enhancement in decision-making skills as compared to the control group of dyscalculic students. The result, thus, inferred that the life skills training can effectively bring about an increment in the decision-making skills of dyscalculic students, which can ameliorate their existing conditions to a certain extent. It also confirms that the provision of life skill-based curricula in these schools caters to the needs of dyscalculic children in a better way by enhancing their calibre to face the world at large.

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Introduction

Research in the field of learning disabilities circumvents a mighty ocean and research in the field of dyscalculia is like a drop of water in this ocean (learning disabilities). Researchers need to go a long way before they can fully explore this little drop. Hence, there is an urgent need to explore the underneath psycho-cognitive world of dyscalculic children, which enables the pedagogue to deal with it in a rational manner. Further, dyscalculia in itself is treated as a new area of investigation in comparison to its counterpart dyslexia.

Pioneer researchers Butterworth (2005), and Wilson and Dehaene (2007) concluded that these students face problems in the acquisition of counting, addition strategies, memorisation of number facts, representing quantity, number comparison, number symbols, etc., (Gross-Tsur et al., 2008). Children with dyscalculia fall behind early in primary school and may develop stress, anxiety and low self-esteem (Huntington, 1993). In secondary school, they face difficulty in passing mathematics and science courses. Ysseldyke (2005) emphasised on the importance of decision-making skills for learning disablility. Decision-making skills can, therefore, help students make wise decisions. Decision-making is not just a task but is recognised as a process or more famously as P.O.W.E.R (Problem, Options, Weigh, Elect, and Reflect) model as proposed by the Namibia Youth Programme (Chandan, 2008). Decision-making is easier when students are taught skills, which are useful in taking 'big' and 'small' decisions that help them derive satisfaction from their decisions (Trammell and Hausler, 1986). A skill is a learned ability to do something well. So, life skills are the abilities that individuals can develop to live a fruitful life. The World Health Organisation (WHO) (1997) has defined life skills as "the abilities for adaptive and positive behaviour that enable individuals to deal effectively with the demands and challenges of everyday life" and has identified ten-core life skills, which are — self-awareness, empathy, critical thinking, creative thinking, decision-making, problem-solving, effective communication, inter-personal rela-tionships, coping with stress and managing emotions.

The decision-making skills efficiently fall under the umbrella term of 'life skills' as recognised by the WHO (1997). Life skills training positively effects problem-solving, effective communication (Forneries et al., 2007), and adjustment to stress (Jeffery, 2002) in students. It is also evident that applied training, token reinforcement and relaxation training significantly decreased mathematics learning disorders (Hamid, 2006). Kazemi, et al. (2013) recognised that most studies have researched the effectiveness of life skills training in high school students. A few researchers have studied the

effectiveness of the training on self-esteem, communication skills and social skills (Momeni, et al., 2012), particularly related to mathematics learning disorder. The objective of the current research was to study the effects of life skills training on decision-making skills of dyscalculic students. This research would help in adding a new dimension towards the better understanding of these students.

OBJECTIVES OF THE STUDY

1. To identify students with dyscalculia at the elementary level school in Agra city.
2. To develop activity-based lesson plans on life skills for elementary-level dyscalculic students.
3. To study the effect of life skills on the decision-making capability of dyscalculic students.
4. To compare the decision-making skills of dyscalculic students with/without life skills instruction in elementary-level schools.

HYPOTHESES OF THE STUDY

Ho$_1$: To study the effect of life skills instruction on decision-making skills of students with dyscalculia

Ho$_2$: To compare the decision-making skills of dyscalculic students with/without life skills training.

DESIGN OF THE STUDY

The research was quasi-experimental in nature with pre-test and post-test design. The sample consisted of 30 dyscalculic students from the elementary level in Agra city and equally divided into two groups i.e., Experimental (n=15) and Control (n=15). Self-constructed life skills-based lesson plans were administered on the Experimental group. The life skills-based lesson plan focuses on decision-making skills. The Experimental group was engaged regularly for 15 days in their classrooms.

TOOLS OF THE STUDY

(i) *Dyscalculic Identification Scale* by Vashishtha and Gupta (2014): It is a tool for screening students with dyscalculia. It consists of 35 items and shows a high Cronbach Alpha Reliability of 0.88. It is standardised on wider population of dyscalculic students studying in the elementary level.

(ii) *Making Decisions in Everyday Life* by Mincemoyer, Perkins and Munyua (2001): The tool has 30 items for analysing the decision-making skills of students in the age group of 12-18 years. A correlation of 0.8 is suggested for at least one type of reliability as evidence. However, standards range from 0.5 to 0.9, depending on the intended use and an internal consistency of Alphas for the five factors in the scale ranging from 0.63 to 0.89.

(iii) *Life Skills-based Lesson Plans:* To improve decision-making skills through life skills, training-based lesson plans were developed by researchers themselves. These

are 15 in number covering the wider areas of decision-making skills essential at the elementary level for dyscalculic students.

Results and Findings

The descriptive statistics involved were mean and standard deviation (SD) values to determine the nature of the sample and eventually these statistics were used to infer the nature of the population parameter. The results and findings are shown in reference with testing of the hypotheses of the study. The experimental research involves the initial phase of administration of pre-test on both Experimental and Control groups. As already mentioned, before beginning the research, the Control and Experimental groups were equated in the groups of 15 members each. Their mean and standard deviation were calculated on pre-test scores. The

descriptive statistics of the groups are shown in the Table 1.1.

The data in the above table enumerates the nature of the sample. The difference in the means of the groups in pre-test was 10.26. The purpose of pre-test was to examine the prior decision-making skills of the identified dyscalculic students before giving the treatment.

Student t-Test was applied on the scores of pre-decision making tool. The t-values were calculated and the level of significance was checked at 0.01 level.

Table 1.2 shows the t-value as 2.496, which was less than the tabulated t-value (2.76) at 0.01 level of significance. Therefore, it can be concluded that an insignificant difference was found in the decision-making skills of pre-test scores in Experimental group and Control group separately.

Table 1.1
Descriptive Statistics of the Groups in the Pre-test Scores

Groups	Sample Size (N)	Mean	SD
Experimental Group	15	67.13	9.91
Control Group	15	56.87	10.57

Table 1.2
Exhibiting the t-values for the Pre–test Scores

S. No.	Groups	N	M	SD	t-value
1	Experimental Group	15	67.13	9.91	
2	Control Group	15	56.87	12.46	2.496

$p < 0.01$

Table 1.3
Exhibiting the t-value of the Pre-test and Post-test
scores of the Experimental group

S. No.	Groups	N	M	SD	t-value
1	Experimental Group	15	67.13	9.91	
2	Experimental Group	15	74.47	10.01	2.79

p>0.01

Thus, it can be presumed that their decision-making capabilities were almost similar before the treatment to be carried out by the researcher.

Ho$_1$: To study the effect of life skills instruction on decision-making skills of students with dyscalculia.

The above table shows the obtained t-value on the scores of pre-test and post-test of the Experimental group.

With this table, it can be inferred that the t-value is 0.01 level of significance. Therefore, it shows that a significant difference was found in the decision-making scores of pre-test and post-test of the Experimental group. Thus, for the very objective a comparison was done on the pre-test and post-test scores of the Experimental group to see if a viable difference is observed after the implementation of the life skills instruction designed by the researcher. The value as presented in the table comes out to be 2.79, which is greater than the t-tabulated values at 0.01 level of significance. This leads to the rejection of the null hypothesis, hence, confirming that there is a significant effect of life skills instruction on decision-making skills of students with dyscalculia.

Ho$_2$: To compare the decision-making skills of dyscalculic students with/without life skills training

After the implementation of life skills instruction on the Experimental group, decision-making post-test was administered on it and the Control group consisting of the dyscalculic students. The purpose of administering post-test was to measure the decision-making skills of the students in the groups, compare their skills with that of pre-test scores and compare the post-test scores between the two groups. The post-test results, then, served as a basis for testing the hypothesis i.e., there will be no significant effect of life skills instruction on the decision-making skills of students with dyscalculia.

Graph 1: Exhibiting the comparison of pre-test and post-test means of the Experimental and Control groups
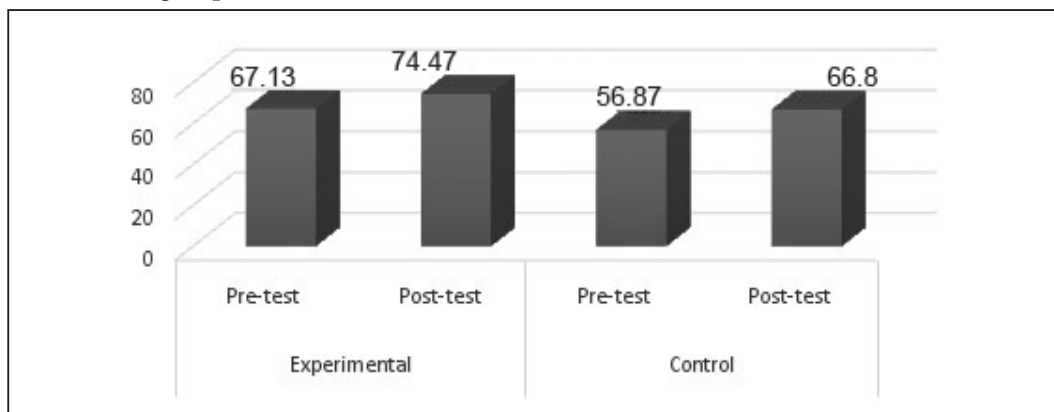
Graph 1 shows the difference in means of pre-test and post-test values of Experimental and Control groups. The intra-difference in case of Experimental group has increased, as can be seen from the difference of means of pre-test and post-test scores of decision-making.

The given table shows the t-value as 2.82, which was found significant at 0.01 level of significance (df=28). Therefore, it can be concluded that both the groups under study were considerably different from each other in terms of post-test scores on decision-making skills.

DISCUSSION AND CONCLUSION

The objective of the present research was to determine the efficacy of life skills training on decision-making skills of students with dyscalculia. The findings have been discussed with reference to the hypotheses testing. The results of the current study are consistent with previous researches considering the importance of targeted life skills programme for youth with physical disabilities as reported by Kingsnorth, et. al., (2014). Tahereh, Mohammadkhani and Mohammad (2011) noted that life skills training has a significant effect on happiness,

Table 1.4
Exhibiting the t-value for the post–test Scores in Experimental and Control–groups

S. No.	Groups	N	M	SD	t-value
1	Experimental Group	15	74.47	10.01	
2	Control Group	15	66.8	10.31	2.82

p>0.01

quality of life and emotional adjustment of adolescent students. The use of assistive technologies (Hamid, N. 2006; Amiripour et al, 2012; Narimani, M., Abbasi, M., and B. Ahadi, 2013) and effective remedial interventions have always paved way for positive results in students with dyscalculia (Ramaa and Gowramma, 2004).

It can be concluded that life skills instruction proves to be highly beneficial in increasing students' skills of decision-making. Good numerical skills are important for being a successful member of the society. For this reason, life skills are implemented as an intervention and the same is showcased by the study undertaken by Kazemi, Momeni and Abolghasemi (2013). Thus, when students with dyscalculia enter this demanding world, they face problems in simple calculations and skills required to take decisions. Hence, in the long run, they become victims of anxiety, low self-esteem and depression. Thus, the researchers tried to bring about an improvement in the decision-making skills of these students by the implementation of life skills instructions encompassing the five life skills (decision-making, communication, creativity, problem-solving and self-awareness) out of

the ten-core life skills as enshrined by WHO (1997). The decision-making skills are interwoven in the life skills instruction in the form of the P.O.W.E.R. Model. It is important to identify their problem, consider the various options available to them and make the best decision among these choices. At the same time, it is also important to weigh the consequences of these decisions. This training or programme is not a separate component but intervened in the daily curriculum. Thus, its greatest benefit is that it is not burdensome to the students but a great way of learning skills that are required for a happy life. The research provides evidence of the improvement brought about in the decision-making capabilities of dyscalculic students compared to their friends who did not undergo life skills instruction.

The present study was limited to only 30 dyscalculic students from elementary schools in Agra city of Grades 6, 7 and 8. The activity-based lesson plans will include the decision-making skills, communication skills, creative-thinking skills, self-awareness and problem-solving skills. So, it is suggested to use large samples and longer periods to study broader dimensionalities of the effects of life skills training in future.

