

Voices of Teachers and Teacher Educators

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About the publication

The launch of the journal 'Voices of Teachers and Teacher Educators' is an initiative of the Ministry of Human Resource Development (MHRD) to highlight the vital role of teacher education in India, as the country is poised to provide quality education to all its children, irrespective of gender, caste, creed, religion and geographies under the Right of Children to Free and Compulsory Education Act (RtE), 2009. The large influx of teachers necessitated under RtE represents the biggest opportunity to bring fresh life into schools for decades to come. The challenge is to enhance the role of teachers in shaping the social transformation India is witnessing, as well as have a long lasting impact on the quality of education, also making it significantly more equitable. Teachers and all those in the system need to recognize that their ownership and voices are important and that they can and do learn not only from their own experiences but also from each other through collective reflection and analysis. The publication attempts to lend voice to teachers, their educators, researchers, administrators and policy makers in the varied institutions: Schools, CRCs, BRCs, DIETs, IASEs, CTEs, SCERTs etc., and make visible their engagement in accomplishing extraordinarily complex and diverse tasks that they are expected to perform. Contributions are welcome both in English and Hindi and there are plans to produce the journal in a multilingual format in the near future.

Call for contributions

This publication is for all of us: teachers, teacher educators, administrators, researchers and policy makers. It is to provide a platform and also to build a network for our voices, ideas and reflections. Since the idea is to make this journal reflect all our voices it would only fulfill its purpose, if we contribute to it in as many ways as we can. We look forward to all of you contributing with your experiences, questions, suggestions, perspectives as well as critical comments on different aspects of teacher education and schooling. This could also be through comments and reflections on the current issue. Your contribution could be in the form of articles, reports documents, pictures, cartoons or any other forms of presentation that can be printed. We look forward to your inputs to make this journal truly reflective of our voices. We would like to receive contributions for the next issue by 31st January, 2016. We also look forward to comments and suggestions for improvements of the publication to make this a participative endeavor and improve its quality. These can be sent to the following:

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Contents

Editorial

Section I: From practitioners, researchers, policy makers

1. Gandhi and Gulen : Comparing their views for peace building exercises
Anwar Alam 1

Section II: From the SCERTs and DIETs

2. Possible role of DIETs in devising new curriculum
N. Upender Reddy 14
3. Effort of Chhattisgarh to design new B.Ed. syllabus in the context of NCTE Regulation 2014
Utpal Chakraborty 18
4. Using GeoGebra as a tool for better understanding of geometrical shapes and concepts
Nitin Talokar 22
5. Management of distribution of course content, assignments and projects for pre-service students (Diploma in Education, Bachelor of Education) using Moodle open source software
Santosh K. Tamboli 27

Section III: Reports of conferences, seminars, workshops

6. Report on National Seminar on Language Education
Mahendra K. Mishra and Neelam Shukla 32

Section IV: Experiences of teachers, trainees and teacher educators

7. स्वैच्छिक विज्ञान शिक्षक मंच : एक पहल, बेहतर विज्ञान शिक्षण की ओर
अंजु दास मानिकपुरी 36
8. लर्निंग कैंप में विज्ञान शिक्षण के अनुभव
एकता पाटीदार व श्रुति भड़भड़े 42
7. Re-Imagining classrooms as spaces for learning and professional development of teachers and teacher educators
Shikha Takker & Ritesh Khunyakari 47

Editorial

VTTE has been fortunate in having teachers, teacher educators, researchers who have contributed to it and shared their unique experiences and special learnings from analysis of these experiences. As we reflect on this journey, we repeatedly ask ourselves, what issues should a publication devoted to teachers and teacher educators focus upon. It also seeks from us a statement of framework that would bring out the points of immediate as well as long-term attention and interest. We need to think simultaneously about our conceptions and uncover the 'realities' of teacher(s) and teacher educator(s) and what is significant in their concerns and reflections. It also involves recognizing how and in what ways can something be narrated and how constraints, both self-imposed and from outside, shape what can be shared and spoken about. The importance of the perspectives or the standpoints/ lenses that are used needs to be recognized, understood and critiqued. How can this create space for discussion around classrooms, their practices, experiences, the ideas that underpin them and ideas, experiments, experiences and reflections that may guide change? How does it bring out the importance of that which is mundane and yet is the mainstay of educational processes? What is the relationship between the daily-lived world of educational institutions and education policies?

This issue of VTTE does not take up all these questions for discussion but does engage with some of them to some extent. In a world marked by immense violence, Anwar Alam engages with ideas of Gulen (a Turkish Islamic Scholar and thinker) and Mahatma Gandhi to think about peace and modernity and role of education in it. Essays by Reddy and Chakraborty focus on the challenges of curriculum reform in DIET and B.Ed. They tell us how reforms advocated at the central level unfold at local sites and the challenges and hopes therein. Quite a few articles in this volume engage with Science Education. Takker and Khunyakari bring out the importance of classroom observations and the insights they offer. Issues of multilingualism, pedagogy, evaluation and engaging with school children are raised in the contributions by Manikpuri, Talukar, Tamboli, Mishra and Pooja, Shruti and Ekta.

We wish to add that the journal now has an ISSN registration number. We also request you to help us in making VTTE better with your comments on the essays in this issues, through suggestions, and contributions. The next issue is to focus on mathematics education and we would like and hope that educators, particularly elementary and secondary school teachers, would share some of their ideas, experiences, analysis and suggestions as short pieces, articles, anecdotes and/or class room activities. Please send them at the following ids:

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Gandhi and Gulen : Comparing their views for peace building exercises

Introduction

Revered as 'special person with divine grace' among their people at popular level, both Gandhi and Gulen envision a free, peaceful, democratic, tolerant and non-violent world and have generated positive public actions to achieve this goal through legal, peaceful and non-violent means. Though the world view of both are deeply grounded in religious philosophy, Gandhi's world view is primarily constructed through Santan Hindu religious tradition, while Gulen's world view is primarily filtered through the prism of *Sunni* orthodox Islamic traditions with a focus on Turkish Islamic history. Gandhi, unlike Gulen, was not a product of religious seminary or had undergone any scholastic training. On the other hand, Gulen, unlike Gandhi, is neither a product of modern educational system nor a national-political leader of the masses -fighting for the political liberation of people. Notwithstanding the differences in the political context, time-period and religious traditions and other semantic differences between the two, both are credited to have conducted public actions on the basis of their understanding of 'religious truth' in pursuit of a free, peaceful, democratic, tolerant and non-violent world through legal, peaceful and non-violent means.

Given the similarity in terms of ontological visions between the two, can Gandhi and Gulen be brought on the same philosophical discursive plane? Is there any commonality between the two? This paper attempts to highlight the common ethical and moral approach that underlies philosophical discourses of Gandhi and Gulen, which has an implication for peace building exercises in the increasingly violence -prone modern world. This will be examined by comparing and contrasting their views on the issues related to religion, modernity, notion of 'other', means-ends dichotomy, inter faith and inter-cultural dialogue, education and democracy,

which in totality produces a discourse of positive action, right conduct, love, and tolerance leading to twin inter-linked goal of the negation of the 'notion of other' and development of durable peace. The 'other' here does not merely refers to 'religious other' but all possible forms of 'others': national, political, ideological, social, economic, gender etc. In the process of examinations of their views on these issues this paper will also throw light on the points of departure between the two within the frame of their common moral and ethical discourses.

As the paper attempts to compare and contrast the viewpoints of Gandhi and Gulen for the peace building exercises, it will not be out of place to provide a brief background of both global personalities of modern times from the reader point of view, notwithstanding of the fact that the two do not require any introduction.

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Voices of Teachers and Teacher Educators

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Mohandas Karamchand Gandhi (1869-1948)

M. K. Gandhi, known as Mahatama (great soul) Gandhi, the father of Republic of India, was born in the salaried Gujarati Indian middle class family. Having received the degree in Law from United Kingdom, Gandhi moved to South Africa to take up legal cases belonging to Muslim merchant family. Gandhi lived in South Africa for more than twenty years and encountered personal indignity, humiliation and suffering and witnessed the same for non- White population under the Apartheid White regime of South Africa. It was in South Africa that Gandhi experimented with religiously inspired principles and methods of peaceful struggle and non- violent resistance against the system of oppression and repression. Having returned to India in 1915 Gandhi successfully applied the methods and principles of non-violent resistance against the unjust colonial rule of British Kindom, developed the powerful peaceful mass movements and finally led the country to independence. Over the years Gandhi has emerged as the universal symbol of peaceful political struggle and non-violent resistance against any system of injustice, oppression and repression.

Muhammed Fethullah Gülen (born 1941 –)

M. F Gulen is a profound Islamic scholar and thinker of Turkish origin who is respectfully called *hodjaefendi* (a respectable teacher). He was born in the impoverished family of Erzurum province of modern Turkey; received Islamic education informally, as the Kemalist republic has banned and outlawed all Islamic centres of learning, and served as an government *imam* in

the various mosques of modern Turkey. He was conferred the title of Eminent Preacher and granted the right to preach anywhere inside the Turkey by the Turgut Ozal government during mid 1980s. His ideas and writings spanning over more than four decades have influenced, inspired and motivated millions of Muslims, predominantly Turkish Muslims to engineer a voluntary, peaceful, faith based civic-social movement called Gulen or Hizmet movement that has become global in scope. Today the Gulen movement that originated in Turkey in 1970s has spread to many other countries and succeeded in registering its presence in social field, particularly in the field of education, health, interfaith, relief, dialogue and peace building exercise. By a conservative estimate the movement voluntary runs more than thousands of socio-cultural-institutions including schools, preparatory coaching centres, university, hospitals, dialogue centres, relief organizations, mass media, publishing houses etc organizations all over the world. Gulen prefers to call himself a humble teacher in the service of humanity. He continues to provide Islamic teaching from his present home in Pennsylvania, USA, to students, mostly the Turkish ones.

Gandhi and Gulen: Meaning of Peace Building

It is pertinent to point out the notion of 'peace building' in the Gandhian and Gulenian discourse is significantly different from the modern/contemporary understanding of the term. In the modern literature the concept of peace building refers to the institutional capacity of managing conflict (Galtung:1976, 1996, Chapin and Foster: 2001, Lederach : 197, DAVIES, Johnand KAUFMAN, Edward(eds.),2002, BOUTROS-GHALI,Boutros,1992) and thus focuses on the role of state and non- state actors/ institutions- international and national non-governmental organisations- or combination of both in promoting peace in preventing the outbreak of the war or societal-political-ethnic conflicts. Thus the modern understanding of peace building is premised on the idea of *inevitability of violence that needs to be managed through building the institutional capability of state and society, which in turns flows from deep seated assumption of modern social science that human beings*

are primarily selfish and aggressive by nature and hence prone to conflict and violence. Hence the conception of peace building in modern discourse is narrow, negative and of transient nature as it entails the 'prevention or absence of violence'.

Whereas in the Gandhian and Gulen's discourse, peace building is not about prevention of conflict and violence but a *ceaseless participation in the positive actions*. Hence in this discourse peace building is about moral and ethical purification of self that aims at *elimination of internal cognitive conditions*, which leads to the development of conflict and violence. It is about *a state of mind and heart* that allows oneself to overcome his/her narrow self even in the midst of unfavourable material conditions and live in peace with others, with his/her surroundings and institutions of state and society. However this does not mean this discourse does not pay attention to the issue of exclusion and marginalization, which are important for peace building process. In fact a durable peace is only possible when peace building exercises must address to the issue of equity, justice, representation and recognition in general and issue of material and spiritual deprivation in particular cutting across class, ethnicity, religious, caste, tribes, nationality, political, ideological, gender and other identities.

However unlike the reductionist political economy approach that links the issue of deprivation with occurrence of violence, the Gandhian and Gulen's discourse of peace building pays more attention to subjective articulation of deprivation, exclusion and marginalisation and address to 'human moral and ethical power' to remain steadfast in pursuit of 'truthful, peaceful and non-violent' life in the midst of adverse material conditions. Thus unlike the modern discourse of peace building, Gandhi and Gulen's conception of peace building is a positive, action oriented force and of permanent nature that draws its substance from natural self of mankind: trust, peace, cooperation, compassion, love and tolerance. It is this conviction in the *goodness* of the mankind which led Gandhi to remark, "*the fact that there are so many men still alive in the world shows that it is based not on the force of arms but on the force of truth or love – – -History does not, and cannot, take note of this fact. History is really are record of every interruption of the even working of the force of love or*

of the soul (Gandhi1997:89-90), The same goodness of mankind as the constitutive source of Gulen's conception of peace building process in particular and activities of Gulen movement in General has also been explored in a recent work titled as 'Islam and Peace building' (Esposito and Yilmaz: 2010).