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Effectiveness of Web-based Instruction in Terms of Achievement of Class IX Mathematics Students of Jawahar Navodaya Vidyalaya

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Abstract

The present study was done on Class IX students of Jawahar Navodaya Vidyalayas of Madhya Pradesh and Chhattisgarh. About 316 students were selected as sample by using random sampling technique. Using Self-developed Achievement Test in Mathematics and Advanced Progressive Matrices of J.C. Raven (1953) it is found that the (i) Adjusted mean scores of achievement in mathematics of Web-based Instruction (WbI) group is significantly higher than that of traditional method group when the groups were matched with respect to pre-achievement in Mathematics. (ii) Achievement in mathematics is independent of economic status when the groups were matched with respect to pre-achievement in mathematics. (iii) There is no significant effect of the interaction between treatment and economic status when the groups were matched with respect to pre-achievement in mathematics.

Introduction

Education is the most powerful instrument in the progress of any nation. Hence, the quality of education should be improved for the all-round development of a child and quality of instruction. At present, no one is satisfied with whatever happens in classrooms.

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Web-based Instruction (WbI), which is an emerging field in education, is nevertheless, a part of rapid growth caused by the internet. Reasons for the growth of WbI include growth of distance education (reliable and inexpensive source) as compared to computer-based training, live broadcasts, video tapes, and so on, that enable learners, who prefer or are required to learn outside traditional classrooms, to attend classes in their homes or offices and provide delivery medium content provider and subject matter in one package unlike other mediums such as computer-based training that require a separate delivery mechanism.

Web-based Instruction is a vital area of research. Researchers are making efforts to design and develop different types and forms of Web-based Instruction material, which can improve the teaching-learning process. Some of the researchers are Manickam and Devonathan (2011), Karthikeyan and Jayraman (2011). These researchers have compared the achievement of Web-based Instruction/e-content group with traditional method group and have found the achievement of Web-based Instruction/e-content group to be significantly superior to the traditional method group. Unal (2005) has compared achievement of Web-based Instruction/e-content group with traditional method group and has found that there is no significant difference in the achievement of Web-based Instruction/e-content group and traditional method group.

Beta-Jones and Avery (2004), Cooper (2001), Thrasher et al., and Chahino (2011) have compared Web-based Instruction / e-content materials with traditional method (face-to-face learning) and have found that e-content materials that developed in different subjects at different levels were found to be significantly superior to traditional methods in terms of learning outcomes.

Beck (2010) has also compared online and face-to-face teaching and learning and has found that student learning occurred in all sections and that method of delivery was unimportant. Anstine and Skidmore (2005) compared online and face-to-face teaching and learning and found that the online learning environment was substantially less effective than the traditional learning environment. Snell et. al. (1999) has compared online/offline of the same course. For two academic years, the course had the same instructor, textbook, time period (1994–96) and they were related. The difference is that offline had lectures and online had videos. A significant difference was noted between online and offline education and that online appears to be more rigorous. Schmidt (2012) has compared students' learning outcomes in online and face-to-face accounting courses information and found that (i) Students taking the ACCT 211 and ACCT 311 online perform as well as face-to-face students in quizzes, chapter tests,

and final exam; (ii) In ACCT 211 and ACCT 311, there were some learning objectives, of which students learning face-to-face had a better understanding, while online students had a better understanding of other learning objectives; (iii) A student's prior knowledge has a strong relationship with his/her average quiz grades in ACCT 311 and a moderate relationship in ACCT 211. Lee (2005), Erdogan (2008), Chen and Jones (2007) have studied attitude towards Web-based Instruction / online and face-to-face learning and have found that users have been more satisfied in Web-based Instruction / online learning compared to face-to-face learning developed in different subjects at different levels.

Cooper (2001) studied and examined contrasts between online and traditional delivery methods in terms of the impact on student learning and satisfaction for similar course material. He found that traditional courses were characterised as being perceived as more satisfying than online classes, but that may have been as much a preconceived notion of expectations as much as the experience of taking classes. Yatrakis and Simon (2002) studied 'The Effect of Self-selection on Student Satisfaction and Performance in Online Classes' and found that (i) Students who chose to enrol in courses in an online format achieved higher rates of satisfaction and perceived retention of information, than those who enrolled in online courses

when no such choice is provided, (ii) Student grades did not seem to correlate with students' perceptions. It might reasonably be assumed that students reporting higher levels of satisfaction and perceived retention of information should also perform better as measured by course grades.

Benson and Angela (2007) have investigated online post-secondary education for low-income clients of education support organisations (ESOs). A multi-stage case study approach was taken. The results showed that (i) ESO directors hold different perspectives on whether online learning is a good option for their clients; (ii) ESO programmes that are successful in serving online clients have expectations for student success, provide sufficient training and support, understand the learning needs of their clients, and are associated with colleges and universities that are supportive of online learning.

Brallier (2007) studied predictors of exam performance in web and lecture courses and found that (i) web-based courses had a significantly lower percentage of racial minorities than lecture-based courses; (ii) Race was a significant predictor of exam performance in web-based courses but not in lecture-based courses.

Rakap (2010) studied the impacts of learning styles and computer skills on adult students' learning online and found that (i) Learning styles or preferences had significant effects on adult students' knowledge

acquisition, (ii) There is a moderate positive correlation between computer skills and students' success, and (iii) There is no relationship between prior experiences with online courses and success in a web-based course.

Cobb (2011) studied social presence, satisfaction, and perceived learning of RN-to-BSN students in web-based nursing courses and found (i) A strong relationship among satisfaction, social presence, and instructor performance, (ii) All sub-domains of social presence correlated highly with the satisfaction sub-domains, except the communication factor, (iii) A strong relationship was found between perceived learning and social presence and comfort with the online course, (iv) Overall social presence, instructor performance, and the sub-domains of social presence predicted a significant amount of total variance in the overall satisfaction and perceived learning, (v) No significant relationship was found between the demographic factors and the overall social presence or perceived learning.

Nagalakshmi and Manikam (2011) have studied the effectiveness of online education technology for people with special needs. They have found that in all online educational tools respondents commented about presentation problems with essential features such as assessments and assignment. The most commonly reported problems were access to real-time, chat, e-mail, documents, assessments and discussion board included in online educational tools.

These materials i.e., Web-based Instructional material/ e-content/ online instructional material have not been able to enter the classroom due to various reasons such as cost of preparing the material and comprehension level. The difficulty in preparing the special type of instructional material included lack of trained personnel, equipment, problem of electricity, etc.

It is evident from previous research that little work has been done on Web-based Instruction and there is no consistency in the findings. These points lead to the selection of Web-based Instruction for the present study to fill this gap. It was decided to work in this area and compare Web-based Instruction with traditional method for teaching mathematics to Class IX students.

Key Words

In this study, the major key words used are as follows:

Web-based Instruction

Web-based Instruction refers to providing a learning environment that is mediated and supported via the internet/intranet and connected to a computer with hyperlinks to resources outside the instructional domain. The instruction is designed so that the computer displays lessons in response to learner/user interactions.

Jawahar Navodaya Vidyalaya

Jawahar Navodaya Vidyalayas (JNV) are schools for talented children and are a part of the system to provide quality education. The objectives of the scheme are to provide quality modern education to children predominantly from rural areas, without regard to their family's socio-economic condition.

Economic Status

The economic status of students means the economic condition of parents, which depends on their monthly or annual income. On the basis of monthly or annual income of their parents, the students were classified into three groups. The first one was low economic status group (up to ₹10,000 per month), the second was middle economic status group (monthly income between ₹10,000 and ₹25,000) and the third group was high economic status group (monthly incomes above ₹25,000).

OBJECTIVES

1. To design and develop the Web-based Instructional material in mathematics at Class IX level of Navodaya Vidyalaya.
2. To compare the adjusted mean scores of achievement in mathematics of Experimental and Control groups by considering pre-achievement in mathematics as co-variate.
3. To study the effect of treatment, economic status and their interaction on achievement in mathematics by considering pre-achievement in the subject as co-variate.

HYPOTHESES

1. There is no significant difference between adjusted mean scores of achievement in mathematics of Experimental and Control group by considering pre-achievement in mathematics as co-variate.
2. There is no significant effect of treatment, economic status and their interaction on achievement in mathematics by considering pre-achievement in mathematics as co-variate.

METHODOLOGY

Sample

The population of the study was Class IX students studying in Jawahar Navodaya Vidyalayas in India. The study, which is Experimental in nature, was conducted in eight Jawahar Navodaya Vidyalayas namely, Jawahar Navodaya Vidyalaya, Mana, Raipur (Chhattisgarh); Jawahar Navodaya Vidyalaya, Padmi, Mandla, (M.P.); Jawahar Navodaya Vidyalaya Kurud, Dhamtari (Chhattisgarh); Jawahar Navodaya Vidyalaya, Kanhiwada, Seoni (M.P.); Jawahar Navodaya Vidyalaya, Shahpur, Dindori (M.P.); Jawahar Navodaya Vidyalaya, Borai, Durg (Chhattisgarh), and Jawahar Navodaya Vidyalaya, Dongargarh, Rajnandgaon (Chhattisgarh). About 316 students of Class IX of the above-mentioned JNVs of

Madhya Pradesh and Chhattisgarh were selected for random sampling. Forty students were selected from each school but four students of two schools dropped out during the course. Finally, 159 students from four schools formed the Experimental group and 157 from the other four schools formed the Control group. School-wise, gender-wise and group-wise distribution of subjects is given in Table 1.

From Table 1, it is evident that the 159 subjects from four Schools namely, Jawahar Navodaya Vidyalaya, Mana, Raipur (Chhattisgarh); Jawahar Navodaya Vidyalaya, Padmi, Mandla (M.P), Jawahar Navodaya Vidyalaya,

Kurud, Dhamtari (Chhattisgarh) and Jawahar Navodaya Vidyalaya, Kanhiwada, Seoni (M.P) formed the Experimental group, while 157 from other four schools namely, Jawahar Navodaya Vidyalaya, Shahpur, Dindori (M.P); Jawahar Navodaya Vidyalaya, Borai, Durg (Chhattisgarh); Jawahar Navodaya Vidyalaya, Dongargarh, Rajnandgaon (Chhattisgarh) formed the Control group.

Further, out of 316 students, there were 180 boys and 136 girls. Students were from both urban and rural areas and belonged to different castes and economic status. The medium of instruction in all eight schools was

Table 1
School-wise, Gender-wise Sample

S. No.	Name of the School	Boys	Girls	Total
1.	Jawahar Navodaya Vidyalaya Mana, Raipur, Chhattisgarh	23	16	39
2.	Jawahar Navodaya Vidyalaya, Padmi, Mandla, Madhya Pradesh	25	15	40
3.	Jawahar Navodaya Vidyalaya, Kurud, Dhamtari, Chhattisgarh	20	20	40
4.	Jawahar Navodaya Vidyalaya, Kanhiwada, Seoni, Madhya Pradesh	20	20	40
5.	Jawahar Navodaya Vidyalaya, Shahpur, Dindori, Madhya Pradesh	23	14	37
6.	Jawahar Navodaya Vidyalaya, Borai, Durg, Chhattisgarh	21	19	40
7.	Jawahar Navodaya Vidyalaya, Dongargarh, Rajnandgaon, Chhattisgarh	26	14	40
8.	Jawahar Navodaya Vidyalaya, Bargi, Jabalpur, Madhya Pradesh	22	18	40
Total		180	136	316

English. The mathematics syllabus was similar in all schools.

Experimental Design

The present study was experimental in nature. The study was designed on the basis of pre-test and post-test Control group design. As per Campbell and Stenley (1963), the layout of this design is given below:

R   O   X   O
R   O   O

R = Random selection of
     sample

O = Observation

X = Treatment

As mentioned, under sample from each selected school 40 students of Class IX were selected randomly. From four schools, 160 students were assigned the treatment. The group receiving the treatment was called Experimental. From four other schools, 160 students were selected randomly for Control group, but four students of two schools dropped out during the course of treatment. Finally, 159 students from four schools formed the Experimental group and the other 157 from four other schools formed the Control group. Before starting the experiment, the achievement test developed by the investigator was administered to the students of both Experimental and Control groups. This constituted the pre-achievement scores. The Experimental group was taught some chapters of mathematics through Web-based Instruction. When the students of the Experimental group were undergoing the treatment, those in the Control group were engaged in regular activities in class. The treatment lasted four months. At the end of the treatment, the same achievement test, which was to be administered before the treatment, was administered separately to the students of both Experimental and Control groups.

Tools

The researcher validates the achievement test in mathematics based on Web-based Instructional material. For the establishment of validity of the achievement test, content validity method was used. This achievement test consisted of

Table 2
Action Plan

S. No.	Process	Duration
1.	Pre-test	60 Minutes
2.	Treatment	4 Months
3.	Assessment of Intelligence	60 Minutes
4.	Post-test	60 Minutes
5.	Assessment of Reaction Towards Web–Based Instructional Material	40 Minutes

short answer and objective-type questions. This test comprised 30 questions related to a few topics of mathematics. Each objective-type question had four alternatives, in which one option was true and others were flase. For each correct answer of a short answer type question, 4 marks were given, while 1 mark was given for correct answer of each objective-type question. Thus, the total marks were 60. The maximum time limit for this achievement test was one hour.

Content validity involves essentially the systematic examination of contents of the achievement test to determine whether it covers a representative content of the achievement to be measured. The content validity of the achievement test was established by having a discussion with five experts from the field of mathematics and three from the field of methods of teaching mathematics. On the basis of expert's opinion, the achievement test was found to be valid.

Data Analysis

The objective-wise data analysis techniques used are given below:-

1. One-way-ANCOVA was used for comparing the adjusted mean score of achievement in mathematics of Experimental and Control groups by considering pre-achievement in mathematics as co-variate.

2. Two-way ANCOVA was used for studying the effect of treatment, economic status and their interaction on achievement in mathematics by considering pre-achievement in mathematics as co-variate.

Result and Discussion

(a) Comparison of the adjusted mean scores of achievement in mathematics of Experimental and Control groups by considering pre-achievement in Mathematics as co-variate.

The third objective was 'Comparison of the adjusted mean scores of achievement in mathematics of Experimental and Control group by considering pre-achievement in mathematics as co-variate. Experimental group and Control group compared the adjusted mean scores of achievement in mathematics, so data were analysed with the help of one-way ANCOVA. The results are given in Table 3.

Table 3
Summary of One-Way-ANCOVA of Achievement in Mathematics of Class IX Students

Source of Variance	df	SSy.x	MSSy.x	Fy.x	Remark
Group	1	428.207	428.207	9.871	p< 0.01
Error	313	13578.321	43.381		
Total	315				

Table 4
Group-Wise Mean, Standard Error and Number of Students

Group	Mean	Standard Error	Number
Experimental	46.66	0.597	159
Control	44.065	0.556	157

Table 3 shows the adjusted F-value for treatment with df = 1/313 is 9.871, which is significant at 0.01 level of significance. It indicates that the adjusted mean score of achievement in mathematics of Experimental and Control groups by considering pre-achievement in mathematics as co-variate differ significantly. Hence, the null hypothesis that there is no significant difference between adjusted mean scores of achievement in mathematics of Experimental and Control groups by considering pre-achievement in mathematics as 'co-variate' is rejected. Further, as shown in Table 4, the adjusted mean score of achievement in mathematics of Experimental group is 46.66, which is significantly higher than that of traditional method group, whose adjusted mean score of achievement is 44.065. It may, therefore, be concluded that the adjusted mean score of achievement in mathematics of WbI group is significantly higher than that of traditional method group when the groups were matched with respect to pre-achievement in mathematics.

(b) Study of the effect of treatment, economic status and their interaction on achievement in mathematics by considering pre-achievement in mathematics as co-variate.

The seventh objective was to study the effect of treatment, economic status and their interaction on achievement in mathematics by considering pre-achievement in the subject as co-variate. The data were analysed with the help of 2×3 factorial design ANCOVA. The results are given in Table 5.

Table 5
Summary of 2×3 Factoral Design ANCOVA of Treatment, Economic Status and their interaction on Achievement in Mathematics by considering Pre-achievement in Mathematics as co-variate

Source of Variance	df	SSy.x	MSSy..x	Fy.x	Remark
Treatment	1	397.824	397.824	9.08	p< 0.01
Economic Status	2	11.835	5.92	0.135	p>0.05
Treatment Economic Status	2	26.006	13.003	0.297	P>0.05
Error	309	13.540	43.822		
Total	315				

Table 6
Group-wise Mean, Standard Error and Number of Students

	Levels	Number	Mean	Standard Error
Group	Experimental	159	46.548	0.600
	Control	157	43.953	0.617
Economic Status	High	48	45.518	0.491
	Middle	86	45.195	0.722
	Low	182	45.038	0.960

The result with respect to the effect of treatment on achievement in mathematics by considering pre-achievement in mathematics as co-variate is same.

Further, from Table 5 it is evident that the adjusted F-value for economic status is 0.135 with df= 2,309, which is not significant at 0.05 level of significance. It means that the adjusted mean score of achievement in mathematics of low, middle and high economic status group students did not differ significantly when pre-achievement in mathematics was taken as co-variate. So, there was no significant effect of economic status on achievement in mathematics by considering pre-achievement in mathematics as co-variate. Therefore, the null hypothesis that there is no significant effect of economic status on achievement in mathematics by considering pre-achievement in mathematics as a co-variate is not rejected. It may, therefore, be concluded that achievement in mathematics is independent of economic status when the groups were matched with respect to pre-achievement in mathematics.

The adjusted F-value for the interaction between treatment and economic status as obtained from Table 5 is 0.297 with df = 2/309 which is not significant at 0.05 level of significance. Therefore, the null hypothesis that there is no significant effect of interaction between treatment and economic status on achievement in mathematics by considering pre-achievement in mathematics as co-variate is not rejected. It can thus be concluded that there is no significant effect of interaction between treatment and economic status when the groups were matched with respect to pre-achievement in mathematics.

FINDINGS

1. The adjusted mean score of achieve-ment in mathematics of WBI group is significantly higher than that of traditional method group when the groups were matched with respect to pre-achievement in mathematics.

2. Achievement in mathematics is independent of economic status when the groups are matched with respect to pre-achievement in mathematics.

3. There is no significant effect of interaction between treatment and economic status when the groups were matched with respect to pre-achievement in mathematics.

Educational Implications

The present study is related to Web-based Instruction. The study revealed that the Web-based Instruction was found effective in terms of achievement and reaction. The findings of the study have implications on students, teachers, administrators and society. The implication in case of each one of them is given under separate headings here under.

1. Students

In the formal education system, the topics have to be studied by students on that specific day, in that specific classroom and term. The topics and subjects cannot be studied on a different day or place. The students have to be in the specified classroom in that term and time (Arslan, 2002, p.34). On the other hand, Web-based Instruction frees students from space and time. In such a setting, students are to follow the instructional content at their own learning pace and needs (Thrasher et al., 2012). A finding of the present study shows that the achievement of WBI group is significantly higher than that of traditional method group. The results also show that students enjoy reading and learning through WBI method. Other results of the

study show that the effects of other factors (i.e., gender, caste, residential background, economic status, etc.) on achievement were not significant. Therefore, we can say that the WBI method is more beneficial for all students.

2. Teachers

The present study will help teachers to understand the characteristics of WbI and its development. It will also help teachers to use WbI in the teaching-learning process and research.

3. Administrators

Students Gross Enrollment Ratio (GER) in secondary school in 2012 is 68.51 per cent (World Bank, 2011) and India's GER in higher education is 17.87 per cent, which is the lowest in the world (UGC, 17 September 2012). The aim of the Ministry of Higher Education, Government of India, is to expand the higher education sector in all modes of delivery to increase the GER in higher education to 15 per cent by 2011–12, 21 per cent by 2016–17 and 30 per cent by 2020 (Ministry of Human Resource Development, Government of India, 2012). The right to education, one of the basic rights as stated in national and international agreements, cannot be sufficiently provided to all students. There is a huge demand, though the supply is relatively insufficient.

In India, only 17.51 per cent of the students whose age is suitable for higher education are able to receive a university degree (UGC, 2012). This

forces universities to find additional resources and generate alternative solutions. It is widely accepted by almost all that traditional educational institutions are insufficient in offering education to the increasing population. As a consequence, this has initiated search for ways of providing quality education in an economic way, on a variety of topics, and to a wider audience. The solution to meet this demand is Web-based Instruction (Erdogan, 2005) because Web-based Instruction can reach a large number of students, which cannot be imagined in traditional approaches (Karasar, 1999, p.135, Thrasher et al., 2012).

4. Society

Further, some of the costs of classical instruction are reduced in web-based method. When there is a sufficient number of students, Web-based Instruction is estimated to cost 40 to 60 per cent less than classical instruction (Hall, 1999). Two-thirds of the cost in classical education are spent against transportation and facility rents (Horton, 2000, p.20). Likewise, the students' time spent on transportation and their being away from production can also be considered as economic cost. When the above points are taken into consideration, it could be claimed that it would cost less to deliver web-based instruction (Thrasher et al., 2012).

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Exploring Pre-service Science Teachers' Knowledge and Understanding of the Nature of Science

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Abstract

The present research is to explore pre-service science teachers' knowledge and understanding of the nature of science by survey method using questionnaire and interview. The sample of the study included 693 pre-service science teachers under the Acharya Nagarjuna University by using random sample with disproportionate stratified sampling. Five per cent of the participating pre-service science teachers were interviewed following their responses in the questionnaire. In order to test the hypothesis, based on pre-service teachers' knowledge and understanding levels, one sample t-test is used and results indicate lack of significant currently accepted knowledge and understanding of the nature of science. The study reveals patterns showing that the pre-service science teachers had inadequate and conflicting views on several aspects of the nature of science. The study mainly recommends explicit teaching of the nature of science, including aspects of history, philosophy and sociology of science.

INTRODUCTION

The teacher preparation programme in Andhra Pradesh mostly focuses on pedagogical knowledge and assumes that teachers have content knowledge from their bachelor's degree. There is a lack of evidence in explicitly addressing the nature of science aspects in teacher training courses, and even in primary, secondary and

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tertiary education of pre-service science teachers. Rapid covering of the syllabus in teacher training programmes does not contribute significantly to pre-service science teachers' understanding of the nature of science.

It was observed that implicit messages from the curriculum, and formal and informal learning experiences contribute to pre-service science teachers' knowledge and understanding of the nature of science. The implicit messages might be in line with the current conception of the nature of science or it might be the cause of alternative conception and or misconception of the nature of science. If pre-service science teachers have alternative conception or misconception about the nature of science, this acts as a filter, might interfere and even obstruct new knowledge formation. Therefore, pre-service science teachers' prior conception of the nature of science is highly influential in filtering learning experiences from the teacher training course. It is imperative to know pre-service science teachers' conception or alternative conception or misconception about the nature of science.

The Indian National Curriculum Framework of Science Teaching (National Council for Teacher Education, 2009) emphasises that understanding of the nature of science is a major goal in science education. The importance of establishing adequate understanding of the nature of science is evident from the assertions made by researchers who argue that the nature of science constitutes a core objective of science education throughout the world (Akerson, Buzzelli, and Donnelly, 2008; Dogan and Abd-El-Khalick, 2008; Khishfe, 2008; Schwartz and Lederman, 2008; Martin-Diaz, 2006; Bell and Lederman, 2002; Bell, Lederman, and Abd-El-Khalick, 2000; Lederman, 1999, 1992; Abd-El-Kahlick, Bell, and Lederman, 1998).

THE CONCEPTUAL AND THEORETICAL FRAMEWORK

The nature of science is a crucial component of scientific literacy. In the present study, the two sub-concepts — scientific knowledge and scientific inquiry — combine to form the concept 'nature of science'. The study results will be interpreted in terms of current scientific worldview mostly guided by post-positivist understanding of the nature of science.

Understanding the nature of science promotes understanding of content knowledge. This is the foundation for pedagogical content knowledge, which directs appropriate use of the subject during the teaching career. An understanding of the current worldviews of the nature of science in terms of nature, generation, development, progression and validation of scientific knowledge, and, especially scientific theories, laws and scientific inquiry, are an important knowledge base for

learning and teaching. Inadequate understanding of the current views on the nature of science might hinder pre-service science teachers' learning.

The lack of adequate understanding of the nature of science promote teachers as information delivering agents, may promote rote learning and memorisation of concepts rather than conceptual understanding. This in turn leads to disinterest, lack of motivation and superficial learning of science.

A mammoth amount of research has taken place in different countries. The research results of Hassan (2001), Abd-El-Khalick and Lederman (2000), Murcia and Schibici (1998), and Kumano (1998) show that pre-service teachers do not possess adequate understanding of the nature of science. Literature review indicates that there are fewer empirical studies conducted on the nature of science in the Indian context. Therefore, there is a dire need of research in pre-service science teachers' knowledge and understanding of the nature of science in the Indian context.

The Reasearch Questions

- To what extent does pre-service science teachers' knowledge and understanding levels reflect currently accepted views on the nature of science with respect to scientific knowledge and scientific inquiry?
- What are the patterns of pre-service science teachers' knowledge and understanding of the nature of science?

Objectives

- To assess the pre-service science teachers' knowledge and understanding level of the nature of science with respect to scientific knowledge and scientific inquiry.
- To identify the patterns of pre-service science teachers' knowledge and understanding of the nature of science.

Hypothesis

To answer the first research questions the following null hypothesis is made:

Pre-service science teachers do not have a significant level of currently accepted knowledge and understanding of the nature of science in terms of scientific knowledge and scientific inquiry.