Within this larger framework the peace building exercises – both discourses as well as concrete social-political actions must be directed towards preventing the process of gradual transformation of notion of 'other' into a 'politicised other' leading to the development of discourse of 'US vs THEM', which often degenerates in the form of violence- both at individual and collective level. At the collective level the violence often assumed the form of riots, pogrom, genocide, terrorism, holocaust or what is called crime against humanity. In other words, while 'self' and 'other' is a part of natural-self of social being, however a politicisation of each other endangers societal peace; hence the only solution to the perpetual conflict between (politicized -ideologised) self and (politicized-ideologised) other is the dissolution of each -other into each-other. Do Gandhi and Gulen offer such discourse? Any if they do offer, are their discourses capable of achieving this goal?

Approach to Religion

Both Gandhi and Gulen espouse ethical and moral understanding of religion and stress on common universal heritage, roots, principles, values and objectives of all religion and religious traditions: honesty, truth, peace, non-violence, respect, love, friendship, loyalty, sacrifice, service, brotherhood, harmony, tolerance, compassion, forgiveness, humility, servitude etc. It is to revival of these principles, and not the prevailing local practices in the past, that Gulen and Gandhi refer to '*revival of faith*' (revival of Islam or revival of Hinduism respectively). Both imagined 'religion' in terms of belief in the 'unity of and submission before God', 'right conduct', and 'selfless service' to people, community, nation and humanism based on the principle of altruism. There are plenty of statements belonging to Gandhi and Gulen that signifies to this understanding of religion.

For instance, contrary to popular perception that Hinduism is polytheist religion, Gandhi, a Santani Hindu, was a fervent believer and worshipper in the oneness of God: "we have another thing in Hindu philosophy, viz, God alone is and nothing else exists, and the same truth you find emphasised and exemplified in the *kalma* of Islam. There you find it clearly stated --the God alone is and nothing else exist" (Gandhi: n.d, 66). In another instance Gandhi states, "God the Ruler pervades all there is in this Universe. Therefore renounce and dedicate all to him, and then enjoy or use the portion that may fall to thy lot. Never covet anybody's possession" (Gandhi: nd, 40). Identifying religion as 'service ethics', he states, 'Yajna (Sacrifice) means an act directed to the welfare of others, done *without desiring any return for it, whether of a temporal or spiritual nature (emphasise mine)*. 'Act' here must be taken in its widest sense, and includes thought and word, as well as deed" (Gandhi: nd, 48). --Every single act of one who would lead a life of purity should be in the nature of yajna " (Gandhi: nd: 48-49). Similarly, the Islamic principle of *Tawheed* and service ethics (*hizmet*) without any expectation of return constitutes the foundation of Gulen's religious philosophy and Gulen movement. Gulen repeatedly draws attention towards the Quranic call for 'selfless sacrifice' and statement that 'those who are constant in praying and spend on others out of what We provide for them as sustenance. It is they who are truly the *muminun*'

Further both emphasise rational understanding of religion but concede supremacy of faith over reason, limitation of human mind in comprehending God's secret, emphasise 'essential of religion' and avoid unnecessary ritualism connected with the religious practices. In this context both avoid literalist method of reading of Scriptures and place due importance to the factor of 'spiritual discipling' for the interpretation of Scriptures and in deducing the 'spirit' of the discourse of Scriptures through relying upon the intra-text reading of the Scriptures. Gandhi declares that, 'I am not a literalist. Therefore I try to understand the spirit of the various scriptures of the world. I apply the test of Truth and *Ahimsa* laid down by these very scriptures for interpretation." (Gandhi: nd 10). For Gulen, Islam is the seal of good morals and

conducts filtered through all revealed scriptures. He often quotes the Prophet's statement, "*Islam consists in good morals; I have been sent to perfect and complete good morals*". It is from this point of view that Gandhi considered 'untouchability' as 'superstitions', and 'distorted practice', which is not an original Hindu practice connected with Vedic culture. He even refused to visit Hindu temples on two grounds: he did not consider idol worship as the essential of Hinduism and second, denial of access to untouchables (the outcastes) to the Hindu temples as great injustice not only to the humanity but to the cause of Hinduism itself. Similarly Gulen did not consider hijab, beard, veil, fez, or other associated with bodily representation of Islam or many of sufi practices such loud dhikr as the essential for Islam. In short, for both, religion is a moral and ethical discourse without any fixed identity boundary.

What further unites both of them is the imagination of God/Allah as 'transcendental truth' and ultimate source of 'causation of all causes' and expression of Love, Truth, Compassion, Mercifulness and Fearfulness -- all attributes of God that has been exemplified by different names of God. While one may find objectionable in treating God and Allah equal from Islamic point of view, Gandhi's conception of God is akin to Islamic notion of Allah in which God emerged as the 'Maker of Universe' having a complete separate identity without any association with anybody and in any form. However for Gandhi, 'Truth' is the most appropriate word, symbol or discourse to describe God and hence he adopted the principle of 'Truth is God', which is different from 'God is Truth' which he used to believe at one point of time. While the latter is a statement of fact, the former is a everyday living value to be realised through means of love and non-violence as God revealed most himself in the truthful moments, truthful conducts and truthful actions. It is a call of inner conscience. Gandhi stressed that while everybody demands the right to conscience but hardly practice the same in their everyday life. In Gulen's Islamic discourse there is a heavy emphasis on *ihsan/ihtlas* (intention/inner conscience) to secure God's blessings. The Sufi's conception of 'living with God's consciousness', a notion further enriched by Gulen, comes close to Gandhian notion of 'Truth is God'.

Notwithstanding the similarity over the broad conception of religion and divinity, Gandhi, unlike Islamic position, does not consider the Scriptures including Vedas, Quran or Bible or any other Scriptures as 'Divine Book' or 'Revealed Book' but '*divinely inspired*'. Speaking from this point of view Gandhi maintained that one could remain a Hindu without having a belief in God, because Hinduism is a relentless search for truth through the means of peace and non-violence (**Gandhi: nd,1**), a proposition which is impossible for any version of Islam to admit someone as Muslim or believer without having faith in God. In fact Islamic discourses including those of Gulen is harsh on atheism.

A second point of departure between the two is that while both aims at the ethical and moral transformation of individual, however in Gandhian discourse Hinduism does not emerge as social or political project, unlike in Gulen's Islamic discourse where Islam emerged as 'social-political project', though not in the sense of political Islamism that aims at the creation of Islamic state, connected with objective of creation of 'golden generation', which is anchored in the mirror image of first generation Muslims of Islam, which will guide the humanity. Though Gandhi employs the metaphor of *Ram-Rajya* to denote the just order or 'state of happiness', which is akin to Gulen's conception of *Asre Sadat* (state of happiness during the period of Prophet Muhammad), however unlike Gulen, Gandhi does not elaborate the institutional framework of achieving the same. This difference between the two may be partly on account of nature of Hinduism itself in which there does not exist any 'historical model for emulation', unlike the 'Prophetic model' and model of 'Rightly Guided Caliphs' in Islam from where all Islamic movements derive their legitimacy.

A third point of departure between Gandhi and Gulen pertains to the notion of self defence. For Gandhi, the notion of self defence is related to internal purification of self. Gandhi believes that secret of success of Hindu civilisation lies in its moral and ethical mechanism of self defence against the external challenges or calamities. As he states, 'The best and most lasting self defence is self-purification. I refuse to be lifted off my feet because of the scares that haunt us today. — — If

I can get together a band of young Hindus with faith in themselves and therefore faith in Mussulmans, the band will become a shield for the weaker ones. *They (the young Hindus) will teach how to die without killing. I know no other way*' (**Gandhi: nd, 22**). Similarly on the issue of protection of cow, a symbol of contemporary Hinduism, Gandhi took the position that he might give up his life to save a cow but will not kill a Muslim in the name of protection of cow (**Gandhi, 1934: 41**). In his interpretation of Vedas, a compilation of dialogue between Shri Krishna and Arjuna during the battle field of *Mahabharat*, he came to the conclusion that *no one kills or is killed*, neither he ever evoked the notion of *dharmyudh* (just war) against anybody including fighting with British's unjust rule in India. Thus in Gandhian imagination of Hinduism there is no place for violence and killing is not just justified under any circumstances including in the name of principle of self-defence. It may be noted that the modern international law is very much based on the doctrine of self defence that allows nation to commit offence in the name of self defence. Examples are abound, the most recent example of which is US's doctrine of pre-emptive strike that aims to conduct an unilateral military strike in order to preempt the military actions of designated enemy.

On the other hand in Islamic traditions there are numerous interpretations of Jihad, which broadly fall in two categories: (A) lesser jihad -- the meaning of which range from waging war in the path of Allah to armed defence in retaliation against external enemy. (B) greater jihad: inner purification and development of moral capacity to control the *nafs* (carnal desires). However even the most pacifist Islamic voice including Gulen interpreted the act of war on the part of Prophet Muhjammad as a just act in self defence and for good cause. (**Gulen, 2006: 201-255**). Ali Bayaram, one of the senior volunteers in the Gulen movement, while conducting *shobet*, in response to my query, stated that 'there is no concept of just killing in Islam except in war as self defence' (interview, Asya Resort, Ankara, 2011). Further, the Islamic dictum that 'killing a person *unjustly* amounts to a killing of the entire humanity' does contain the notion of just or unjust killing. Thus the 'killing' is justified in self defence and for

greater cause in the Islamic traditions.

Finally, the difference between the two lies in terms of means to serve the humanity. Gandhi utilised the means of politics to serve his people and make them free from the bondage of unfreedom. While conceptualising politics as 'moral vocation', as for him, politics bereft of religion is an immoral profession, Gandhi linked his politics of liberation of the country with Hindu-Muslim unity, abolition of practice of untouchability in Hindu society and integrating the untouchables in the national mainstream and development of women. Gandhi's politics was essentially integrative in nature and intended to bring harmony and cooperation among different classes, castes and religious groups, which partly explains that despite the instrumentality of religion in Gandhian politics, Gandhi has never been accused of indulging in the 'politics of communalism'. On the other hand Gulen considers politics as essentially 'immoral and divisive phenomenon' and therefore any 'politics of Islam' inherently pose a danger to Islam itself. The nature of 'Muslim/Islamic politics' in much of Muslim societies testifies Gulen's insight. Hence Gulen prefers social actions over politics to serve people, Islam, community, nation and humanity. Working with this approach Gulen puts social agencies such as education, health, relief work, media etc in the service of the people. Notwithstanding of these differences, both Gandhi and Gulen provides an *inclusive, holistic, flexible, relative and pluralistic understanding of religions* and underlines the unity of all religions. Gandhi wrote in *Hind Swaraj*, 'By religion, I do not mean formal religion, or customary religion, but that religion which underlies all religion, which brings us face to face with our Maker (Gandhi.1934: 30). In another instance he stated that 'My Hinduism is not sectarian. It includes all that I know to be best in Islam, Christianity, Buddhism and Zoroastrianism' (Chandra, 2004:37).

Similarly underlying the unity of all religions Gulen states, "Regardless of how their adherents implement their faith in their daily lives, such as generally accepted values as love, respect tolerance, forgiveness, mercy, human rights, peace, brotherhood, and freedom are all values

exalted by religion. Most of these values are accorded the highest precedence in the messages brought by Moses, Jesus, and Muhammad, upon them be peace, as well as in the message of Buddha and even Zarathusa, Lao-Tzu, Confucius, and the Hindu Prophets" (Unal and William: 2000, 242). Further he states, "As a Muslim, I accept all Prophets and Books sent to different people throughout history, and regard belief in them as an essential principle of being Muslim. A Muslim is true follower of Abraham, Moses, David, Jesus and all other Prophets. Not Believing in one Prophet or Book means that one is not a Muslim'.(Ibid).

Approach to Modernity

Though both Gandhi and Gulen were/ are influenced by the humanistic tradition of western modernity, both were/are also critical of modern trajectory of life, particularly the destructive side of modernity, excessive individualism, materialism and positivism. While engaging with modernity, both saw Europe as inflicting with serious illness and hence called for sympathy with them. Gandhi considered the western civilization as immoral and unethical phenomenon because it had made 'bodily welfare' as its 'objects of life' and compared it with the *Upas* tree that poisoned everything that came under its shadow or like a disease that wasted the body politic. He writes, "This civilization takes note neither of morality nor or religion. — — This civilization is irreligion, and it has taken such a hold on the people in Europe that those who are in it appear to be half mad. They lack real physical strength or courage..... This civilization is such that one has only to be patient and it will be self destroyed. According to the teaching of Mohammed this could be considered a Satanic Civilization. Hinduism calls it a Black Age. — — It is eating into the vitals of the English nation. It must be shunned. — — If you will sufficiently think over this, you will entertain the same opinion and cease to blame the English. They rather deserved our sympathy". (Gandhi.1934. 24-25).

Echoing the spirit of Gandhi, Gulen called modernity 'mislabelling', 'misuse of concept' in order to dupe people with false promise: "Civilization is different from modernism. While

the former means the changing and renewal of man with respect to his views, way of thinking and human aspects, *the latter consists in the changing of his life style and bodily pleasures* and the development of living facilities. Although this is the truth, the new generations, who have been bewildered through misuse of concepts, have first been misled in their way of thinking and then made to degenerate in belief, language, national thoughts, moral and culture. Apart from this, those Western people enjoying technical facilities more than others, and the so called 'intellectuals' who have emerged among Eastern peoples, and who consider themselves civilized and the others as savage, have committed, through such mislabelling, a grave, unforgivable sin against civilization and culture. — — — — — all these, together with many other signs of savagery prevailing world wide, show decisively that the 'developed' peoples of the world have not founded a true civilization, and nor have their 'developing' imitators been able to do so. How pitiful it is that the intelligentsia of 'developing' countries have deceived their people into believing that they could be civilized through modernization of their life style — — — —" (Gulen:1998, 71-73.).

Thus, both the Gandhian and Gulenian discourse are life centred, not state-centred- the subject matter of modernity. Gandhi in his personal conviction was at best a political anarchist who considered state as an immoral force. He would assign minimum possible role to state in matter of governance as he believed that people did not require any external authority or force to govern themselves as they are capable of self-governance. This is the meaning of Sawaraj or Self Rule one gets from Gandhi's seminal work titled, '*Hind Swaraj*'. On the other hand, Gulen has gradually moved from his once held position that a strong state is necessary condition for survival of Islam and Muslims. Today he fervently advocates the cause of 'neutrality of state' in matter of governance and religion but continues to believe in the classic Islamic dictum that '*bad government is better than no government*'.

In this context it is interesting to note that a majority of works on Gulen movement has attempted to understand the discourse of Gulen as an attempt or response to bridge the gap

between Islam and modernity. Whether this is partly due to historical burden of intellectual traditions in Muslim society, which has historically frame the problems of their societies in terms of relationship between Islam and modernity or desire to catch up with the modernity, particularly among the Turkish intellectuals, a great of majority of them has constructed a parallel between Gulen movement and protestant movement of Europe (Yuvuz: 2013, O'zdalga: 2000, Uygur: 2007, Arslan,:1999, 2000. 2001, Yousef,: 2001). What can be said with fair amount of certainty is that Gulen's Islamic discourse, which mostly revolve around the notion of people's rights, life styles, pluralism, tolerance, harmony, service ethics and social activism, reflects a post modern concern and aspiration: *recognition of identity in public sphere and freedom from the intrusive culture of modern nation state*. On the other hand the majority of works in India on Gandhi have hardly attempted to frame his discourse in terms of bridge between Hinduism and modernity; rather predominantly saw Gandhian discourse as moral and ethical critique of modernity. In recent years the tendency to study Gandhi within post modern frame has increased (Nandy 1983, 1987; Paranjpe 1983; Prasad 1985; Parekh 1989, 1997; Dallmayr 1996; Sarkar 2001; Chakrabarty, 2006; Parel 2006. Rudolph and Rudolph 2006). In other words, as modernity brought the rupture between heart and mind and as a consequence produced uncounted human misery, violence and destruction, the Gandhian and Gulen's religiously inspired moral and ethical discourses attempt to restore the balance between reason and faith, religion and science, heart and mind and nature and man. In short, both attempt to place a *heart in the heartless modernity*.

Absence of 'Other'

Unlike the materialistic modern philosophy, which is constructed on the principle of recognition of separate 'self' and 'other', there is no place of 'other' in the philosophy of Gandhi and Gulen. This comes from their abiding faith and recognition that 'everybody is children of God' and hence everybody is equal. A genuine love and respect for God automatically translates itself in the unconditional love towards His

creations: both humans and non-humans. Thus by reserving 'Self' to God only and 'Other' to entire human beings Gulen resolves the perpetual conflict between self and other that exists in the positivist philosophy by upholding the moral equality of human beings. Thus in this discourse the self becomes others which results in accepting others with all their identities and beings.

It is interesting to note that while Europe/ Britain has been factor in dismemberment of Ottoman Empire and colonisation of India and later partition of Indian sub-continent, Europe/Britain does not appear as 'other' in the discourses of either of Gandhi or Gulen. Making a distinction between British rule and modernity Gandhi stated that, "it is my deliberate opinion that India is being ground down, not under the English heel, but under that of modern civilization" (Gandhi: 1934, 29-30). All techniques of non-violent struggle that Gandhi employed to mobilise people towards fighting British mis-rule: whether Satyagrah and Hijrat, (Champran, 1917, Kheda, 1918 and Ahmedabad Mill Strike, 1918), Khilafat and Non- Cooperation movement (1919-1921), Civil disobedience movement or Salt Satyagrah (1929-1930), Fasting (against Poona Pact, 1932 and Bengal Hindu-Muslim riots-1947) and Quit India movement (1942) – were intended to expose the moral and ethical bankruptcy of British 'civilized' rule and were not guided by consideration of British rule as 'enemy' of Indian people. It may be noted in this regard that Gandhi unilaterally withdrew the non-cooperation movement in 1921 at the height of the movement (to the much dismay of many Congress leader) during Churi Chura incident when a few peasantry had burnt the police station that led to the killing of a few policemen, as for Gandhi this amount to lack of sufficient moral and ethical training to become *Satyagrahi*. Gandhi's embracing of Muslims and other communities was based on this approach and hence he never agreed to the 'Partition' of Indian subcontinent between Indian and Pakistan. The absence of 'other' in Gandhian discourse partly explained why India did not see any problem in becoming a member of Commonwealth headed by British monarch after independence.

Like Gandhi, there is no conception of 'other' in Gulen's Islamic discourse. All credible research

on Gulen movement has demonstrated that the movement lacks the notion of 'other' in its discourse, practice and action. It is neither directed against any individual, ideology or political system or value-whether Islamic or non-Islamic. It does not pass fatwa on things/value called Islamic or non-Islamic. Though one may notice within Hizmet movement a kind of reservation and stiffness towards Shii, communist and atheists; however such reservation does not flow from Gulen's Sunni Islamic discourse as it is popularly assumed. With regard to Shii, Gulen has reservation towards Iranian political system that fused both religion and politics and hence destroys the moral and ethical spirit of Islam. Similarly, for Gulen, communism and atheism are principally an ideological construct that kills humanism.

Since 'education' has emerged as *the* identity of Gulen movement, can this be considered a site of counter- mobilization against secular state/elite/ lifestyles in Turkey? From the writings and speeches of Gulen and other research materials on Gulen movement it is difficult to argue that he conceives education and encouraged the establishment of educational institutions as 'political project' to displace the westernized/ kemalist status-quoist class within Turkey. The large transformation one is witnessing in today's Turkey in terms of 'black Anatolian MuslimTurks' acquiring centre stage in all fields-economy, political and social- is at best *unintended* consequence of Gulen's reconfiguration of fundamental Islamic principles and values to suit the present times.

Rasim Bey, a student of Gulen stated, "that Gulen has never used such terms as 'Kemalists', 'Secularist' or 'Islamicist' or any kind of 'isim' for describing people or thought, which is in accordance with Prophetic traditions. Prophet Muhammad (PUBH) lives with 'munafiq' for 10 years but never used this term" (**Interview with Rasim Bey, Academy, Istanbul,, dated, 23.2.2010**) In other words; Gulen's Islamic hermeneutics is the discourse of social change without any fixed ideology, target or objective. Further, unlike many Islamic figures and movements in the world, the 'West' does not appear as 'other' either in Gulen's discourse or in the everyday action programme of Gulen movement. Rather with the discourse of

darul- hizmet Gulen motivates his followers to interact with the West without any fear. In fact the Gulen movement in Turkey has been at the forefront in mobilising public opinion in favour of Turkey becoming a member of European union. Esposito and Yilmaz rightly commented that ‘Gulen’s acceptance of the two Turkish identities—European and Islamic— as complementary rather than contradictory was innovative at a time when both secular and Islamist identities totally reject this duality’ (Esposito and Yilmaz :2010, 25-26).

In short, both the Gandhian and Gulen’s discourses emphasise the constant internal moral and ethical purification of self in order to overcome the ‘hidden other’ within himself or herself through the modes of prayer, practice of truth, pacific resolution of conflicts and developing ‘service ethics’. Thus both discourses demand ceaseless and rigorous ‘spiritual practices’ to ‘purify’ self and negate the perception of other as enemy. In Gandhian discourse the attainment of this state of condition is linked with practice of *Yamas* (the cardinal virtues) – *Ahimsa* (non-violence), *Satya*, (truth), *Asetya* (non-stealing), *Brahmacharya* (celibacy), *Aparigraha* (non-possession) and *Niyamas* (the casual virtues) – *Shaucha* (bodily purity), *Santosh* (contentment), *Tapa* (forbearance), *Swadhyaya* (study of Scriptures), *Ishwarapranidhna* (resignation to the will of God). Similarly, the entire purpose of Gulen’s writings of *Emerald Hills of the Heart* that contains the exposition of various principles of Sufism such as, *dhikr* (remembrance of God), *zuhd* (asceticism), *muraqaba* (self-reflection) *muhasaba* (self-evaluation) and many others is to direct Muslims to undergone the spiritual training of Sufism in order to dissolve his/her ‘self’, to overcome the carnal-bodily desires and to develop God’s consciousness.

Means Justifies Ends

Unlike the modernist dictum of ‘End justifies Means’ which justifies all sorts of application of illegal, immoral, unethical means to achieve goal – whether individual or collective—, both Gandhi and Gulen believes in the principle of purity of means to achieve pure goals as an article of faith. According to them, a goal— no matter

how pure and noble, cannot be achieved with impure and unethical means. For both, adhering to legal rules and regulations is ethical and moral value and hence both emphasise on the legal, moral and ethical way of pursuing one’s own goal or conducting business or undertaking any private or public action. In other words, for both, *the mean is an end in itself. Thus both seeks to restore the morals and ethics in public life through the discourse of means-ends dichotomy, which has been totally eliminated in the modern form of politics.*

As Gandhi states, ‘They say ‘means are after all means’. I would say ‘means are after all everything’. As the means so the end. Violent means will give violent swaraj. That would be a menace to the world and to India herself...There is no wall of separation between means and end. Indeed, the Creator has given us control (and that too very limited) over means, none over the end. Realization of the goal is in exact proportion to that of the means’’ (Gandhi, 1998: 28, 310).

Similarly Gulen opines, “ *The means to attain a lawful and right target must also be lawful and right. For those who are on the Islamic line, that the object of their efforts in every enterprise should be lawful is a right, and lawfulness of the means to reach that right is an obligation. As the pleasure of God and union with Truth cannot be acquired without sincerity and being for the sake of God, so service to Islam and the direction of Muslims to the true goals or targets cannot be achieved by evil ways and means’’* (Gulen,2009: 38).

Thus Gandhi never compromised on applying only peaceful and non-violent methods such as *satyagrah*, *padh yatra*, (march on foot), peaceful, unarmed mobilisation, fasting, civil disobedience and non-cooperation techniques such as boycott of British goods, particularly cloths, call for giving up honorary titles and governmental jobs under British rule, refusal to pay tax etc and conducted all his public-political actions within the constitutional-legal structure of the British’s rule. Similarly Gulen too conducts all his public actions and all Hizmet linked public actions—whether in the field of education, business, conference, media, relief etc— are conducted within the legal framework of the nation and state where work is located. It is this strength of peaceful, non-violent, legal legacy of Hizmet movement that has made the task of current Erdogan government very difficult to de-

legitimise the movement despite almost everyday illegal attack and undue harassment that is being inflicted upon the movement.