Significance of the Present Study

The results of the study help pre-service science teachers become aware of their understanding and critically reflect on their conception, which is important for shaping personal approaches to learning. The knowledge of the nature of science contributes to holistic meaningful learning of the subject such as in-depth understanding of science concepts, logical connection between science concepts, and promotion of higher levels of scientific thought such as critical thinking, reasoning and problem solving. If science learning is meaningful to the pre-service science teachers, it enhances motivation, interest in science and

promotes learning. The results of the study are significantly used to predict the type of teaching that might prevail in future by the current pre-service science teachers. The results also inform both teacher trainers and curriculum developers with a comprehensive picture of the pre-service teachers' knowledge and understanding of the nature of science and towards developing appropriate learning experiences.

LIMITATIONS OF THE STUDY

The results are generalised to the pre-service science teachers of Andhra Pradesh.

METHODOLOGY

The study included quantitative paradigm of research with cross-sectional survey.

POPULATION AND SAMPLE

The pre-service science teachers, who participated in the study, were registered students of the Bachelor of Education under the Acharya Nagarjuna University in Andhra Pradesh. They had completed their three-year Bachelors' degree in science before joining colleges of education. Enrolment into teacher training colleges is also based on the qualifying marks obtained in Education Common Entrance Test (Ed.CET) of Andhra Pradesh State Council of Higher Education (APSCHE).

Twenty per cent of pre-service science teachers were selected randomly with disproportionate stratified sampling. Five per cent of the sample was used for follow-up interviews.

TOOLS AND TECHNIQUES

The Nature of Science Questionnaire

The nature of science written instrument was used to collect data. The questionnaire statements were developed from pre-existing questionnaires after intensive study from the literature by adopting, adaptation and construction of statements to suit particular conditions existing for the present study. The questionnaire consists of two parts — A and B. Part A gives concrete information about pre-service science teachers.

Part B contains 46 structured, close-ended statements on various dimensions of the nature of science. The statements are further classified based on sub-scales: scientific knowledge and scientific inquiry.

The Likert-type rating scale is used on a four-point continuum to indicate the level of agreement with each statement contained in the instrument. The cognitive level and epistemological sophistication were taken into consideration while developing the questionnaire. The statements were carefully presented both in English and regional language (Telugu). Science education lecturers and language experts were consulted during the process of translation of the questionnaire from English to the regional language (Telugu).

A pilot study was conducted to correct statements having in-distinctness, misconstructions or several elucidations. The suggestions from the pilot study and subsequent recommendations from experts were used to revise the questionnaire. The calculated Cronbach's alpha co-efficient value for the nature of science is 0.780.

Nature of Science Interviews

Semi-structured interviews were used to interpret and validate the pre-service science teachers' responses in the questionnaire. In addition, interviews were used to identify the general ideas of groups, emerging themes and follow-up on contradictions (Rubin and Rubin, 1995). During the preparatory phase of the research, semi-structured questions were drafted and finalised. Semi-structured questions were framed on the aspects of scientific knowledge and scientific inquiry.

Procedure of Data Collection

The pre-service science teachers were randomly selected and requested for their participation in the study. At first, the nature of science questionnaire was administered personally by the researcher and later the nature of

science interviews were conducted. Both instruments were accompanied by a letter of request, explaining the purpose of the research, and indicating that they had the choice to withdraw at any time from the study and promised to keep their responses confidential.

Five per cent of the sample pre-service science teachers were included in the interviews. The pre-service science teachers provided their answered questionnaire and were requested to provide an explanation to certain identified key aspects of the questionnaire in follow-up interviews.

The researcher analysed the interview data by finding patterns of thoughts or representative ideas. The researcher translated interview data which was examined by a second independent science education lecturer.

Analysis and Results

The nature of science questionnaire data was subjected to a descriptive analysis (frequency and percentage) and inferential statistical analysis (t-test). Out of the 800 questionnaires distributed, 693 were returned to give a response rate of 86.60 per cent.

Table A1
One Sample t-Test of Pre-Service Teachers' Knowledge and Understanding of Nature of Science: Scientific Knowledge and Scientific Inquiry (n= 693)

Nature of Science	μ	M	SD	SE	MD	t-value	df	Sig. (2-tailed)
	115.00	109.54	20.38	0.77	-5.46	-141.52*	692	.00
Sub-scale: Scientific knowledge	70.00	67.19	13.10	0.50	-2.81	-134.98*	692	.00

Sub-scale:Scientific inquiry	45.00	42.35	9.29	0.35	-2.65	-119.99*	692	.00

Note. M= sample mean; SD= standard deviation; SE= standard error; MD= mean difference; df= degrees of freedom; μ = population mean
*p<.05.

The null hypothesis i.e., pre-service science teachers do not have significant level of currently accepted knowledge and understanding of the nature of science in terms of scientific knowledge and scienitific inquiry, which was tested by performing one sample t-test (see Table A1). The test analysis shows that t-value of –141.52 for the nature of science, –134.98 for the nature of scientific knowledge, and –119.99 for scientific inquiry. The t-values are significant at the given alpha value. This indicates that pre-service science teachers' sample mean is less than the population mean on the nature of science, scientific knowledge and scientific inquiry. Therefore, pre-service science teachers lack significant level of currently accepted knowledge and understanding of the nature of science in terms of sub-scales — scientific knowledge and scientific inquiry.

In order to identify the patterns of pre-service science teachers' knowledge and understanding of the nature of science both the nature of science questionnaire and interview data were analysed. The results indicated the following patterns:

Sub-scale: Scientific Knowledge

• The pre-service science teachers have conflicting views on the assumptions and purpose of science, and tentative nature of scientific knowledge.

• The pre-service science teachers have inadequate understanding of several aspects. Pre-service science teachers did not recognise the revolutionary changes of scientific knowledge, especially in scientific theories, origin of scientific laws, tentative nature of scientific laws, differentiating roles between scientific theories and laws, and relationship between hypothesis, scientific theories and laws.

• The pre-service science teachers have adequate understanding of science limitations, durability of scientific knowledge within the paradigm nature and role of scientific theories, including cumulative growth of scientific theories and evolutionary change of scientific theory and factors influencing acceptance of competitive theories within the scientific community.

Sub-scale: Scientific Inquiry

• The pre-service science teachers have conflicting views on factors influencing scientists' work and subjective versus objective observations.

- They have inadequate understanding of the sequence of steps used in scientific method, and the difference between observations and inferences.
- The pre-service science teachers have adequate understanding of the role of imagination and creativity in scientists' work, plurality of scientific method and different scientists' observations on the same scientific phenomena.

Discussion

Sub-Scale: Scientific Knowledge

The results of the present study indicate that pre-service science teachers have conflicting views on the tentative nature of scientific knowledge. A majority of pre-service science teachers agreed that scientific knowledge corresponds directly to reality, therefore, it is not a subject to change (Matkins, Bell, Irving, and McNall, 2002). At the same time, pre-service science teachers also agreed that scientific knowledge is a subject to change (Akerson, Buzzelli, and Donnelly, 2008 Martin-Diaz, 2006; Bell, Lederman, and Abd-El-Khalick, 2000; Abd-El-Khalick and Lederman, 2000; Lederman, 1999).

Interview data indicate that a majority of pre-service science teachers acknowledge that scientific knowledge is tentative. Although interview data showed some changes in pre-service science teachers' understanding of the tentative nature of scientific knowledge, it is assumed that the questionnaire might contribute to

the insights of the tentative nature of scientific knowledge. They expressed the view that the main reasons for the tentativeness of scientific knowledge are technological improvements. The results of the present study indicate the pre-service science teachers' contradictory views on the aspect of scientific theory change. They agreed that scientific theories will not change as they are built on accurate experiments. On the other hand, they also believe that scientific theories will change and this is due to scientists' reinterpretation or reconceptualisation of the existing observations (Abd-El-Khalick, 2005; Lederman, Abd-El-Khalick, Bell, and Schwartz, 2002). The research results indicate that pre-service science teachers believe that theories change mainly due to new evidence and improvement in technology such as instruments (Liu and Lederman, 2007). Most pre-service teachers recognise only the evolutionary way of theory change.

Pre-service science teachers should recognise the tentativeness of scientific knowledge. This tentativeness is due to the interaction of many factors such as changes in research programmes, improvement of methods or methodological principles, changes in conceptualisation or reconceptualisation of existing concepts, changes in socio-cultural settings, technological advancements, new insights of the problem, changes in logical thinking, creativity and imagination, innovation of ideas, change or modifications in

experimental procedures, new insights of data collection, reinterpretation and analysis of data and logical arguments, etc.

Pre-service science teachers should recognise the evolutionary and revolutionary nature of science. They should be aware that scientific knowledge is theory-laden, socially and culturally embedded with human inferences, imagination and creativity. Therefore, subjectivity is inherent in scientific knowledge construction. The fact that pre-service science teachers should recognise the tentativeness of scientific knowledge does not mean uncertainty but is the characteristic of science's self-correcting aspect.

Pre-service science teachers' belief that scientific knowledge is fixed and cannot change have implications on their learning and teaching. They have an absolute positivist viewpoint that scientific knowledge is fixed and it will not change, belief in a rigid body of content for learning, and that at the heart of the learning process is putting more emphasis on regurgitation, rote learning and memorisation of the concepts rather than understanding. Most participants express that scientific knowledge is cumulative. The main reason behind that is that their curriculum components are based on highly factual knowledge and lack of components which stress the importance of reorganisation of how the scientific knowledge is derived.

The results of the present research indicate that pre-service teachers have conflicting views on assumptions and purpose of science. They agreed that science is a process which seeks the truth and also other contradictory ideas such as science seeks approximate answers to the questions of nature. They agreed that science attempts to prove the natural phenomena and also the alternative view that it attempts to explain and understand the natural phenomena.

The research results indicate that the pre-service science teachers are unaware of the revolutionary change of scientific knowledge. Those teachers who do not have current conception of revisionary changes are most likely to be confused when there is a change in scientific concepts. The pattern which emerged from the results indicated that pre-service science teachers had inadequate understanding of the tentative nature of scientific law. The pre-service science teachers did agree to scientific laws being proven, constituting absolute knowledge that will not change. They should recognise that scientific laws should be given high degree of probability. The pre-service science teachers' knowledge and understanding shows that their curriculum does not provide the learning experience that contributes to adequate understanding of the changing nature of scientific laws.

The pre-service science teachers have inadequate understanding of the degree of explanatory role of science theory and law. Most of them agree to scientific theories having less explanatory role than laws. Therefore,

they have inadequate understanding of the degree of explanatory power of scientific theories and laws. Pre-service science teachers should know that the degree of explanation, generalisation and predictive power is more in scientific theories than laws.

They also have inadequate understanding of the relationship between hypotheses, theory and law. They believe in hierarchical relationship that is hypothesis becomes a theory and theory becomes a law based on evidences (Dogan and Abd-El-Khalick, 2008; Liu and Lederman, 2007; McComas, 1998). In turn, such belief implies that laws have higher status than theories and hypotheses. This, in turn, implies that theories are less believable or valuable than laws (McComas 2003: 142; 1998: 54). The pre-service science teachers should recognise the fact that scientific theories and laws are distinct and provide a different kind of knowledge. If pre-service science teachers do not have knowledge of generation, development and status of scientific theories and laws, they cannot differentiate between various scientific theories and laws that are encountered every day in science learning. Moreover, they simply use terms, scientific thories and laws interchangeably. It is crucial to have an awareness of the difference and relationship between theories and laws and to recognise the predictive and explanatory function of theories and laws.

The results also demonstrated that pre-service science teachers have adequate understanding of science limitations and durability of scientific knowledge within the paradigm. If they have an adequate understanding of revisionary change (evolutionary and revolutionary) of scientific knowledge, they will consider flexible content for learning. This helps them to develop an open mind and indulge in continuous learning. The results of the present study indicate that pre-service science teachers have consistent views on the nature of scientific theories (Lederman, Abd-El-Khalick, Bell and Schwartz, 2002). They also have acceptable understanding of the role of scientific theories. They have sufficient understanding of cumulative growth and evolutionary development of scientific theories (Matkins, Bell, Irving and McNall, 2002). The results of the present research indicate that pre-service science teachers have adequate understanding that scientific theories and laws are different kinds of knowledge (Akerson, Buzzelli, and Donnelly, 2008).

Sub-scale: Scientific Inquiry

The results also indicate that pre-service science teachers have conflicting views on factors influencing scientists' work. A majority of pre-service science teachers agreed that there are certain factors influencing scientists' work. They say personal, social, cultural and economic factors influence scientists' work.