In this regard Ahmet Kurucan (2015) maintained a distinction between the principle of passive resistance and principle of civil disobedience. He brought Gulen's discourse in the former category as this does not allow any violation of governmental rules and regulations even while peacefully resisting the government's public policies without any mobilisational form, the latter contains the measures such as refusal to pay tax or quitting the job as sign of non-cooperation against the government that amounts to violation of existing legal rules and regulations. Though the distinction between the two, as brought out by Kurcan, is technically correct; however in the Gandhian discourse civil disobedience is only one form of passive resistance, the employment of which depends upon the political context.

Inter-faith and Inter-cultural Dialogues

Interfaith and Inter cultural dialogue is the key in Gandhi and Gulen's religious discourse to retrieve the fundamental unity and essence of all religions. Interfaith dialogue helps to experience how one can learn about the religious beliefs and spiritual identity of the other *while at the same time* learning more about the religious beliefs and spiritual identity of ourselves. *It is about discovering oneself through otherness.* Both Gandhi and Gulen articulate the conflicts in the modern age in terms of misunderstanding of religious traditions by people in general. Hence both emphasise on the necessity of the correct and true representation of religious traditions. Further, since the problem lies in the *exclusive* construction of religion which leads to misunderstanding and disrespect to other's religious and cultural legacy, both emphasise a constant dialogue between the two with a view to understand each other point of view and reach to a common understanding. An essential condition of this dialogue is the unconditional acceptance and recognition of other with his/her compete identity, (secular, religious, national etc) history, and cultural legacy in order to penetrate his/her thinking and understand them in order to address each other's fear and concerns.

Gandhi firmly believed that understanding the religion of another is ultimately appreciation of the other as a person with a direction and hope. Gandhi tried to reveal himself in this sense to his Muslim friends so that they could perceive the inner meaning of his tradition. It is for this reason Gandhi totally identified with Indian Muslim's grievances over the threat of abolition of Caliphate and led the Khilafat movement (1918-1920) in the country against the European treatment of Turkey with a possible politics of abolition of Caliphate, which Gandhi considered as an essential element of Islamic faith and therefore needs to be protected. Moreover, he exhorted every member of the Congress party to cultivate personal friendships with persons representing a faith other than his own. For him, 'heart unity' meant that one should be open to the deepest values of each other's traditions. In the context of the outbreak of communal riots in the aftermath of the Non-Cooperation Movement, Gandhi said, 'I see no way of achieving anything in this afflicted country without a lasting heart unity between Hindus and Mussalmans of India' (Gandhi 1966:153). He believed in achieving the 'heart unity' between the two through inter-faith and inter-cultural dialogue – a discipline that has become dominant in today's world in addressing the issue of inter-community relations.

For Gulen, the purpose of dialogue is to not to satisfy each other ego but to help enabling the truth to come out, which requires such principles as mutual understanding, respect, and dedication to justice. According to him, the creation of this environment calls for a Muslim to develop what is considered sufistic ethics or what Heon Choul Kim has described as 'Gülen's Dialogic Sufism', which has four inter-connected aspects: *love, compassion, tolerance and forgiveness.* Lester R. Kurtz has called these dimensions of Sufi Islam as 'pillars of Gulen's conception of dialogue'. Celik and Valkenberg identifies three stages in Gulen's conception of dialogue. They describe the first stage of Gülen's dialogue concept as accepting the others in their own position. The second stage involves respecting the position of the other(s), and the third stage is the concept of sharing values in the context of the other(s). Gulen has personally reached out to the prominent representative of Christian, Jewish and other

religious traditions in order to develop a common understanding of each other faith. Over the years the Gulen movement has developed the hundreds of dialogue centres all over the world so as to reach out the members of other communities and faiths.

Education

For both Gulen and Ghandhi education is essentially a life long moral and ethical discourse. While in Gulen scheme of things education is linked with creation of 'golden generation' – a generation well versed in the knowledge of the present age, Gandhian conception of 'Basic Education' (*nai taleem*), while retaining many attributes of golden generation, emphasises the unity of work and knowledge production in addition to creation of ethical and moral being. In many ways the educational thought of Gandhi and Gulen provide a critique of Western model of educational system. For Gandhi and Gulen, the western, modern educational system though did achieve a very high level of professionalism but without humanism. It is this imbalance between impersonal professionalism and humanism that educational ideas of Gandhi and Gulen are geared to address. Though the educational and inter faith view of Gandhi is not as sharply developed as the his idea of peace and non- violence, Gulen is best known for inspiring an educational and inter faith, inter-cultural movement within and outside Turkey, which has become global today with more than thousands of schools and dialogue centres running in more than 160 countries.

In lieu of Conclusion : Limitation and Strength of Gandhi's and Gulen's Discourses

How effective is the peace building discourses of Gandhi and Gulen that has filtered through their views on religion, modernity, interfaith dialogue and culture, notion of other, means-end dichotomy and education as deliberated above? Have these discourses succeeded in preventing the process of gradual transformation of notion of 'other' into a 'politicised other' leading to the development of discourse of 'US vs THEM', which often degenerates in the form of violence- both at individual and collective level? The fact that Gandhi could not succeed during his life times in preventing the growth of communal

polarization and series of communal riots between section of Hindus and Muslims leading to the creation of Pakistan out of the Indian sub-continent does point out the limitation of Gandhian discourse. Similarly in Turkish context, the current reversal of democratization process and growing polarization among various section of Turkish society under the current AKP government led by Rajpp Tayep Ergodan too reflects the limitations of Gulen's discourses.

Part of the problem in Gandhian and Gulen's discourse emerges from the fact that in both discourses the conflict in the society is understood as flowing from the mis-representation and misunderstanding of each other faith. Thus other aspects of conflict – social, economic and political- are de-emphasised, if not totally ignored. From this point of view both Gandhian and Gulen's discourses offer the model of a 'good Muslim', a 'good Hindu', a 'good Christian' or a 'good human' for the resolution of societal conflicts, which also works as a powerful deterrence to the emergence of politicised binary of us and them. However the critics have rightly pointed out the limitation of apolitical model of 'good human/Muslim', as the understanding of 'goodness' is thoroughly subjective; in addition to the fact that the model privileges the religious identity against all other identity of individualhood, thereby unwittingly undermining the prospect of development of democratic personality.

Notwithstanding the above limitations both these discourses have played an important role in the strengthening of structure of democracy and civil society atleast in those countries where it commands a good influence. Thus, Gandhi, aware of resultant majoritarianism of politics of nation state, stressed upon the greater sense of responsibility, conciliatory gestures and good will on the part of the majority community towards the minorities in order to instill the confidence among the latter and to make the majoritarian democracy work. It was this Gandhian conception of democracy that to a great extent helped in keeping the Indian political process largely non-ideological, flexible, accommodative, which in turn helped the institutionalisation of democracy in India. Moreover as Gandhi continue to belong to the realm of civil society and not to

the state despite being father of nation, the Gandhian ideas of pluralism, brotherhood, human rights, civil liberty, service ethics, tolerance and pacific resistance continued to strengthen the realm of civil society against the state actions.

In a similar way, Gulen's discourse of dialogue, peace, positive action, social activism in tune with people rights, human rights, pluralism, multiculturalism and civil liberty since mid 1970s did played a significant role in de-ideologising/de-Kemalism the Turkish political process and understanding of the secularism and nationalism, which to a large extent helped in unleashing and strengthening the process of democratisation in Turkey. It is in part this process that helped AKP (Justice and Development Party) to come into power in Turkey since 2002. Further, like Gandhi, Gulen motivated and inspired the Sunni Turkish Muslim majoritarian community to reach out the religious and ethnic minority communities living in the country. One credible aspect of this democratisation process within Turkey is the opening of communication and dialogue with Alvi and Kurdish community as well as the gradual recognition of cultural autonomy of these ethnic minority communities. It may be noted that Gulen movement is the leading voice in the Turkey in this direction. Today one finds a good numbers of Kurdish volunteers participating in the Gulen movement. It is indeed a commendable task considering the historical Turkish-Kurdish divide in the modern Turkey. Though the AKP government has turned hostile and adopted a belligerent approach towards the Gulen movement since the outbreak of 17th December 2013 corruption exposure against the government, however like Gandhi, Gulen's ideas of pluralism, brotherhood, human rights, civil liberty, service ethics, tolerance and pacific resistance continued to strengthen the realm of civil society against the arbitrary state actions without directly aiming the same.

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Possible role of DIETs in devising new curriculum

Abstract

As per the policy document Govt. of India, DIETs are the premier institutes at the district level, which look after both pre-service and in-service teacher education at the elementary level. The D.Ed. course is required to gear potential teachers to deal with field level challenges. The faculty of DIETs is thus familiar with ground level reality. While revising the D.Ed. curriculum in Telangana, it was felt that faculty from the DIETs and other Teacher Education Institutions (TEIs) as well as Teachers Resource Group members should be involved in the exercise so that the focus is on the gaps in the existing curriculum, both in theory and in field level practices.

Development of D.El.Ed. Curriculum in Telangana - Some reflections

During the implementation of basic education projects such as the district primary education programme (DPEP) and the *Sarva Shiksha Abhiyan* (SSA), strong State Level Resource Groups (SRGs) were developed in all the subject areas. Over the years, these groups have been involved as Resource Persons in various training in elementary education. They were also involved along with the DIET faculty in designing D.El.Ed. curriculum in the State. In Telangana, we have conducted 3 workshops with the SRGs, selected district resource persons (DRPs), classroom teachers, DIET faculty and discussed field level challenges and issues to address the same in Teacher Education curriculum.

The field level challenges and gaps being observed and the reflection on same led to these being included in the process of curriculum design for Teacher Education at elementary level. They also influenced the selection of knowledge, pedagogical approaches, assessment procedures etc. and focused on realities in classrooms and schools. The Pre-service Teacher Education Curriculum was revised based on field inputs of the DIET faculty who critiques the existing courses including the field experience part.

Areas of change and focus in the revised D.El.Ed. Curriculum

The curriculum development team, being aware of direction of reform, aligned the revised D.El.Ed

in such a way that content and pedagogy enables trainees for self-learning and independent thinking. Key areas required for a teacher were especially highlighted and some new papers added and the title revised to reflect the changes. Based on the inputs and reflections of the team, the following areas were highlighted in the revised D.El.Ed. curriculum:

- Early literacy and numeracy, with theory and appropriate teaching practice based on classes 1 and 2 textbooks. Earlier, the trainees usually selected 4th and 5th classes for teaching practice and never classes 1st and 2nd. Now, this has been made compulsory by giving 50% of weightage in the teaching practice to the transaction of classes 1 and 2 textbooks. Trainees will then take up teaching practices for classes 1&2 and 3, 4, 5 separately.
- Development of subject specific and class specific curricular standards and learning indicators at elementary level. The reforms in School Education in evolving standards and learning indicators are reflected in the Teacher Education Curriculum.
- The revised curriculum tries to ensure deeper engagement with disciplinary knowledge and integrates it into the pedagogy courses.
- Emphasis was laid on development of deep conceptual clarity and doing conceptual mapping of a whole area related to a topic.

- Given that the school textbooks are aligned to the State Curriculum Framework, SCF-2011, focus was also on how to use the textbooks effectively and engage students in active learning in a participatory way.
- Engagement with deeper understanding of disciplinary knowledge: The pedagogy courses integrates content knowledge and sufficient time is provided for dealing content matter of pedagogical subjects. Developing conceptual clarity through conceptual mapping and ways of introducing the concepts have been discussed in the D.Ed. curriculum. Further, how to engage students with deep content knowledge which adds value to the textbook content is also focused on for meaningful classroom transaction in schools.
- Developing appropriate perspective of trainees on the basic areas such as understanding childhood and understanding learning. There are several assumptions among teachers and trainees about children and learning which are not based on any scientific evidence. Therefore, deep and critical discussion on these areas has been included.
- Separate paper "**Knowledge, Curriculum and Pedagogy**" was developed to discuss Nature and Construction of knowledge, Ways of creating knowledge etc.
- Criteria of curriculum construction, connections among knowledge, curriculum, pedagogy and learners to be discussed with the trainees.
- Focus on issues of diversity and inclusion including gender, caste, and class.
- Two separate areas on Pedagogy and language across curriculum emphasise the common principles in these.
- Papers on Health & Physical Education and Arts & Cultural Education, Value Education & Life Skills, Work & Computer Education etc. were modified and strengthened.
- There is a separate paper on "**Understanding Self**" to enable trainees to understand their own biases so that through a reflective process, they can actively foster skills and commitment for improving themselves as individuals and professionals.
- Exposure to alternative approaches and innovations to include marginalised children.

Field experience programme

The field experience programme is an essential component of all pre-service teacher education programmes as it gives the student-teachers a brief taste of what actual school teaching is all about. In the new revised programme, attempts have been made to enrich the field experience and make it more relevant. For this:

- About 40% of weightage has been given to field based practices and projects in non-pedagogical subjects. Within that, 70% weightage has been given to the practicum, teaching practice and internships in the pedagogical subjects. The idea is to see the translation of understanding of theory into field based practices i.e. examining theory in the field.
- The key principles of NCF-2005 such as connecting knowledge, life outside the school, keeping children away from rote learning, enriching the curriculum by making it less textbook centered are addressed by increasing the field based projects in Teacher Education Curriculum.
- The alternative approaches and innovations from the NGOs for improved literacy and numeracy practices, conducting bridge courses for out-of-school children etc. have been discussed and taken up as a part of teaching practice.

Changes in the Transactional process

Along with changes in the curriculum and syllabus, we have also tried to change the way classroom teaching occurs in the D.Ed. colleges. While this requires extensive interactions with teachers and orientations, we have proposed some guidelines that can help in changing the transactional process. For example,

Voices of Teachers and Teacher Educators

- Existing way of treating knowledge external to learners needs to be changed, foregrounding learner experiences should be the focus.
- Experience of tasks needing independent thinking, reflection & collaborative learning among trainees should be ensured.
- Emphasis should be on co-curricular subjects, both in theory and practice.
- A programme in every subject on '**Reading and Reflection**' of basic books has been introduced
- The pedagogy should include classroom discussions, reading the texts and reflecting on them, individual and group presentations, projects, field tasks, experiential learning.
- The assessment process for the course now involves providing feedback and continuous dialogue to share suggestions with the learners.
- The DIET faculty is expected to develop new questions and assignments to help learners reflect and analyse their learning.
- The existing practice of teaching i.e. isolated lessons/ concepts is addressed by making trainees deal with one complete unit along with exercise part and conducting Formative Assessment and reflecting on practice teaching.
- Focus should be on critical pedagogy and social construction to question the assumptions and beliefs about knowledge, learner, learning processes and on other issues of gender, caste, class and develop habits of independent thinking, reflection and collaborative learning among the trainees.
- While teaching, reflections and small studies to authentically understand teaching-learning should also happen.
- ICT can be integrated in transacting curriculum through groups and Open Educational Resources (OER).
- The trainees develop and transact two (2) multimedia teaching activities for each methodology paper.

Challenges

While the curriculum has been revised, there are still many challenges in its successful implementation. For example, the DIETs are insufficiently staffed and the faculty required for teaching all subjects are not available. There are also a large number of private training colleges with their own set of problems. For example:

- There is no mechanism for proper regulation of the large number of private colleges and as a result they lack academic focus.
- The DIETs are unable to orient and train the faculty in private teacher education colleges, due to lack of numbers as well as capability.
- Assessment processes are also compounded by large numbers.
- Sources of learning such as library, labs, ICT resources in the TEIs are inadequate.

There is a need for more orientation and capacity building of the DIET and the SCERT faculty on the revised curriculum and the basic concepts of education and contemporary trends in pedagogy and field based practices. All this is needed to overcome deficiency in Teacher's Knowledge base.

Some of our learnings in the course of working with schools and while undertaking curricular and evaluation reforms

During the curriculum revision process and also in our previous work we have learnt some valuable lessons. For example, DIETs need to be engaged in the formulation of State Level school curriculum and textbook development processes under the guidance of well-informed National Level educational persons. This will not only develop their capacities but also help them understand the decision making and selection process thus enabling them to conduct more informed teacher orientations. Further, this engagement cannot be sporadic; the DIET faculty needs to be engaged with the reform process for sufficiently long time to develop the ability to lead the effort.

Lastly, if they are to meet these expectations, the DIETs need to be adequately populated with the

faculty and provided with capacity building opportunities through workshops or/and online courses in collaboration with organisations engaged with the state's reform processes i.e. VidyaBhavan Society, Eklavya, Homi Baba Centre for Science Education etc. The current understaffed DIETs find it difficult to manage their day to day tasks and this effects their motivation to take part in other activities.

Areas that still need attention in D.El.Ed. Curriculum

While efforts have been made in the revision process to undertake various reforms, there are still many areas that could not be included. Perspective building on the part of student teacher on how quality can bring equity, social justice, and how poor learning levels impacts the nation building and national identity has to more extensively dealt with. There are many other spheres that need more attention such as:

- Care for children and love for them: Opening up this phrase to understand the nuances associated. Does it mean that teachers should be with them, should understand children, their family background and their social, cultural and economic context especially for first generation literates? Is anything else a part of this?
- Diversity in the Class Room i.e., social, cultural, linguistic which can be a positive factor. How to capitalize these diversities that the children bring to the class rooms?

- Participation in community activities and understanding socio economic background and challenges they face and take a proactive role in encouraging the parents and community to participate in the school programmes and activities.
- MGT and multi-level situations in most of the schools is a reality with grade specific textbooks. Focus on how deal such classes.

Innovations and exemplary practices

The team also explored different practices in different states to understand their usefulness and decide if they should be included in the new curriculum. It has been suggested that documenting local knowledge resources by Teacher Education Institutions (TEIs) can be part of project-work of the trainees, as being practiced by the DIETs of Uttarakhand. Further, conduct of school assembly/ prayer in Maharashtra, Mid-Day Meal programme in Tamil Nadu, ODL programme in Chhattisgarh, the process of curricular reforms and textbook development in the States of Andhra Pradesh/ Telangana, Chhattisgarh, Bihar etc. are the exemplary practices as per the JRM reports. These need to be explored and implemented. The curriculum reform process has now expanded to include our DIETs and school faculty and the effort now is to further widen it to include best practices and ideas from across the country.

Effort of Chhattisgarh to design new B.Ed. syllabus in context of NCTE Regulation 2014

Background

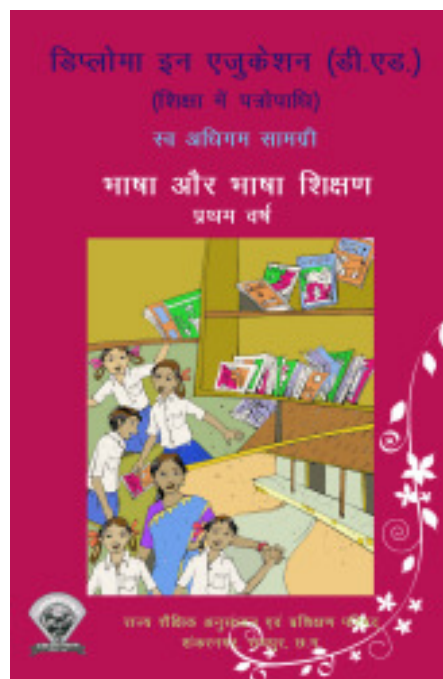
Chhattisgarh state has, in the recent past, revised and implemented the D.Ed. programme. Our initial attempt to design School Experience Programme for two year D.Ed. course in 2005 was met with some reservations on the part of DIETs and BTIs as D.Ed. curriculum is the subject of Board of Secondary Education (the new programme was designed by the SCERT, Raipur). However, in 2007, SCERT again started work on D Ed curriculum in conformity with NCF 2005 with the help of NCERT, RIE (Bhopal), Digantar, Vidya Bhawan, Ekalavya, IFIG and Azim Premji Foundation. The principals and PST members of all DIETs and BTIs participated in this exercise. Through a series of workshops, a course outline was developed and guidelines of school experience programme were prepared and tried out in DIETs and BTIs. Major shifts in school experience programme of the D.Ed. students included:

- Full time attachment in school as a full-fledged teacher
- Orientation of student-teachers and the Head teachers of practicing schools
- School teachers to act as mentors
- Teaching plan instead of lesson plan
- Longer and split school attachment

Simultaneously, theory courses were reorganised and renamed. Courses were focused on understanding education, community and society, purpose of education, how children learn, nature of subjects and not merely on methods. The objective was to help student teachers to understand and construct their own strategies rather than being fed. A new paper was introduced on epistemology of knowledge. Language education was based on how children learn language, while mathematics education on

its nature and how mathematical concepts developed. Art education also found a place in the course.

Materials for these courses were carefully prepared in a manner that included bringing in examples that were related to the ideas, language that was simple and exercises that expected the learner to articulate her experiences and ideas. The transaction method expected the learner to read and understand the text and discuss with peers. To support and make this transition meaningful there was a major shift in the evaluation pattern as well. The nature of questions was changed by creating more opportunities for open-ended questions with multiple acceptable answers possible. An initial set of such questions was created and shared and then faculty and students of all the teachers training institutes were invited to add questions to this question bank.



As D.Ed. curriculum is the subject of the Board of Secondary Education, the board was initially not ready to adopt, accept and implement the new D.Ed. syllabus. Ultimately, the government issued an order and the course was introduced. The Board remains the examining authority. During our exercise on implementing the new D.Ed. syllabus we realized that any pre-service teacher preparation programme should have at least five major and equally important components: 1) Theoretical part which is undeniably useful and required 2) School internship, 3) Availability of sufficient reading material, 4) Reflective evaluation system and 5) Continuous capacity development of teacher educators. Each of these five components requires equal focus and attention for the curriculum to be effective.

The implementation of the course required sharing of the basis and the principles of the course with the faculty who were to teach the course in the above 5 components. In order to make that possible content-based orientation for faculty members was also carried out in many phases. These included discussions on the nature of the course, the changes from the previous course and the concepts included. The transaction was discussion based giving an

illustration of the expectation from their classrooms as well. The materials were also reviewed in this process and changes incorporated.

The B.Ed. reform process

In the light of this effort a similar effort was undertaken to reform the B Ed program. In December 2013, faculty from different universities were brought together to discuss how to develop a revised curriculum and if considered useful by the group think of a two year program. In order to do this and to focus on improving teacher education courses in the state, a state level resource group was envisaged. Accordingly, persons for such a state level resource group were identified, consisting of members from SCERT, university departments and other Teacher Education institutions of the state and national-level resource persons. A preliminary workshop on larger issues in teacher education and contextualising it to the needs of the state was held.

The workshop succeeded in articulating the concerns of teacher educators regarding present scenario of teacher education in the state and also identified key academic issues for reform. But, further progress on this front was held back due to the fact that NCTE was in the process of reformulating the Norms and Standards for all teacher education courses in view of the order of the Hon. Supreme Court of India and recommendations of Justice Verma Commission. NCTE notified new regulation in November 2014. SCERT held consultations with the six universities of the state to understand the progress on two year B.Ed. course and if possible to coordinate the development of revised B Ed courses. It seemed that universities were also not well prepared to introduce two year B Ed/M Ed course. Pt Ravishankar university, Bilaspur University, Bastar University, Sarguja University, Dr. C.V.Raman University and MATS University agreed to work jointly with SCERT.

Initially, a workshop was organized in SCERT to understand the recommendations of NCFTE in curricular areas. The workshop included the persons who were engaged in drafting model curriculum for two year B.Ed. course for NCTE



Voices of Teachers and Teacher Educators

and all heads of academic council of universities and SCERT faculty. Most of university representatives wanted to convert the one-year course in to two years. There were concerns about radical changes, lack of orientation of the faculty, lack of appropriate books for a new program etc.

The final steps in syllabus development

Keeping in mind all this, a balanced course structure for the two year B. Ed. course aligned to the principles of the NCFTE 2010 was worked out. A long workshop was held to develop a final usable draft of the course. For this purpose, we made an effort to understand the objectives of the new courses proposed, prepared a syllabus outline of each subject (paper), and developed an initial reading list for each of the subjects. Perspectives relating to the subject areas were presented and discussed. Three large groups on Foundations of Education, Subject and Pedagogy and Language were formed

The group working on this exercise consisted of many academicians engaged in teacher education from various state universities, SCERT and national resource persons drawn from Delhi University, RIE (Bhopal) Azim Premji University, Eklavya, and Vidya Bhawan Society. The participants heard talks, read, discussed ideas and formulated outline of the courses and presented before the large group. Identified key persons took the responsibility to incorporate the suggestions and address the concerns expressed by the participants.

Finally, a short workshop was held to finalize things and a two year course was designed to meet the aspiration of NCFTE. The syllabus was sent to all universities through the Govt. of Chhattisgarh, Deptt of School Education.