In addition to the above, majority of pre-service science teachers believe that immediate surroundings of scientists can play a major role in research work. It is important to note here that some pre-service science teachers express the view that permission from authorities also plays an important role in scientists' work. They recognise that a degree of subjectivity is inherent in the construction of scientific knowledge in scientists' work (Akerson, Buzzelli, and Donnelly, 2008; Liu and Lederman, 2007). Although they are aware of subjectivity in scientists' work, at the same time, majority of them agreed that scientists' work will not be influenced by any factor. Therefore, they have conflicting understanding of the factors that influence scientists' work. The pre-service science teachers agreed that science is independent of culture.

Although several factors influence scientists' work, the scientific community tries to reduce subjectivity by peer review. Therefore, scientists work in a culture of scientific community as well as the culture of society. Pre-service science teachers should recognise the factors that influence scientific knowledge generation, development and validation. Such an understanding of the nature of scientific enterprise helps to accommodate different views, develop healthy scepticism towards scientific knowledge claims, believe in the construction of scientific knowledge

and promote constructivist learning and teaching environment.

The pre-service science teachers had conflicting views on objectivity versus subjectivity in scientists' observations. Most pre-service science teachers' said that scientific observations were objective. They expressed that observations were objective because they were facts. Pre-service teachers did not have adequate understanding of scientific observations (Liang, et al., 2008; Schwartz and Lederman, 2008; Khishfe and Lederman, 2007).

Pre-service science teachers, when further probed about the objective nature of scientific observations, expressed conflicting views that observations of scientists were affected by their prior knowledge, as influenced by religious, moral and economic factors. Most of them initially articulated the presence of objectivity in scientists' observations, and later, the presence of subjectivity in their observations. Therefore, they have a conflicting understanding of scientific observations.

They should recognise that objective observations are not possible. The observations depend on previous knowledge, experiences and expectations. The observations are filtered through our perceptual system and interpreted in theoretical frameworks and assumptions. Scientists' observations are theory-laden and influenced by several factors such as theoretical arguments, disciplinary commitments, beliefs,

prior knowledge, training, experiences and expectations. All these are inter-related and influenced by social, religious, cultural, ethical, moral, political and economic factors.

Based on the above factors, scientists develop a personal understanding of the subject matter of investigation. These theoretical matters act like colour lenses through which observations are perceived and interpreted. Therefore, the observations are not objective but in fact, subjective. Scientists trying to achieve objectivity by checking procedures, by withstanding criticism of scientific community, etc., may limit theory-laden observations. It is not possible to completely eliminate subjectivity. Therefore, subjectivity is inherent in their work.

The results also show the pattern that pre-service science teachers used to express the view that scientists are supposed to follow a fixed sequence of steps in the scientific method. The basis of such inadequate understanding of the sequence of steps of scientific method might be from their science laboratory practices. Such laboratory experiences will reinforce step-by-step scientific method in order to get valid results. The textbooks and teachers might contribute to the above misconception. The pre-service teachers who had inadequate understanding of the scientific method containing fixed linear sequence of steps, has implication on science investigations or laboratory

processes which are meant for theory confirmation. They will insist on following steps rigidly in science practicals and getting correct results.

Scientists do not follow a rigid order of activities. The pre-service science teachers should have adequate understanding of multiple methods used in science depending on the problem. It also helps them design and conduct experiments in an appropriate way. The results indicate that they also hold inadequate understanding of the difference between observations and inferences.

The results show that most pre-service science teachers believe in the role of imagination and creativity in scientists' work. Therefore, they have adequate understanding of the role of creativity and imagination in scientific investigations (Liu and Lederman, 2007). The main pattern revealed during the interview is that imagination and creativity play a major role in scientists' work in the planning and procedure stages only. Some felt that scientists use imagination in data analysis and evaluation stage. None of them expressed that scientists use imagination and creativity in data collection stage, data reporting stage, inventing new scientific ideas and invention of explanations (Abd-El-Khalick and Lederman, 2000). The pre-service science teachers who have adequate understanding of the role of imagination and creativity in science investigation will think critically and creatively in carrying out scientific investigations. Imagination and

creativity are essential for scientific progress.

Pre-service science teachers agree that scientists use different scientific methods depending on the problem they are investigating (Lederman, Abd-El-Khalick, Bell and Schwartz, 2002). The pre-service science teachers should be aware that science uses different methods based on problems of investigation, theoretical knowledge, instruments and materials available at that time. Such an understanding helps them use different scientific methods to solve diverse problems in their learning.

The results indicate that majority of pre-service science teachers agree that different scientists' observations on the same scientific phenomena are different. The above research results are in agreement with results of Schwartz and Lederman (2008); and Khishfe and Lederman (2007). Different scientists observing the same phenomenon or object will make different observational statements depending on their knowledge, experiences, expectations, theoretical frameworks and assumptions. Therefore, science theories precede observations.

Conclusion

Pre-service science teachers lack significant level of currently accepted knowledge and understanding of the nature of science in terms of scientific knowledge and scientific inquiry. The results of the study also show that they have conflicting and inadequate understanding of many aspects of the nature of science.

The main reason for conflicting and inadequate understanding might be due to their formal and informal learning experiences and lack of explicit training in the nature of science. The implicit messages might contribute to the alternative conceptions of the nature of science. A close examination of teacher training courses show voluminous syllabuses and records of work to be covered within a short duration. The syllabus of the Bachelor's degree and teacher training courses are devoid of the nature of science concept. Textbooks and science laboratory experiences also contribute to alternative conceptions.

As pointed out by McComas (2003), lack of specificity of the elements that constitute the nature of science leads to the lack of inclusion of the nature of science components in the syllabus. Although the national curriculum framework of science teaching considers understanding of the nature of science as a primary goal of science education, it is not explicitly taught.

Suggestions and Recommendations

Pre-service science teachers' curriculum needs to be reviewed and should include history, philosophy and sociology of science. The curriculum should include materials, topics, learning experiences, teaching

approaches, teaching methods and techniques that promote nature of science aspects in current post-positivist aspects. They are supposed to provide opportunities to pre-service science teachers to reflect on their concepts. Teacher educators are supposed to be aware of pre-service science teachers' misconception and deliberate attempt should be made to challenge and change their ideas. Teacher educators are supposed to participate in extensive in-service workshops on the nature of science in order to improve their understanding.

Further Research

Further research includes repetition of the present research to establish the validity of the findings with a wide variety of research instruments. Comparative studies between pre-service, in-service science teachers and Bachelor of Science students are necessary. Research is required on curriculum components explicit and contextual teaching approaches of the nature of science.

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An Analysis of Question Papers in Different School Subjects at Class X Level

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Abstract

Examinations play an important role in the Indian system of education. They are so important that they direct the entire teaching-learning process in schools. Examinations use mainly one tool to evaluate the achievement of students and that is the 'question paper'. So, if public examinations have to stay till a viable mechanism of evaluation comes into effect, question papers used by the State Boards of Education in their public examinations need to be continuously examined and improved, especially for the purpose of improving the quality of education at the school stage. It was in this backdrop that a minor research project to analyse Class X question papers of the Uttar Pradesh the State Board of High School and Intermediate Education was undertaken. The objective of the study is to find out whether the question papers are valid and reliable and what are their strengths and weaknesses.

INTRODUCTION

The assessment of performance is an integral part of the teaching-learning process. The National Policy on Education-1986 and its Programme of Action-1992 envisaged an improvement in the programme of evaluation to make it serve as a powerful instrument of quality improvement in the teaching-learning process in schools. The National Curriculum Framework (NCF, 2005) has also laid emphasis on the quality of questions used in the evaluation process. It points out that as long as examinations and tests assess

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children's ability to remember and recall textbook knowledge, all attempts to redirect the curriculum towards learning will be thwarted. First, tests in knowledge-based subject areas must be able to gauge what children have learnt and their ability to use this knowledge for problem-solving and application in the real world. In addition, they must be able to test the processes of thinking to gauge if the learner has also learnt where to find information, how to use new information and to analyse and evaluate the same. The types of questions that are set for assessment need to go beyond what is printed in the book. Questions that are open-ended and challenging could also be used (NCF, 2005. P: 74).

It is a known fact that examinations are important in our system of education. They direct the teaching-learning process in schools.

Teachers teach only what is being tested and, similarly, students adjust their studies according to the examination. In fact, the first Board examination i.e., Class X examination plays a significant role in dictating the teaching-learning process in schools.

If the washback effect of these examinations is so great, why not exploit it for the betterment of education? If the Board examinations are improved, the teaching-learning methodology in schools will automatically improve.

Board examinations are basically written examinations in India and they use only one tool to assess students' achievement. This tool is the question paper. If the question papers are improved, the impact percolates down to schools. Therefore, the question papers used by the Boards of Education in their public examinations need to be continuously examined and improved. The analysis of the existing question papers is the first step towards improving the quality of testing.

Keeping in view the importance of the analysis of question papers and the marking scheme, the author of this article undertook a minor research project to analyse Class X question papers of the Uttar Pradesh State Board of High School and Intermediate Education.

Objectives

- Are the question papers in English, Hindi, social science, science and mathematics valid in terms of coverage of instructional objectives and course contents?
- Do the question papers have appropriate difficulty level catering to different capabilities of all kinds of students?
- Whether the question papers have appropriate questions in terms of form, language and scope?

In short, the study tried to find out whether the question papers fulfilled the criterion of balanced papers and what were their strengths and weaknesses.

Methodology

For this study, annual question papers in English, Hindi, social science, science and mathematics for Class X for the year 2014–15 along with their syllabi and textbooks were procured from the Uttar Pradesh State Board of High School and Intermediate Education. A three-day workshop was organised from 9-11 December 2015 at the Regional Institute of Education, Ajmer. In that workshop, three resource persons — one each for mathematics, science and social science — were invited from the Uttar Pradesh Board of High School and Intermediate Education. They were oriented in filling the proformas and complete the analysis task in their respective subjects. As far as English and Hindi are concerned, the question papers were given to an expert in language testing for analysis.

Tools

The analysis was carried out on the basis of three proformas. Proforma-A is used to work out the following information for each individual question:

- Mental processes involved
- Content area tested
- Type of question
- Marks allotted
- Estimated difficulty level
- Time allotted

The observation regarding language, difficulty level, scope of the question, whether question is from the syllabus or not, quality of diagrams and sketches, instructions and the comparability of options, etc., was summarised in the remarks column.

Proforma-B is based on Proforma-A, which is used to calculate marks and a comparison is made with the weightage decided in the design of question paper. Proforma-B, in fact, deals with all aspects of a question paper and is the basis of making observations about the quality of questions and question paper.

Further, the observations made in Proforma A and B are consolidated in Proforma C. A consolidated report is presented in this proforma about the question paper. It takes care of general and specific suggestions also.

Table 1

Weightage given to Contents or Sections as per Analysis

Subjects	Contents or Sections	Section or Content-wise Marks
English	*Section A*	35
	Prose	16
	Poetry	07
	Supplementary Reader	12
	Section B	35
	Grammar	15

	Translation	04
	Writing	10
	Unseen reading comprehension	06
Hindi	Prose	14
	Poetry	14
	Khand Kavya (Supplementary Reader)	03
	Grammar	21
	Sanskrit	12
	Essay Writing	06
Social Science	History	20
	Civics	15
	Environmental Studies	20
	Economics	15
Science	Light	10
	Electricity	15
	Chemical Substances	10
	Organic Chemistry	10
	Biotic Kingdom	15
	Genetics and Evolution	10
Mathematics	Algebra	12
	Commercial Mathematics	06
	Statistics	06
	Trigonometry	14
	Geometry	16
	Co-ordinated Geometry	08
	Mensuration	08

It was observed that the question papers across the subjects followed the format and weightage given to the content units in the syllabus.

Table 2
Weightage given to Instructional Objectives as per Analysis

Subjects	Objectives				Total
	Knowledge	*Understanding/ Comprehension*	*Application/ Expression*	*Skill*	
English					
Actual weightage after analysis	18	27	25	--	70
Hindi					
Actual weightage after analysis	31	31	08	--	70

Social Sciences				
Actual weightage after analysis	21	24	12	13	70
Science				
Actual weightage after analysis	24	25	14	07	70
Mathematics				
Actual weightage after analysis	17	24	19	10	70

It can be seen that weightage to objectives in Hindi question paper is not balanced. The question paper gives little weightage to expression. In social sciences, science and mathematics, the actual weightage did not tally with the design.

Boards of School Education use different types of questions in their question papers. These are Long Answer or Essay Type Questions (LA/ET), Short Answer Questions (SA), Very Short Answer Questions (VSA) and Objective Type Questions (OT). The following table indicates the types of questions used by the Uttar Pradesh State Board of High School and Intermediate Education.