Out of the six universities, two accepted the syllabus with minor changes and organized sharing workshops with their affiliated colleges. Two did not respond over the syllabus. Pt Ravishankar University, the biggest of them, eventually prepared a syllabus that was a mixture of papers from a variety of sources. They adapted only three papers (out of 12) from the SCERT co-ordinated syllabus. Pedagogy papers were taken from NCERT proposed 2008 syllabus and the

remaining papers were picked up from their old syllabus.

Post-development

After development of two year B.Ed. syllabus and making it available for all universities, SCERT engaged in identifying study material with the collaboration of Ekalavy, Vidya Bhawan and Azim Premji University. We made the study material available on SCERT website in the first week of October, 2015. Meanwhile we also developed 4 week school experience programme for B Ed 1st year and sent it to all universities. It is available on *SCERT website*. The effort at preparing the syllabus and collating possible suitable materials was not used as widely and with as much enthusiasm as we had expected. The reason for this were the constraints and limitations universities faced regarding capacity of faculty, inability to adapt and make widely available materials and notes on and there sense of the possible reaction of the colleges and their teachers to the new syllabus. They were also daunted by the nature of effort required to implement a new course successfully.

The major challenges we are facing regarding pre-service teacher education are

- Capacity development of teacher educators - it is the responsibility of universities but no government university in Chhattisgarh has regular education department. They would find it difficult to undertake this responsibility?
- In Chhattisgarh, there are 131 B Ed and 33 D Ed private colleges. It is difficult to visualise how their extended and deeper school internship programme will be managed. These colleges are also concentrated in urban and semi-urban regions. There are insufficient number of private schools and govt schools and besides there is no coordination between university and department of school education?
- No university has made any significant change to their evaluation scheme. This means that the rote based examination will continue to exist, defeating the very purpose of the curriculum revision.

- The Universities do not have any mechanism to monitor academic activities of the TTIs. The SCERT also cannot make any contribution to ensure quality in pre-service teacher education as it does not have any statutory role and also has inadequate staff.

D.Ed, B.Ed and M.Ed courses lead to preparation of teachers and teacher educators. The school education department is the single largest employer of the teachers and teacher educators. The quality of these courses leads to the quality of teachers which ultimately affects the quality of school education. At present, in most of the states SCERT is the only responsible institute for in-service training of the teachers. If we wish to see the preparation and development of teacher as a continuous process then, there is a need to ensure the involvement of SCERT in pre-service teacher education as well. There is also a need to regularize non administrative academic role or advisory role of SCERT along with universities and NCTE.

I think the SCERT now has the experience and a resource pool that is competent to review the curriculum, syllabus and study material for the D Ed, B Ed and M Ed courses and give suggestions on conducting of evaluation. It can also facilitate better coordination between school education system and the university system, leading to proper conduct of internship programme and make it effective and implementable. We can also do research on in-service and pre-service teacher requirement, monitor and formulate policies and conduct regular capacity building of the teacher trainers.

Despite good challenges and concerns the one big achievement that SCERT derived from this entire exercise was the confidence that SCERT can work with and provide a forum for the universities to come together and collaborate. The experience of working with universities and academic NGOs and establishing a partnership with them has been useful and enriching. Now, what is required is a continuous discussion on curriculum, its implementation and assessment to maintain quality.

Using GeoGebra as a tool for better understanding of geometrical shapes and concepts

Context

Chhattisgarh, located in central India is the tenth largest state in India with a population of 25.54 million people. The northern and southern parts of the state are hilly, while the central part is a fertile plain. At the time of writing this article, Chhattisgarh had 16 DIETs, 2 BTIs (Basic Training Institutes), 1 CTE (College of Teacher Education), and 1 IASE (Institute of Advanced Studies in Education).

Surveys conducted by various institutes such as National Achievement Survey, State Achievement survey, Pratham, show that the understanding of mathematics in Chhattisgarh school children is very poor. Traditionally mathematics is considered as a difficult subject both by the teachers and students and geometry is no exception.

Geometry and ICT

“Geometry is the beginning of Mathematics for the young child since geometry is none other than the study of spatial relationships. It is the means of viewing a situation mathematically to provide one or more ways of gaining understanding. Almost every object has some geometric property, and stimulated by his experiences, a young child has an innate curiosity about geometry. Shapes, size and position are entities for him to explore, manipulate and control, and the means whereby he organizes his environment, so that geometry becomes the natural way for developing intuition, creativity, enquiry, and the ability to solve problems.” Earnest Choat

Teaching of geometry can be made easier and more interesting using technology. Hundreds of figures may be drawn in minutes whereas drawing by hand may be very difficult and time consuming. A teacher who is conversant with using ICT might find it possible to develop better pedagogy for teaching Geometry

even in pen pencil method. In any case, given current developments in the world, it is imperative that teachers become conversant and comfortable with using ICT.

Capacity building in the use of ICT for teacher-educators is required. A separate provision has been made in the revised CSS for setting up of computer labs and purchase of equipment (CSS Guidelines 2012, Page 54).

It has been proposed in recent policies that technology in Teacher Education should be actively integrated in all teacher education institutions (TEIs). Satellite transmission communication, content development, MIS, interactive and self-paced learning should be the focus areas for bridging the divide digitally (Teacher Education Planning Handbook, 2014-2015, Page 4). It is suggested that the TEIs should have Resource Centre/ Teacher Learning Center and Material Development.

“Use of resource center and educational technologies needs to be integrated within the curriculum at all levels. Instead of providing a separate course on teaching applications for editing texts or spreadsheets, students could be exposed to pedagogical applications like Geo-Gebra (Mathematics) and Marble (Geography). Appropriate training needs to be provided to the faculty in use of such applications before they can be integrated into the curriculum. DIETs can contribute to building a cadre of teachers with computer competence through organizing regular workshops on Educational Technology”. (Centrally Sponsored Scheme of Teacher Education, 2012 page 36).

What can be done?

In this article, I want to address an important area of mathematics i.e. Geometry at Upper

Primary Level. Specifically, I wish to examine the use of GeoGebra (an open resource software) with the DIET teacher trainee students to clarify their concepts and develop better pedagogy to teach geometry at elementary level. This will help them to visualize geometry shapes with little effort using technology. It will increase their knowledge of geometry and pedagogy of geometry to apply to their teaching in elementary schools.

GeoGebra is an interactive geometry, algebra, statistics and calculus application, intended for learning and teaching mathematics and science from primary school to university level. GeoGebra is available on multiple platforms with its desktop applications for Windows, Mac OS and Linux, with its tablet apps for Android, iPad and Windows, and with its web application based on HTML5 technology. Open-source developers and translators all over the world were part of developing this software. It makes math tangible but it doesn't replace teachers.

All 16 DIETs in Chhattisgarh are located in District Headquarters. Selection process of pre-service teachers is on the basis of an entrance test examination. In the selection process 80% seats are for Chhattisgarh native students and 20% seats are for all India students. This creates a rich diversity among the students. All teacher education institutes have good internet connectivity. Good internet connectivity through internet café is also available throughout the state. Pre-service teachers can use these facilities for reading study materials and updating their knowledge. Use of android cell phones with data connectivity is also very common among pre-service students and I plan to utilize this as well. All of my work will be disseminated for other students and teachers using SCERT website.

Objectives of my work are as follows:

- i. To develop study material for systematic approach to teach GeoGebra based on our class 8th (Grade-8) textbook.
- ii. To develop user manual for using GeoGebra based on our class 8th (Grade-8) textbook.
- iii. To conduct ICT training for GeoGebra on developed user manual for 03 DIETs, 02 Private D.Ed. Colleges.

- iv. Pre-Service students will be asked to develop their lesson plan using GeoGebra.
- v. To enhance the visualization and understanding of Geometry shapes among pre-service students.

Educational Reform

In my reform proposal, I along with my State Resource Group, will develop study material for geometry taught at Grade-8 in our state. For this, workshops will be conducted at state level. After developing the study material with the help of our IT team at SCERT it will be converted to Geogebra open source software. In between training on Geogebra will be conducted for 03 DIET and 02 Private D.Ed. College. The study on pedagogy used to teach geometry by previous year pre-service students will be done. Pre-test on the content knowledge and visualization of geometric images will be done on pre-service students.

Trainings on Geogebra will be done at the DIET and in private D.Ed. Colleges. After training on Geogebra, post-test of pre-service students will be conducted. In the post-test content knowledge and visualization of geometric images will be tested. Revised lesson plan will be designed after discussion with pre-service students. We will design the better pedagogy to teach mathematics. Pre-service students will use revised lesson plan based on their understanding and visualization.

NCF 2005 talks about ICT and its potential in great detail but also cautions:

“While several countries have implemented CS and/or IT curricula in schools, we need to be aware of the challenges that Indian school students face. The first of these is the paucity of technology resources for computer science. It is absurd to teach computer science (let alone computer usage) without access to computing resources. Providing computer access and connectivity for all children is a tremendous technological and economic challenge. However, given the pervasive impact of computer technologies, we need to address this infrastructure challenge seriously and explore viable and innovative alternatives with regard to hardware, software and connectivity technologies appropriate for rural and urban Indian schools.”

Voices of Teachers and Teacher Educators

We also need to address the issue of the development of a comprehensive and coherent curriculum model in computer science and IT, which can serve as the basis for the beginning of a discussion between educators, administrators, and the general public. Certain core elements are common to several CS and IT curricula, and are applicable to Indian schools as well. These include the concepts of iterative processes and algorithms, general problem-solving strategies arising from computing, possibilities of computer usage, the place occupied by computers in the modern world, and the societal issues that arise thereby". (NCF 2005 Page 45-46)

As per Govt. of India Guideline digital resource repositories will be made available with contextual comment. *"Existing digital resource repositories from governments and NGOs including audio resources (EDC), video resources, animation movies etc. should be made widely accessible. It is important to make the resources available in district repositories linked to state repository. Student-teachers also need to learn how to access the World Wide Web for resources, including principles governing quality, authenticity of resources, rules of fair use etc."*

(CSS Guideline page 81.)

Potential Barriers

Before implementing my proposal, I have identified some possible roadblocks and possible solutions:

- Will the Educational Institute respond for the implementation of Geogebra Software?: It will require educating the educational institute so that they will feel that it is useful for students to work on this and it will enhance the result.
- Student may be reluctant to respond the reform project: Students will be educated by their teacher educator about the importance and usefulness of the GeoGebra software. We will provide them hands on using GeoGebra software. It will be explained that they will enhance their quality of work and will increase if the GeoGebra is used.
- Technology expertise and availability of technology access may be a concern: The cost of using technology at cyber café in

Chhattisgarh is relatively cheap. If student teachers are properly motivated then personal and institutional access can be provided.

Key Partners

The proposal cannot be implemented by one person sitting in the SCERT and requires cooperation between several partners including:

- i. Diploma in Education (Distance Learning Mode) state level mathematics team at SCERT C.G.
- ii. 03 DIET, 02 Private D.Ed. Colleges, Mathematics Faculty Members, Pre-Service students and administrators.
- iii. State Resource Group (Mathematics). The state Resource Group will provide guidance for developing study material.
For further extending the reform project after one year, we expect the District Resource Group to co-ordinate along with:
- iv. Mathematics excellence center established by ICICIFIG (ICICI Foundation for Inclusive Growth) at DIET Ambikapur.

Colleges will participate in the first phase where the faculty members will assist in content generation. The cooperation of the administrators of the respective institutes is vital. The team of mathematics teachers of Diploma in Education (Open Distance Learning Mode) will also help.

To assess the effectiveness of my reform proposal I will primarily rely on reports of the pre-test and post-test of pre service students. The possibility of online pre-test and post-test may also be considered. The student teachers of 03 DIETs, and 02 private D.Ed. will be involved. There are 100 students per DIET, 50 students each in private D.Ed. colleges. As this is an innovative style of project to be implemented in Chhattisgarh, the instrument has to be designed after the consultation of student teachers and faculty members so that a realistic instrument can be designed. Reports related to content enhancement and pedagogic development will be analyzed. The effectiveness of study material developed and user manual developed will be analyzed. Based

on the feedback of student teachers and faculty members it will be modified to improve its quality. After success in first year it will be applied to all DIETs and private D.Ed. Colleges.

The evaluation of my reform project will be done in following ways:

- i. Developed study material will be evaluated by State Resource Group.
- ii. Developed user manual for using GeoGebra will be evaluated by IT team Members of SCERT, DIET and ICICIIFIG.
- iii. Interviews of pre-service students and teacher educators will be done after ICT training.
- iv. Interview of lesson plan supervisor will be conducted for the comparison of the lesson plan prepared last year and after the GeoGebra is introduced.

Conclusion

As described in the article, during my three month program in Arizona State University, I prepared a reform proposal for working on conceptual clarity of geometrical topics among D.Ed. students using geogebra software. The reform proposal has been submitted in our department. They have scrutinized the reform proposal and suggested some changes. The suggestions were made by the Secretary, School Education, Government of Chhattisgarh who felt some schools should be included.

The state resource group members have been identified. The 10 member SRG was formed in June, 2015 and included faculty from the SCERT, subject experts from IFIG Raipur as well as teachers and lecturers from government schools. It was felt that the Geogebra software must be promoted primarily in the RMSA schools where ICT@School program is running and 10 computers per school are available. It is decided that the SRG group will meet once every three month and will be in contact using whatsapp group and e-mail. Study materials are being developed by individuals and will be collated. Initially we were following the basic Geogebra Manual and 63 Videos available on Geogebra Tube/ You Tube Chanel based on the basic Geogebra Manual. Videos were downloaded and

distributed to SRG. Translation of this manual in Hindi and mapping of topics with our text books is in progress.

I have identified 04 schools including Teacher Training Institutes. The development of user manual and some study material on GeoGebra is ongoing but progress is slow. I visited three schools and have installed Geogebra, discussed with teachers and shared 63 Videos (930MB, MP3 Format). The best part of the video is that it can be played directly through USB Drive available in schools T.V. Set. I also installed PhET Simulation for Maths, Physics, Bio and Chemistry.

During the school visits and on inspecting the computer rooms and in discussions with the students I found that the computer lab is used for teaching word, excel and powerpoint. This leaves both the students and teachers dissatisfied as they realize the potential of computers but are ill-equipped to utilize them. They requested simulation softwares, teaching material and material related to their textbooks which could be used in off-line mode. This is because the internet is not available everywhere and the speed is very slow even where it is available.

The main challenges are time given to school by me. Schools are open at 10:30 am and closes at 4:30 pm. Beyond the school hours it is very difficult to work with them. From SCERT, frequently visiting school is also very difficult because of the work load. School principals think that it is an additional ICT activity so they are reluctant to provide their own subject period for GeoGebra. They think that it is a computer class and must be conducted beyond their subject periods. I think it is subject matter and should be taught with their text book. To overcome this problem, I am planning to map it with text book, translate in Hindi and implement in all schools of ICT@School. While there are many challenges, I hope to successfully implement my project.

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Voices of Teachers and Teacher Educators

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Santosh Kumar Tamboli

Management of distribution of course content, assignments and project for pre-service students using Moodle open source

Abstract

I was part of the teacher educators selected from Chhattisgarh to attend a three-month long course in Arizona State University. During my work there, I developed a proposal related to my work in Chhattisgarh. The details of the proposed project and the work done are described in the article.

Introduction

Once RTE 2009 came into effect, it became incumbent upon various states to train its in-service teachers in order to fulfil its conditions. Chhattisgarh was one of the states with a large number of untrained teachers. The state devised a diploma in teacher education program in the distance mode in order to train their teachers without withdrawing them from the schools. One component of the diploma program was to design and distribute regular assignments to the participants of the open and distance learning program. The purpose of my educational reform project was to standardize the distribution of assignment and project by faculty members of D.Ed. and B.Ed. colleges. This reform project will create a database of assignments and projects for the continuous enhancement of the quality of assignment and project done by the pre-service students. This project will also keep record of all the assignments and projects submitted by the students online.

Initially it was decided that the project would be piloted in 03 DIETs, 01 CTE, 01 IASE, 03 Private D.Ed. Colleges and 03 Private B.Ed. Colleges. If the proposal is successful, we propose to drop the traditional method of project distribution and replace it by the online method.

The indirect benefit of the project would be familiarize the in-service teachers to ICT activities for learning and professional development.

Rationale

There is a need for an integrated monitoring system for different Teacher Education Institutions as stated in Teacher Education Planning Handbook 2014-2015 of Centrally Sponsored Scheme of Teacher Education, 2012 which says:

Technology in Teacher Education is to be actively integrated in all TE institutions. Satellite transmission communication, content development, MIS, interactive and self-paced learning should be the focus areas for bridging the divide digitally (Teacher Education Planning Handbook, 2014-2015 Page 4).

It also advocates setting up a resource centre in all TEIs. My reform proposal will partly fulfill the resource center requirement. Use of resource center and educational technologies needs to be integrated within the curriculum. Instead of providing a separate course on teaching applications for editing texts or spreadsheets, students could be exposed to pedagogical applications like Geo-Gebra (Mathematics) and Marble (Geography). Such applications are not proprietary, being maintained by a community of like-minded professionals (open source) and require no additional funding. Also, student teachers could be encouraged to prepare documents digitally which could be used for formative and summative assessments.

Basic knowledge of Internet and web based tools and resources including of cybersecurity – avoiding dangers and risks as well as basic website and web tools use (for creating and

Voices of Teachers and Teacher Educators

maintaining institutional resource portals etc.) is required for teacher educators. This is especially required as they are expected to use the Moodle software.

Moodle is a public software, the course has freely customized it for its own specific requirements. Similar programs need to be offered by DIETs to teachers which can allow learners to learn at their own pace (relatively) and also reach a larger number of teachers than is possible through purely physical interactions (CSS Guidelines 2012, Page 80).

It is very difficult to track the record of assignments and projects of students in order to assess the quality of students work. Using traditional method (Hard Copy) is very difficult to manage but if we use ICT it will be easier to manage the system. As ICT facility is available everywhere in the state, and from our previous experience of online Registration of Diploma in Education (Open Distance Learning Mode) where 40000 elementary teachers were registered, internet is now widely used.

Objectives

- i. To standardize the system of course content, assignment and project distribution among pre-service students.
- ii. To create a database of pre-service students and faculty members.
- iii. To monitor the academic activities of teacher training institutes, this will make them responsible and accountable towards regular assignment distribution and grading them.
- iv. To create a database of assignments and projects of pre-service curriculum.
- v. To enhance the academic quality of pre-service students.
- vi. To make available widely accessible digital resource repositories from government and NGOs with local contextual comments.
- vii. Piloting use of Moodle system for In-service training course dissemination.

Educational Reform

"The tremendous effectiveness of the computer and computing technology in shaping modern society has

created the need for an educated public that can utilize such technology most effectively for the betterment of society and humankind. There is, therefore, a growing realization of the need to have a place for these domains of knowledge in the school curriculum.

A distinction must be made between the Information Technology (IT) curriculum, which involves the use and application of tools of the information and computer age, and the Computer Science (CS) curriculum, which is concerned with how these tools are designed and deployed. Both of these have their place in school education." (NCF 2005 Page 45-46)

The reform proposal consists of implementing a Learning Management System using Moodle.

Moodle is a learning platform designed to provide educators, administrators and learners with a single robust, secure and integrated system to create personalized learning environments. It is a highly flexible, free software, open source learning platform. With comprehensive, customizable and secure learning management features, it can be used to create a private website for dynamic online courses.

All cognitive functions originate in and must be explained as products of social interactions. Learning is not simply the assimilation and accommodation of new knowledge by learners; it is the process by which learners are integrated into a knowledge community. (Vygotsky, 1997)

Moodle was originally developed by Martin Dougiamas to help educators create online courses with a focus on interaction and collaborative construction of content, and is in continual evolution. Features provided by Moodle are avenues for social interaction, a participant's page with space for profile picture, a central location wherein formation about all participants can be seen, providing a way to see everyone in the course who is logged in and therefore might be available for synchronous communication. There are communication tools as well such as emails notifications, blogs, instant messaging, etc. lastly, there are course delivery tools to which instructors have access. Instructors can change permissions for individual students or groups of students for single activity or for the whole course. It allows spontaneous formation of groups and assignment of a student as the group leader with instructor-like permissions for just a particular section of a course.

Implementation of plan

My reform will create website “reformcg.reformindia.net”. In this website Moodle (Learning Management System) will be installed by me. Registration of pre-service students and faculty on Moodle website will be done using the data available with SCERT during counselling (Online admission process).

All the assignments and projects given to pre-service students in 2013-14 and 2014-15 session and list of references of textbooks/reference books will be collected from teacher training institutes. These assignments, projects, list of reference materials and textbooks will be discussed with State Resource Group (subject wise) in 3 workshop for the finalization and to be disseminated through Moodle. Common assignments/projects will be distributed at state level rest will be left on the teachers at respective teacher training institutes.

As per Govt. of India Guideline student-teachers need to integrate ICTs into their subject teaching-learning, using varied digital methods to create learning resources, using public educational software applications, such as

- (i) Maths – Geogebra, Bruch, K Turtle, carMetal
- (ii) Languages - SCIM (multi-language typing), K Hangman etc. (language), K Anagram, K Letters
- (iii) Science - K Stars, Stellarium etc. (astronomy), Kalzium, STEP, PHET etc.
- (iv) Social Science - Marble (geography), K Geography, OpenMaps
- (v) Other subjects - Freemind (creative thinking) for creating concept maps
- (vi) Web tools like wiki, blogs
- (vii) Digital tools like video camera and video/photo/audio software applications including record mydesktop, Kdenlive, Audacity etc. as well as CBTs such as spokentutorials (www.Spoken-Tutorial.org)” (CSS Guideline page 81.)

A meeting with pre-service students, faculty members and administrators of teacher training institutes will be conducted for the implementation of this project where they will be

briefed about the benefit of the project, their role in project. They will be explained how academic achievement may be enhanced using this project. Their concerns about the project will be addressed.

Appropriate training needs to be provided to the faculty in use of such applications before they can be integrated into the curriculum. DIETs can contribute to building cadre of teachers with computer competence through organizing regular workshops on Educational Technology. Information and Communications Technology including TV, radio, telephony and internet are useful resources that provide access to ideas and enable wider dissemination of information. Distance media can effectively be used to keep teachers connected with professionals in academic and applied disciplines. Rather than being the work of an education technology wing, technology needs to become an integral part of the knowledge and practice of all teacher educators.

The different stakeholders such as the educational institutes, students will need to be oriented towards the project. The cost of technology and website hosting expenses are low and can easily be borne by the institute personal level for the success of the project.

The key partners in my reform proposal includes the SCERT, a state resource group and district resource groups. Subject wise excellence centers have been established by ICICIFIG (ICICI Foundation for Inclusive Growth) in different DIETs and can be tapped.

- i. For first year, to implement the reform project a budget of Rs. 50000 is required and the expenditure can be done from B.Ed. Fund available at SCERT C.G.
- ii. After first year, to roll out the reform project for 16 DIETs, 02 BTI, 29 Private D.Ed. Colleges and 130 B.Ed. colleges (Total of 16000 Pre-Service students) one full time programmer, one assistant programmer and 02 Data Entry operators will be required. The technical persons will be hired through central government agency NICSI. The expenses for the Man power will be as per

Voices of Teachers and Teacher Educators

the NICS norms. Approximate cost per year would be Rs. 9.00Lakhs. Per Student cost will be Rs. 56.25. The expenses of Rs. 9.00Lakhs can be done from the balance amount collected from pre-service students for counselling (Admission Process). There will be no financial burden to state government or central government.

The project initially will be implemented in 3 DIETs and similar number of private TEIs. We will try to involve the faculty members in content generation. Roughly 500 students will be part of this phase.

Conclusion

As mentioned earlier, for the implementation of my project I will register a domain name "reformindia.net". Under this domain I will create a website "reformcg.reformindia.net". For admission to Diploma in Education and Bachelor in Education candidates have to appear in entrance test examination conducted by Professional Examination Board of Chhattisgarh. The admission to college are done based on the ranks achieved by the candidates and preference they opt for colleges. The above admission data is available with SCERT. I will use the admission data to create login Id/ Password for the student teachers. Orientation of student teacher and faculty members will be done so that they can understand the Moodle software and reform proposal. I will consult the faculty members for the assignment and projects distribution to the candidates so that it can be distributed through Moodle and responses of student teacher can be uploaded by the student teachers. The sample course on mathematics is developed with the help of State Resource Persons is completed and available at <http://moodleskt.reformindia.net/> with sample username – **director** and password **director**

To communicate to the student teachers I will use SMS (Text Messages) facility provided by the National Informatics Center, Government of India. Using SMS (Text Messages) I will give instructions, ideas, guidelines to the student teachers. Data analysis will be done on the

responses received in the website. There are various reports available with Moodle software. All related reports will be analyzed in consultation with student teachers, faculty members and administrators. After first year before rolling out to all teacher training institutions extensive discussions, workshop will be organized.