Table 3
Weightage given to Forms of Questions

Subjects	Forms of Questions			
	Long Answer or Essay Type Questions	*Short Answer Questions*	*Very Short Answer Questions*	*Objective Type Questions*
English				
Marks allotted as per analysis	14	16	13	23+04 (MCQ)
Hindi				
Marks allotted as per analysis	05	32	25	08
Social Sciences				
Marks allotted as per analysis	24	24	10	12
Science				
Marks allotted as per analysis	21	18	20	11
Mathematics				
Marks allotted as per analysis	44	16	06	04 (MCQ)

Table 4
Difficulty Level of Questions

Subjects	Difficult (A)	Average (B)	Easy (C)
English			
Marks allotted as per analysis	10	46	14
Hindi			
Marks allotted as per analysis	10	29	31
Social Sciences			
Marks allotted as per analysis	20	37	13
Science			
Marks allotted as per analysis	18	32	20
Mathematics			
Marks allotted as per analysis	14	45	11

It can be seen from Table 3 that in Hindi, only 5 marks were given to Long Answer Questions out of total 70 marks tested. In English, 27 marks were allotted to Objective Type Questions out of the total marks tested.

As evident from the table, in English, Hindi and mathematics question papers, difficult questions are less, whereas in social sciences and science difficult and average questions are more.

MAJOR FINDINGS

The question papers of the Uttar Pradesh Board of High School and Intermediate Education in the subjects of English, Hindi, mathematics, science and social science at Class X level were analysed in terms of the mental processes tested, types of questions used, content areas covered and difficulty level. The major findings are given below subject-wise:

ENGLISH

- As shown in Table 1, English question paper had two sections — Section A for 35 marks which covered the text, viz., prose, and supplementary reader. Section B also for 35 marks, which covered grammar, translation, writing tasks and reading comprehension.
- In the text section, it was seen that the question paper was biased towards testing recall of information from the textbook. Such questions encourage mugging up on the part of students.
- Matching type and true/false questions have been used in the question paper. These are not appropriate for a public examination and should be reserved for classroom use.
- The Multiple Choice Questions (MCQs) tested only trivial knowledge. They have not been used to test deeper understanding of the text.

- The translation task from Hindi to English shows that the grammar translation method is still in use in the Uttar Pradesh Board of High School and Intermediate Education.
- In grammar, the Very Short Answer questions of one word or one sentence have been assigned 2 marks each. Such questions should be assigned 1 mark each.
- The reading comprehension questions do not test any comprehension skill. They ask the students to write 3-4 sentences which can be copied from the given passage.
- The question paper in English requires a thorough change in order to develop the communication skills of students.

HINDI

- The Hindi question paper (Table 1) covered prose, poetry, *Khand Kavya* (supplementary reader), grammar, Sanskrit and essay writing.
- The question paper in Hindi had many questions devoted to knowledge about the authors' lives and their works.
- Little weightage was given to testing of the understanding of texts in prose and poetry.
- The supplementary reader has been assigned only 3 marks which can be increased.
- The marks assigned to grammar was 21, which can be rounded off to 20.

- Sanskrit portion was found having a good coverage. But it was scattered here and there. It would have been good if it was at one place.
- The paper was found to be tilted towards recall.

MATHEMATICS

- The question paper in mathematics covered areas like algebra, commercial mathematics, statistics, trigonometry, geometry, coordinated geometry and mensuration.
- Language of questions was by and large found to be simple and appropriate.
- Inclusion of a few questions on interpretation and reasoning might improve the quality of the question paper.

SCIENCE

- The question paper in science (Table 1) covered physics, chemistry and biology. The weightage to each was found to be appropriate.
- In the whole question paper, no question asked students to draw or label a diagram. It is something which is important in a science question paper.
- Most of the questions were found to be lifted from the textbook which encourages mugging up.
- Questions carrying 2 and 4 marks did not show any difference in the length of expected answers.

Social Science

- The question paper in social science (Table 1) covered historical and cultural heritage, environmental studies, civic life and economic development.
- It had all types of questions i.e., Long Answer, Short Answer, Very Short Answer and Multiple Choice Questions.
- All questions are traditional and there is no scope for testing higher mental abilities such as imagination, interpretation, critical thinking, creative thinking, etc. The Multiple Choice Questions look like quiz questions rather than questions for a High School Public Examination.
- Most of the questions in the question paper were lifted from textbooks which promote rote learning.
- Instructions for expected length of answers for each group of questions were not mentioned in the question paper.

General Suggestions

While analysing the question papers of different subjects for Class X for the academic year 2014–15, many interesting aspects were observed. As some of the question papers in different subjects were dissimilar in approach in many ways, therefore, it was difficult to compare them. Perhaps, experience of teachers and requirement of the subject have given rise to varying formats of question papers. Question papers varied in types of options too. It was found that most of the options were not comparable in content, objectives and scope. The analysis indicated that there was a plenty of scope for improving the question papers. Given below are some concerns and it is expected that the Board will take necessary measures for further improvement of its question papers.

- The quality of question paper depends the quality of questions. The question papers in almost all subjects abounded recall or knowledge-based questions testing mental skills. Questions testing higher mental abilities such as problem-solving, critical thinking, imaginative thinking, interpretative, creative thinking, reasoning, analyses, etc., were relatively less in number. Efforts should be made to include more such questions.
- Internal options, wherever given should be comparable in nature, objective and scope as far as possible.
- In a question paper, all types of questions should be included, i.e., Multiple Choice Questions (MCQs), Very Short Answer (VSA), Short Answer (SA) and Long Answer (LA) or Essay Type (ET). Their number should be determined in the 'design'. It enables a paper-setter to cover the entire course content for valid and reliable testing.
- It is observed that the language of some questions is defective. It should clearly specify the task and delimit the scope of the answer. The use of appropriate directional words is necessary. The language should facilitate the answering of questions.

- It is also observed that there are some flaws in the translation of the questions. It is equally important to see to it that the same terms should be used in both English and Hindi version.
- General instructions are also important and are the first thing an examinee reads. Clear and detailed instructions act as guides for attempting a question. Therefore, detailed general instructions should be provided in question papers.
- There is no hard and fast rule as far as listing or grouping of questions is concerned. The only criteria to be followed while listing are from easy to difficult questions.
- The Board should carry out a post-examination analysis of the question papers for further

improvement by showing it to subject experts, paper-setters, moderators and evaluators.
- Finally, evaluation is a technical area. Paper-setters, moderators and evaluators should be regularly trained in the task. They should be exposed to recent trends and developments in the area of educational evaluation and assessment.

These are some of the suggestions which emerged out of the analysis. Since, at present, public examination is the only way to certify and classify a large number of students, improvement at every stage in the examination process is important. Improvement in question papers itself enhances the credibility of the Board and solves many problems.

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Relevance of Critical Pedagogy to Accountancy and Business Studies Education in Schools

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Abstract

Education in accountancy and business studies at the senior secondary level in schools has long been criticised for emphasising on materialism and monetary success with little or no emphasis on ethical considerations and humanistic values. The dominance of capitalistic values in education in the commerce stream has highlighted the need for a critical perspective to the curriculum of commerce. This paper revisits education in accountancy and business studies from the perspective of critical pedagogy, drawing upon the works of Henry Giroux. Further, it explores the potential in commerce education to develop critical thinking in students.

This paper discusses critical pedagogy and its relevance to education in commerce stream at the senior secondary school level. The discussion and analysis in this paper relies on three sources. The first, and most dominant, among these is the work of Giroux in the past few decades. This includes published essays and interviews as well as web podcasts sourced from his official website. The second source is the prescribed curricula of accountancy and business studies at the senior secondary level. The curricula prescribed for accountancy and business studies at the senior secondary level by national boards

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were relied upon. The third source has been my own experiences as a teacher educator. In the past decade of teaching papers in the pedagogy of accountancy and business studies, I have had the opportunity to interact with and observe the classes of several teachers at the school level. This includes student teachers who participate in school internship, which is mandatory for their pre-service teacher education programme as well as school teachers employed full time on the post of PGT commerce.

The third, small but significant group, has been that of fellow scholars in the area of education in the commerce stream. Interactions with these three groups have helped me draw insights about the pedagogic practices that are commonly followed in schools as well as at the higher education level.

In the present paper, these three sources have been juxtaposed to explore the possibility, and the sheer necessity of bringing about a critical change in education in the commerce stream in schools.

Giroux (2011) emphasises on the important role that education plays in a democratic society. A democratic society necessitates the development of citizens who are critical, know-ledgeable and reflective. It places the onus on its citizens to be responsible and make moral judgments. A key aim of education would, therefore, be to prepare citizens who are capable of thinking critically. He writes: "I recognised early on in my career that critical pedagogy as a moral and political practice does more than emphasise the importance of critical analysis and moral judgments. It also provides tools to unsettle commonsense assumptions, theorise matters of self and social agency and engage the ever-changing demands and promises of a democratic polity." (p. 3). What this highlights is the necessity to change pedagogic practices to encompass within its ambit the development of those abilities in students, which prepare them to meet the expectations of a democratic society, thus described. In simple terms, this requires teachers to develop classroom practices that provide space to students to reflect on their own lives, the disciplines that they are studying and the social, economic and political context within which the school and classroom functions.

In schools, pedagogic strategies for accountancy and business studies are often rooted in the traditional behaviourist paradigm. There is little space for reflection. Interactions with students at school as well as with pre-service student teachers revealed that much of what they learnt during commerce classes in school and college was forgotten after the examination of specific subjects. On one hand, this reflects the poor connection that students are able to establish between what they 'learn' in classrooms with the world around them, thus resorting to learning for reproduction in examinations. On the

other hand, it points towards pedagogic practices that are decontextualised from the nature of the disciplines as well. Students' experiences highlight that classroom teaching does not emphasise learning based on accounting logic or commercial sense. Principles of accounting are given mere lip service as part of the introductory classes based in theory. Most classes in accountancy are considered 'practical', where the focus is on solving 'practical questions' that translate into getting the 'right answer', and tallying the balance, as given in the book. There is little emphasis on the process of arriving at these 'right answers'.

Students commonly acknowledge attempting various permutations and combinations to arrive at the desirable balance. The logic of accounting thus becomes secondary or sometimes even irrelevant. Classrooms, where teachers emphasise on the logic of accounting and acknowledge the possibility of multiple answers and different processes of preparing accounts, take the initial step towards building the abilities of logical reasoning in students. However, classes here also restrict themselves to what Giroux calls "instrumental rationality" (2011, p. 3). Here, rationality orientation is restricted to understanding the rules that govern accounting. The most obvious example of this is the three golden rules of debit and credit that are taught as sacrosanct without any context of the way in which accountancy developed as a discipline.

Further, it is instrumental in only developing a set of strategies to learn the prescribed subject matter, irrespective of the context in which teaching-learning takes place. The historical, political and social context in which knowledge in the two disciplines has evolved is not given due credence.

Giroux said, "Young people were at one time, and now once again, are shamelessly reduced to 'cheerful robots' through modes of pedagogy that embrace an instrumental rationality in which matters of justice, value, ethics and power are erased from any notion of teaching and learning" (ibid., pp. 3,4). The notion that the disciplines of accountancy and business studies have evolved within a socio-political context and are influenced by national and international-level policy changes that encourage privatisation and consumerism remains unaddressed.

It is important to highlight here that the onus of including discussion on socio-political context within the classroom does not entirely rest on the commerce teacher. Here, the prescribed curricula, and in specific the syllabus content, is also of relevance. A look at the prescribed syllabus brings to light the decontextualised manner in which the disciplines are structured. The business studies syllabus at Class XI (CBSE) begins by discussing the nature and purpose of business, followed by the various forms of business organisations, business services, formation of a company,

types of trade, sources of finance and the like. It touches upon e-commerce as an emerging mode of business, which appears to be the only attempt to link it to contemporary social realities. The unit on international trade gives factual information about the World Trade Organisation (WTO), International Monetary Fund (IMF) and World Bank, etc. There is no reference to the political and economic standing of India vis-à-vis other countries.

In Class XII, the unit on business environment indicates the need to discuss the impact of government policies on businesses and the legal and political dimensions of businesses. Here, textbooks restrict the discussion to the notion of liberalisation, privatisation and globalisation in the context of opening of the market in the 1990s. However, in the absence of any specific policy being mentioned in the syllabus, it is left to an enterprising teacher to identify and discuss policies that would have an impact on businesses. Globalisation is also discussed in the context of the advent of Multinational Companies (MNCs) in India. There is no reference made to cultural changes that has brought in the nature of employment, social milieu or the nature of business in the country. For example, the increasing popularity of e-commerce has increased entrepreneurship of a particular nature of business. What has been the impact of this on work-life balance? How has this influenced entrepreneurship among specific groups across age groups, gender, social class and region? What has been the impact on local marketplaces, artisans and cottage and handicrafts industry? These and other aspects are left unaddressed.

The syllabus of accountancy has also been developed on similar lines, in fact, with even lesser scope for contextualisation. The syllabus begins with two units that attempt to build the theory base of accounting. This focuses on the nature and purpose of accounting as well as the principles that govern the subject. While some teachers choose not to teach these units at all, others choose to rush through these topics as they are considered unnecessary. The units that follow are deemed more important as they focus on problem questions that are supposedly rooted in doing accounts. Here, preparing accounts for sole proprietors, partnership firms and eventually companies are taught. It is important to note here that the nature of transactions and the process of accounting taught in schools are completely devoid of how accounts are prepared by business organisations in the real world. Further, the content covered across two years makes accountancy relevant only for business houses and accountants working for them. There is no reference to relevance of the discipline for households, investors and consumers.

To summarise, curricular emphasis is on building a

decontextualised understanding of the disciplines. Knowledge is merely presented to students. Project work suggested in the syllabi also provides little space for critical thinking and challenge the existing business norms. By presenting the singular perspective of the business, the curriculum feeds into what is considered socially desirable.

The primary objective of commerce education appears to prepare students for gainful employment. This is highlighted by huge 'demand' for commerce-based courses at the undergraduate level which are invariably expected to feed into professional post-graduation courses in management and business administration (MBA). Students who have opted for commerce at the senior secondary level aspire to be Chartered Accountants, Chartered Financial Analysts, Company Secretaries and the like, notwithstanding the lack of awareness of what each of these professions may entail. As has already been discussed, the content taught at school level in commerce classes is often divorced from real world practices. Thus, it is not until they have reached higher education that students realise what they have studied so far is of little relevance in the professional world, in which they are going to work. Besides, the basic principles of accounting, exposure to preparing accounts is fairly limited at school level and students have to start with fresh training in this area after college.

Pedagogy in the commerce classroom is more often than not restricted to teaching the prescribed syllabus in a manner that is best understood by the students so that they score well in the Board exams that pave way for their future career goals. These career goals invariably feed into the needs of business organisations. Thus, teaching and content of commerce education in schools are not based on the nature and relevance of the discipline, but on the needs of organisations and individuals who are likely to provide employment to commerce graduates.

In doing this, commerce education fulfils the long-standing stereotype of making students money-minded, individualistic and ruthless in their efforts towards maximising wealth and success. To elaborate further, businesses are more likely to employ people who are trained and educated to work towards maximising their profits and gains. In this sense, commerce classrooms are feeding into the capitalist vision that fosters economic disparities and sometimes, justifies exploitation.

It is significant to pause here and understand the role of commerce education in society, particularly in the Indian social context. The heterogeneity in Indian society is characterised as much by class and caste as it is by languages, religions and communities. The works of Kakar and Kakar (2009), and Varma (2005), and Kumar (1992) highlight that in the context of India, discrimination on account of class and caste is inter-connected. The vicious circle

of economic disadvantage, poor education, low-paying jobs, can be broken if commerce students are taught to challenge economic disparities through better education and employment. Further, the discipline offers immense potential to challenge discrimination on grounds of economic disparities and caste backgrounds in classrooms.

In a somewhat different social context, yet a context characterised by a capitalist society, Giroux writes: "...there was more at stake in the emergent field of critical pedagogy than mapping the modes of economic and cultural domination that tied schools to new regimes of privatisation, commodification and consumerism. There was also an attempt to view schools as sites of struggle to open up pedagogical forms to the possibility of resistance, and to connect teaching to the promise of self and social change" (p. 4). Commerce education, thus, provides the possibility to prepare students to resist the taking over of the economy by capitalist forces. Through discussion and sharing in the classroom, implications of foreign investment in domestic sectors can be discussed. The ways in which local businesses, cottage industries, etc., can be affected by increasingly westernised consumerism and what it means for the political economy of the country in the long run also needs to be addressed. It took recognition by Harvard for the Indian education system to talk about the revamp of the Indian Railways by an

Indian leader, or share the story of the now world-famous *dabbawalas* of Mumbai, or the *zari* workers of old Delhi. It derecognises the struggle of the masses and builds a sense of awe and appreciation for the elite and privileged. It is through "pedagogy of resistance" within the commerce classroom that the teacher can work towards building an attitude of sensitivity towards the efforts of people across social classes.

Classroom discourse would have to weave in the possibility of resistance through challenging accepted practices and belief systems. This would subsume challenging gender, caste and class-based biases and hierarchies. The possibilities of social mobility through commerce education would be explored. In doing so, it would be necessary for the teacher and the student to engage in revisiting the existing social relations and their own belief systems that prevent them from breaking boundaries. In other words, the dominant discourse presented through texts and institutions would have to be analysed to understand its role in created social structures. "Put simply, critique focuses largely on how domination manifests as both a symbolic and an institutional force and the ways in which it impacts on all levels of society" (ibid. p. 4).

Teachers would need to develop a language of hope and possibility through which students will learn to develop as change agents in a democratic and egalitarian society. In doing so, commerce students would

be expected to challenge the roles of various stakeholders in business. The working class that contributes to the production process by working on the raw material and making the final product would have to be given its due place, along with the owners of the land and capital that have so far dominated the discourse in accountancy and business studies. Modern day accountancy rests on the assumption that the owners of land and capital deserve a greater share in the profit generated, than labour, thus, reinforcing the existing socio-economic structures and relationships.

The present day curriculum and textbooks in commerce have not given due importance to historical developments and students look at textbooks as sacrosanct and knowledge given as universal and eternal. In fact, knowledge in commerce is subjective and contextualised. Thus, in a socialist economy that promotes egalitarian social relations and equal distribution of wealth, a study of commerce should promote the same ideology. The hidden curriculum that is put forth by textbooks in commerce promotes a capitalist attitude. The study of commerce focuses on what is of relevance to the entrepreneur, in other words, the socially and economically privileged. In this sense, it ignores the everyday commercial engagements of the masses. Understanding a just distribution of wealth, banking processes, loans and interests, household budgets and

organisations from the perspective of workers and employees are areas that are conspicuous by their absence in the commerce curriculum.

What is significant here is to understand that a mere inclusion of these and similar other topics would not be enough to build a critical perspective among students. Let's pause for a moment and take a more detailed look at some topics in the syllabus. With the advent of industrialisation, Taylor presented his path-breaking work in terms of scientific management with focus on increasing efficiency. Students of commerce continue to study the concepts that he propounded as part of their curriculum. There is no attempt by the textbook or the average teacher to highlight how industrialisation altered the traditional patterns of work in society. The distance created by the industrial society between the producer, finished product and resultant existential quest, or the reduced integration of skills and imagination that is characteristic of handicrafts are not discussed in classes (ibid, p. 23).

In simple words, students of commerce graduate from school with a sense of appreciation towards increasing efficiency at the cost of respect of a person. Through this and similar treatment of other topics, the curriculum focuses on perpetuating what is considered socially legitimate by dominant groups. Giroux cites Gramsci to call this a form of social control exercised through creating

an 'ideological hegemony' (Gramsci, 1971). If textbooks that continue to extend the ideology of capitalist oppression include a few topics that present the perspective of the 'oppressed', teachers and students would become conscious of the conflicts in the vested interests of oppressors and the oppressed. Any serious attempt to develop critical thought in students would require challenging these existing dichotomies and encouraging them to think of commerce education as a tool to build bridges.

Much of what has been discussed above is also reflected in the National Curriculum Framework, 2005. While discussing the aims of education, the framework highlights five key areas, viz. a commitment to values that are based on reason, capacity for well-thought out decision-making, sensitivity towards others, "learning to learn", and ability to "participate in economic processes and social change" (p. 11). These five areas necessitate that students develop independent thinking skills and abilities of empathy and perspective taking. A decontextualised study of commerce that is devoid of critical thought on the part of the student or the teacher prevents the former from meeting these aims. Unfortunately, post-NCF, 2005, changes brought about only cosmetic effects to accountancy and business studies textbooks at the senior secondary

level. A few case studies added to the textbooks serve as examples that help build contextualisation and social relevance of the subject. However, there has been no effort made to change the orientation of the papers. The important aspect of critical thought remains unaddressed through the texts.

In addition, given the limited changes in the textbook there are no changes evident in the orientation of teachers. It would be safe to say that there are no changes in pedagogy. In other words, the individual teacher may choose to bring in elements of critical management and accounting practices to the classroom. This sort of choice left in the hands of teachers of commerce has only led to the promotion of capitalist values that do little to change the social relations that are characterised by oppression, discrimination and exploitation. The potential of the discipline to bring about economic emancipation that can in turn lead to social emancipation needs to be tapped. This requires revamping of senior secondary education of commerce right from the stage of setting up of objectives, deciding on content, changing the orientation of textbook writing and preparing teachers for pedagogic innovation that works towards developing commercial practitioners who will act as change agents.

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Pre-literacy Skills
Case of a Rural School in Uttar Pradesh

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Abstract

Rural India has a large number of first-generation learners. The Socio-economic Status (SeS) combined with the absence of a proper schooling environment in homes i.e., no exposure to printed material, communication opportunity and community ignorance to such factors result in low or no pre-literacy/readiness skills. Pre-literacy skills are understood in terms of a child's vocabulary, phonological sensitivity, print knowledge, knowledge of the alphabet and an understanding of common print concepts like print goes from left to right and from top to bottom on a page. Pre-literacy skills or readiness for formal schooling has been proven by research to be an important contributor to literacy, school success and education, at large. The government through 'Aanganwadis' has taken adequate steps to nurture this pre-requisite, especially for the first-generation learners. The ground realities, however, suggest otherwise.

Introduction

The rural belt of India has a large number of first-generation learners, especially in a relatively backward state like Uttar Pradesh. The Socio-economic Status (SeS) combined with the absence of proper schooling environment in the community and homes results in poor or no pre-literacy/readiness skills. The pre-school years are critical for children to develop their cognitive and social behavioural readiness skills necessary for school success (Blair,

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2002; Raver, 2002; Campbell and Von Stauffenberg, 2008; Bierman, Nix, Greenberg, Blair, and Domitrovich, 2008). The government has made provisions for such children in the form of *Aanganwadis,* which are meant to serve as pre-schools to nurture school readiness and pre-literacy skills. Pre-literacy or readiness skills are understood as vocabulary, phonological sensitivity, print knowledge, knowledge of the alphabet and an understanding of common print concepts like print goes from left to right and from top to bottom on a page.

The presence or absence of pre-literacy skills in a child entering school determines his/her motivation to learn and eventually his/her success at school. The National Curriculum Framework (NCF), 2005, recognises language as a variable determining the quality of learning as a factor in the school success of the child. Several researches have shown that when language is not understood by a learner (due to the lack of appropriate vocabulary, etc.) it reflects in dropouts, non-comprehension of text, rote learning, etc., therefore, making learning a task that ends up being a burden on the learner, impacting his/her school performance. This gradually translates into non-comprehension, lack of interest, poor expression and communication and in drastic cases, dropout. However, when the language is properly learnt due to better literacy skills and teaching practices,

these stresses do not plague students and they perform well not just in the language but in all subjects as they better comprehension, expression and general command over the text. The gap created by the absence of pre-literacy skills continues to widen with non-comprehension, contributing to differences in eventual educational attainment and long-term employment (Ryan, Fauth and Brooks-Gunn, 2006), and making the improvement of school readiness a social and public policy concern.

The School Profile

The school was established in 1905. The school has a governing body, which comprises the Principal, the village '*Pradhan*' and some parents. The school's primary section (Class I to V) had 431 students. The school started at 7.00 a.m. and continued till 12 noon. The academic staff comprised five assistant teachers along with two '*siksha mitra*'. The '*siksha mitra*' are educated till Intermediate and are appointed from within that village community with the prime purpose of working as a bridge between the village and the school. These appointments are for a period of 11 months. The school had three teacher trainees, who had just completed their graduation and were doing a basic teacher course (BTC). Contractual teachers (CT), originally trained for nursery teaching, but due to backlog and excess vacancy in schools were allowed to apply for teaching positions in primary schools where they teach till Class V.

Most students of the school had poor reading habits, as they do not see it in their immediate environments at home or the community. During the child's pre-school years, his/her parents spend most of their time managing home and work with little story-telling/reading, newspaper or magazine-reading with the child, especially in case of first-generation learners. What makes matters worse is the sheer absence of communication or talking. The child is not talked to much, communication being limited to giving instructions, during these pre-school years, thus, making him/her deficient in vocabulary and phonetics. The non-functional *Aanganwadis* in the village serve as a deterrent to the development of pre-literacy skills or school readiness. The child carries these deficiencies to the school and the gap keeps getting wider through the schooling years, if proper measures are not adopted in their teaching-learning.

School Practices: The school admits children of six years and above but given the rural circumstances and lack of health facilities and awareness the birth of a child is rarely registered and, therefore, the school administration has to go by what the parents say. This results in seemingly early admissions of children. Rural schools have come up with an innovative practice to determine whether the child in old enough to get admission (government schools admit children at the age of six years). At the time of admission,

the child is asked to hold his right ear with his left hand, and if he/she succeeds in doing so, then the child's age is taken to be six, and if not, then he/she is considered too young for formal schooling. As per interactions with the school principal, this has been a practice for decades in rural India. I taught Class I. The strength of the class was 82, which was double the optimum class size of 30-35 that the NCF proposes. The school principal and teachers said this was an annual phenomenon where there were good number of admissions but after the distribution of scholarships and other benefits in November/December, there was around 50 per cent dropout. The sheer numbers in terms of students made teaching-learning difficult as most of the class time was spent in maintaining order.

Pre-literacy Skills

As the age for entry cannot be determined correctly and the age range is wide, it is difficult to say if all children are developmentally appropriate. Most students have some literacy skill and this could be understood from the fact that most of them handle books for the first time in their lives when they go to school. A student's first resource for literacy is the printed material. In case of these students, there are no magazines or newspapers in their homes. Students get books from their school under the Sarva Shiksha Abhiyan (SSA), the school also makes an effort of covering them up with brown paper by

taking a contribution of ₹5 from each child. This effort is made as neither students, nor parents consider it necessary. Teachers feel that this inculcates in students a sense of respect and helps them maintain the books for the entire session. Some children are particular about their books and keep them properly, while most of them tear them in a month or so. There were also cases where students sold their books to shopkeepers, *'layiachan wala'* for pencils, sweets or *'layiachan'*.

Some students who had completed pre-nursery and nursery from private schools in the village had an understanding of text, language differences for example, they could differentiate Hindi from English and knew the English alphabet and the Hindi *varnamala*. On the other hand, children who had come directly from home had nearly zero literacy skills i.e., they could barely differentiate Hindi from English or hold pencils. Most children did not know how to hold a book, so they had to be taught to hold it correctly. Most cannot tell which language is Hindi and which is English. During a class, if they were asked to take out their language copies they would put up all books they had one-by-one for the teacher to tell them which one was to be taken out. The average time required to open a particular page in the book was 10 minutes. It was observed during the visit that studying at home or after school was not a practice as most students were first-generation

learners with the possibility of having parents' assistance in studies being minimal. I also encouraged students to make full use of the neighbourhood (as most of them lived close by) and gather with their classmates and study after school hours. Parents were sending children for tuition after school but the teaching there was of low quality.

To sum it up, I would say that the constructivist approach is the most appropriate in the Indian classroom, especially rural areas where children come from backgrounds where they are the first-generation learners and are deprived of adult company to enhance their learning experiences. In some cases like this school, the class strength makes the practice difficult.

In my limited experience of the rural school system, I realised that teachers always assess both for learning and of learning but in the interest of the child and the system eventually end up giving more importance to the assessment of learning. This has an element of convenience too. I often heard teachers say that these children make a lot of effort to come to school. Girls make added efforts to continue their education as they start taking care of the household from the day they have control over their bodies, starting from responsibilities of watching over their younger siblings to doing household chores. I noticed that most girls whose brothers studied in the same school, irrespective of the birth order,

carried their plates or tiffin boxes and washed them after they had the mid-day meal. Some parents send girls to school on the condition that they will take their younger sibling along with them (who is not yet ready for school or can barely sit). The girl looks after the younger sibling during her classes taking him/her to the toilet, helping him/her with the meal and even calming him/her down when he/she cries during class. The school teacher in these cases shows a lot of tolerance and consideration for such girls on the ground of assessment for learning by simply encouraging them to learn irrespective of weather she is a bright or an average student who might not continue education beyond Class V.

While being with these students, I realised that gender, age, nutrition and parental background as suggested by the research do have a major role in the educational output of children, but the foremost is food. At this point, one cannot but appreciate Maslow's hierarchy of needs. When a child is hungry learning cannot take place, and that education should start at a given age for it to result in proper learning. Gender in such backward areas too plays a role in the learning as it determines nutrition and nutrition affects learning.

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Why I Should be Tolerant: On Environment and Environmentalism in the 21st Century

Author: Sunita Narain
Publisher: Down to Earth, Centre for Science and Environment
Year: 2016, Pages: 196
Price: ₹350 (₹300 online offer)
Year: 2012, Pages: 444
Price: US $95.99

This is not yet another book on environment or environmentalism. It serves many a purpose — educating the environmentally educated and those who need to educate themselves on matters and problems in environmentalism and the discourses around it. Having been an insider to the problems and issues of environment and environmentalism over three decades, Sunita Narain brings out environment issues, problems, policy-making and practices, which the contemporary world is engaged in and aware of but is not willing to address for reasons known and unknown. Deliberate and not so deliberate actions and practices of government and people are discussed with a focus on anecdotes, events, processes involved in the developments over the last four decades and suggesting ways and means to overcome them for making the Earth a better place to live in.

The title may suggest that 'tolerance' is the most frequently discussed word after the current government at the Centre assumed power three years ago. Sunita Narain has chosen to tell us why poor nations need to come out of the argument that we also need to undergo the processes of wealth production i.e., development, which necessarily has an impact on the environment, why

the problem of drainage in urban India is not addressed and many other issues. The merit of the essays is in their succinctness and brevity and this can be seen in every essay for no essay is more than three pages long, but each tells a tale in depth, some disturbing and some damaging.

With nine themes on environment viz. climate change, excreta, energy, governance, urbanisation, air pollution, health, water and forest, Sunita makes case for comprehensive inclusive rethinking on environment and the need to reflect on the much debated issues on environmentalism. One thread which runs throughout the essays is the western model of growth that countries like India and China are trying to emulate and the need for rethinking. She says, in her preamble, "The Western model of growth that India and China with most feverishly to emulate is intrinsically toxic." The essay titled, 'Two cities, two cultures', is an eye-opener for us, wherein she presents a parallel between the later Romans and the people of Edo, which later became the city of Tokyo. She talks of how Romans could not manage human waste which resulted in the destruction of rivers, while the people of Edo managed their waste outside the city, far from rivers and water bodies. She makes us understand that the Roman rivers are now history and archived for tourist and Edo still lives on. She says, "Today, we are all children of Rome, not Edo."

She cautions, "Literally, no small or medium river today is clean. Every river that passes through a city or a town becomes a stinking sewer." No one can deny this. The essay, 'Why excreta matters', shows how the water you flush into toilets (in cities) is dumped into rivers, making them drainages. "Coming generations will forget that the Yamuna, the Cauvery and the Damodar were rivers. They will know them as drains, only drains." This reminds us of Chennai's Koovam, which is now a big drainage channel and was a river hundred years ago.

Essay after essay makes us feel guilty of the 'human acts' which are detrimental to the environment and in due course will be dangerous to humans. Unmindful use of natural resources and complete absence of concern that our actions are leading to a kind of degradation about which scientist Stephen Hawking, says, "fight for resources will be the final war on Earth and between planets." He says the Earth is facing the danger of attacks from aliens who have exhausted all resources on their planets and are looking for Earth-like places to conquer for resources. Sunita puts it rightly, "Today Indians take water from their rivers — for irrigation, drinking and power generation — and give back waste. Water no more flows in its rivers. It is the load of excreta and industrial effluent."

In one of the essays in the chapter, 'Urbanisation', she discusses

the smart cities project of the present National Democratic Alliance (NDA) government. This, the author believes, will work only if it can reinvent the very idea of urban growth in a country like India. She further argues that our (old) cities have been built to be car-free. "We are now desperately shoving, pushing and parking vehicles down the narrow lanes. Think smart. Change the idea of mobility itself — build space for walking, cycling, bus and metro," she says.

The chapter on air pollution has three essays — 'Cars, more cars', 'Lifeless on the fast lane', and 'The right right'. All three deal with how our roads, particularly urban roads are behaving or are used today. Citing the example of the city of Chennai, which has seen 10 per cent growth in population and a staggering 108 per cent growth in private vehicles in the last decade, Sunita claims this can be accidental because public transport in many cities caters to 50-70 per cent of commuters, while private vehicles constitute over 90 per cent of all vehicles. The story of Nano and its wish to meet the aspiration of every Indian to own a car reveals how the subsidy, which the government gives to cheap car production, acts as a booster for people (who may not actually need) to buy cars. The question the author asks has to be answered, "Can the government write off the costs Nano style so that all can buy the car? Can the government pay for our parking, our roads and our fuels, so that all

can drive the car?" This is the telling testimony of our reality to make India a developed country. One can recall what Ramchandra Guha asked in his book, *How should a person consume?*, "If everybody owns a car where will we have space to park them?" It is not that Sunita Narain wants to provoke the people who take decisions related to environmental issues in the country; she is also offering solutions to them.

The chapter, 'Forests', has the caption, *If you alienate people from their habitations, you will only beget violence and lose productivity*. The most important thing we can do for people of the forest is letting them live there. Managing and conserving forests is a burden on states and states are no longer able to afford the costs. The statement, 'Our forests are too important to be left unused and uncared for', makes sense for conservationists like Madhav Gadgil and environmental historian Ramchandra Guha to advocate the same to protect our forests. Similarly, the essay, 'Money does grow on trees', makes a case for making use of trees for productive purposes.

Essay after essay makes the reader feel not only guilty, it makes us realise that we are part and parcel of what is happening, but also that there are possibilities of solutions in our own hands, if we reflect, introspect and initiate actions. As an educator, I feel this book is a must-read for teachers and students in schools, and also students in the

university, so that we learn about the real environmentalism, not simply the theories of how pollution happens. Most children study about the ill-effects of the use of plastic bags and waste of water, but they do use such items in real life. This book will have an impact on students and teachers. It is also a must-read for those at the helm of affairs — policy-planners, people in ministries (including ministers), implementers and above all the public, who in a way are made to feel that 'I can't do anything to stop environmental damage. It is irreversible.' I would also prescribe the book to people who speak for and believe 'unbanisation alleviates poverty'. The question is, "Can we make all people (from villages) move to cities, even to smart cities in the name of reducing poverty?" The book, while presenting the environmental crisis the world faces today, instills hope through doable actions. Finally, a word about the production of the book — great cover, readable print for all and the arrangement of essays based on the themes. Sunita Narain conveys what she wants and what is needed to be conveyed. Let people listen to it.

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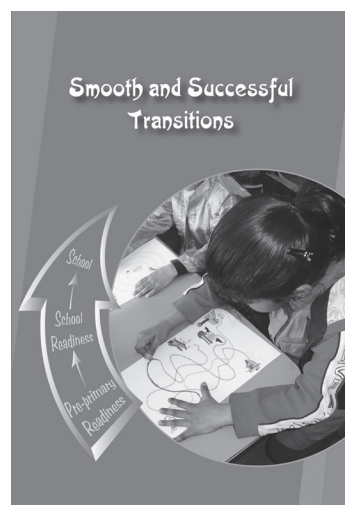
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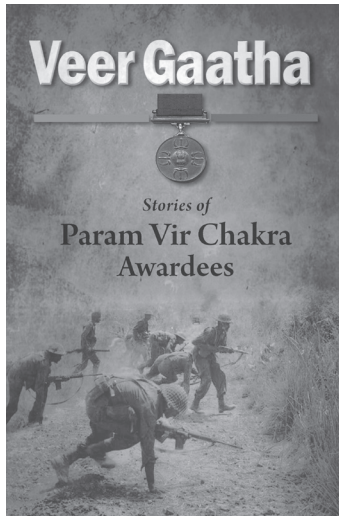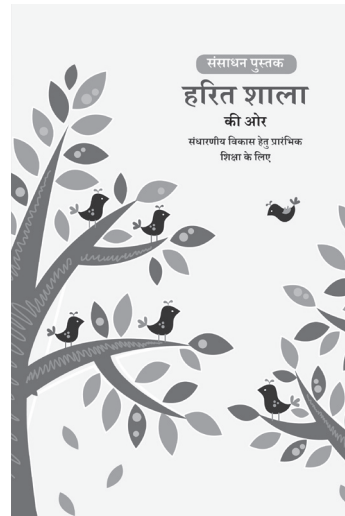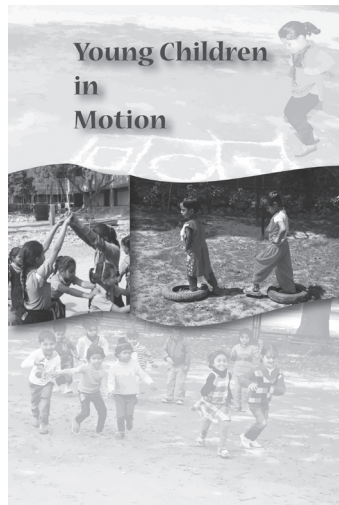
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