Various forums are available in internet but there is a need for the contextualized forum for the teacher educators of Chhattisgarh; my reform proposal is an effort in this direction to create a contextualized forum for the teacher educators of Chhattisgarh using Moodle.

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Mahendra Kumar Mishra & Neelam Shukla

**Report on
National Seminar on Language Education**

February 21 - 23, 2014

Backdrop

21st February is celebrated across the world as “Mother Language Day”. On the eve of International Mother Language Day, a three-day long National Seminar on “Language and Education” was organized by SCERT, Raipur in collaboration with ICICI Foundation for Inclusive Growth (IFIG), Raipur. The objectives of the National Seminar were to:

- Understand the language in education from the perspective of NCF-2005, RtE-2009, and the position paper on language education.
- Examine theoretical perspectives on multilingualism and multilinguality with a focus on education.
- Learn from the experiences of the various states on policy and implementation of language in education.
- Consultations with National organisations/ Universities/ Linguists / Educationists on theory and practice in language education.
- Prepare a road map for language education in primary stage in Chhattisgarh.

The seminar addressed these issues by posing the following questions:

1. How multilinguality is a reality and how our schools are unable to ensure the linguistic rights of the children?
2. How language of the text book is teacher-centric and unable to represent the meaning of the texts in a language that is not understood by the children.
3. How education can be imparted – as far as practicable to those children who are linguistic minority, and equally be able to maintain equal competencies in many

languages like Hindi and English based on their mother tongue.

Introduction

The tone of the seminar was set by Dr. Mahendra Misra who gave introductory remarks on the various technical sessions and programmes of the seminar. He emphasized the importance of knowledge of the local language which is not only a medium of communication but, an important subject to learn and mediate in the essential subjects such as mathematics and science.

He told that there are some differences between children’s experiential language in relation to book language of the school, differences between the language of thought and language of speech. Achievement of children depends on comprehension and comprehension is possible when the children learn through their own language in initial years and achieve second language along with their first language.

Shri Anil Rai, Director, SCERT, Chhattisgarh elaborated and concretized these remarks in the context of the state. He said that enrolment of children as per the gender ratio and SC/ST population in the state is achieved as a part of universal access followed by retention. But the quality aspect of schooling is still a big challenge. Referring the Achievement Survey of Chhattisgarh, he lamented on poor performance of class III to VIII students in the state where only 22% students have achieved required language skill. He emphasized the multilingual nature of the society and monolingual situation of teaching that impedes learning of the children. He categorised the regional language of Chhattisgarh; Chhattisgarhi, Sargujiya, Kuduk, Gondi (Kanker and Baster region), and Halbi. He

stressed on quality education as people are aware of RTE Act and posed two questions:

- How language is useful in Chhattisgarh textbook designing and in improvement of education standard?
- How to make multilingual textbook in the diverse context to Chhattisgarh state?

Dr. K.K. Chakraborty, Chairman, Lalit Kala Academy, New Delhi stressed following local protocol instead of global protocol and expressed that all western knowledge is not scientific. He gave some factual data of Chhattisgarh state but lamented that there are no historic articles, evidences, and records in local and regional language. He emphasized that with the help of micro and minor projects, practical workshops should be organised. He stressed focus on regional language policy and to be aware that it should not be for 'museumization' but to maintain the cultural tradition from the past and to perpetuate the best of it in the modern times.

Padmashree Prof. D.P. Pattanayak, Founder and Former Director, Central Institute of Indian Languages, Mysore defined the scope and nature of multilinguality and its implication in education. He said that many people are still not clear about multilingualism but there is a great need to understand it. He explained the history of acceptance of multilingualism in India and narrated that purpose of education system is to bind the family, society, country together. He emphasized understanding the nature and forms of multilingualism.

Proceedings

Prof. Rajesh Sachdeva briefly explained the importance of multilingualism in different states of the country. He also demonstrated the meaning and purpose of Right to Education (RTE). He explained a famous statement of Robert Cooper - "To plan language is to plan society", and categorised language as a problematic issue. He described the word DIVERSITY in terms of language in detail, and said that there is no point where a man is without language. He put forward some data of census of India and said that the enumeration is erroneous as it ignores the

language whose speakers number less than 10000 and derecognises their ethnic and linguistic identities.

He said that language planning has three main areas:

1. Planning for the state
2. Corpus planning
3. Acquisitioned planning

He admired that the state of Nagaland has done major work for multilingual education, particularly the tribal languages.

As per the "Linguistic Interdependence Theory" the child should learn in his first language or mother tongue. Most of the deliberations in the seminar were on the importance of the mother language. Language is instrumental as medium of instructions carrying knowledge and meanings in all the subjects. The involvement of child's own language in learning and teaching is very much essential for basic educational development or else it is sure that the learning will be blocked and a huge human potential is damaged.

Prof Minati Panda stated that most of the people know more than two languages. While learning many language, brain works as a magical machine. In our brain there is linguistic structure not just a language (either Oriya, Telugu, Bengali or any). Brain is capable of decoding language of multiple structures. She also explains the Gills theory for comparative graph between evolution of brain and culture, in which graph of culture is fast because of neurological inputs. She highlighted the Multi lingual education (MLE) programme of Odisha state. Prof. Minati explained the "Linguistic interdependence theory" and emphasized that child should be explained any subject in his first language or mother tongue.

She also posed some questions:

- Why is MLE so material centric?
- Why we are not focusing on how any language is learned?

From here she also moved on the kind of models that have been developed in different parts of the

Voices of Teachers and Teacher Educators

country where she discussed Andhra and Orissa model and commented that these are mostly integrative approaches whereas we need an inclusive approach. She also shared her experience of working in Orissa and writing two books named EraiErai.

The next session focused on MLE in Chhattisgarh. Many teachers from different regions of the state also shared their experiences. NCF 2005 ensures that every child has the right to education in her mother tongue. These learning rights can be possible when multilingual education is adopted in state curriculum and text book production. In reference to developing a multilingual child in Hindi along with other language i.e. mother tongue. in Chhattisgarh state, it has been noticed that no historic articles, evidences, and record of scientific knowledge is available in local and regional languages.

The importance of multilingualism has also been discussed in the context of Chhattishgarh. The state can be divided in to three linguistic zones, Central Chhattishgarh which stretches out from Raipur, Bilaspur, Durg, Rajnandgaon, and Kawardha. The Northern Chhattishgarh is consists of Surguja, Jashpur, Korea, Korba and Raigarh. The Oram and Korba tribes are dominant in Northern Chhattishgarh. Southern Chhattishgarh is known as Bastar region which consists of linguistic diversities with Gondi, Halbi, Bhatri, Maraththi, Kolami, Dhurua, and Abujhmaria. The multilingualism in Chhattishgarh is a strength which should not be treated as problem. The house criticized western countries for using the unique quaint terms, seems to be typical for general people. We also follow and opted words from Sanskrit language, and always marginalize the common languages used by the people.

In Chhattisgarh the disappearance of many local languages is a major impediment to the development of the language due to declined numbers of language speakers due to dominance of state language and external influences. The state has accommodated 25% text materials in the state curriculum and text books in six regional languages. Within the state it is difficult to learn

all regional languages which are spoken by linguistic minority people in a limited area. In this direction creative writing may support to conserve the language diversity which is at the verge of extinction. The Gondi, Halbi, Dhurva and many other regional languages should be included in textbook.

The second day started with the technical session titles "Language across the curriculum". There were specific presentation on language related issues faced in different subjects. For example, in maths:

1. Vocabulary: Very technical words are used in the textbooks like, parallelogram, multiplication. Also same words might have many different meanings in our daily conversation but in mathematics each word has specific meaning which needs to be understood by the child.
2. Syntax related issues
3. Abstract and Natural Language.
4. Miscue and word problems: The way language is used in the mathematics, it can give some miscues to the child because of which child can make a mistake.

The session emphasized that it is necessary to learn how the curriculum and text books are designed based on children's learning need. Some states have taken steps on it and this should be explored by the new state where there is an opportunity of teaching the children in their mother tongue is essential. It is necessary to learn from others experiences. Therefore, some micro and minor projects should be organized in length to learn from other states.

As expected, a substantial discussion was taken up in the seminar addressing the multidimensional approaches of language education. The focal theme of the seminar was to discuss on language of science and language of mathematics in the context of children's learning abilities and teachers teaching difficulties. It was found that , the subjects like Science and Maths may be made simple and compatible to the children's language of comprehension or else the learning will be blocked.

Voices of Teachers and Teacher Educators

Recommendation of the Seminar to State Government

1. Report preparation on linguistic survey: This was already done in 2008 by SSA but not in a report form; only raw data were made available;
2. Reform of curriculum, based on children language, knowledge and reform text book in the context of Kurukh, Gondi Halvi, Baiga, Korba and Abujh Maria and Dhurua;
3. Strengthening of TEG (Teacher Educator Group)
4. Policy documents on language in Chhattisgarh to be developed
5. 2-3 conceptual seminars to be organised on language in different cities.
6. Research and language education to be promoted.
7. Convergence with Women and Child Development and Tribal Welfare Department on using MT in early childhood and education.
8. Lastly, in reference to Kothari commission it has been recommended that each child should be given essentially mathematics and science education for ten years in school. We should build our ability to construct new knowledge.



स्वैच्छिक विज्ञान शिक्षक मंच: एक पहल, बेहतर विज्ञान शिक्षण की ओर

अलग अलग नीतियों और अनुसंशाओं ने शिक्षक शिक्षा में ऐसी बातों के समावेश की अनुसंशा की है जो एक अलग प्रकार के शिक्षक शिक्षार्थियों की कल्पना करती हैं। जैसे, वे अधिगम को व्यक्तिगत अनुभवों से अर्थ निकालने की प्रक्रियाँ मानें, ज्ञान को पाठ्यपुस्तक प्रदत्त बाह्य यथार्थ के रूप में ही न देखे वरन उसे शिक्षण – अधिगम के साझा संदर्भों और व्यक्तिगत अनुभवों द्वारा गढ़ा हुआ मानें इत्यादि। इसके लिए जिले के विद्यालयों में बेहतर अध्ययन अध्यापन हेतु किए जा रहे प्रयासों में समय समय पर शिक्षकों की पेशेवर क्षमतावर्धन भी शामिल है। राष्ट्रीय पाठ्यचर्या की रूपरेखा, इस बात को जोरशोर से रखती है कि माध्यमिक शाला स्तर पर विज्ञान का परिचय एक संयुक्त विषय के रूप में दिया जाना चाहिए। इस स्तर पर पढ़ाने के लिए चुनी गयी वैज्ञानिक अवधारणाएँ बच्चों के अनुभव जगत से संबन्धित हो तथा प्रौद्योगिकी के व्यावहारिक ज्ञान को भी तवज्जो देता हो।

सवाल ये उठता है कि हमें विज्ञान सीखने और सिखाने में दिक्कत क्यों आती है? अगर हम गहराई से इसका विश्लेषण करते हैं तो कुछ बुनियादी कारण सामने आते हैं:

1. हम अक्सर यही सोचते हैं कि विज्ञान तथ्यों का भंडार है और अगर इन तथ्यों को किसी तरह से समझ लिया जाए तो विज्ञान सीखने का काम हो जाता है।

इसमें कुछ सच्चाई तो है पर इस सच्चाई के साथ हम बहुत आगे नहीं जा पाते। कारण वही कि हम तथ्यों को समझने के बजाय उन्हें याद

कर डालते हैं और वंचित रह जाते हैं उन तर्कों से रूबरू होने से, जो विज्ञान को सही मायने में रुचिकर बनाते हैं।

2. हम अधिकतर कुछ खास स्रोतों तक अपने आप को सीमित कर देते हैं जो हमें किसी वैज्ञानिक प्रक्रिया के बजाय उन स्रोतों पर निर्भर होना ज्यादा सिखाता है।

विभिन्न स्रोतों मसलन किताबें, व्यक्ति या जगह से प्राप्त जानकारियों को हम ज्ञान का पुलिंदा मानकर चलते हैं और ऐसे स्रोतों को हम आधिकारिक स्रोत के रूप में देखते हैं। यह हमें इतना दृढ़ कर देते हैं कि हम अपने आपको सीखने की प्रक्रिया में शामिल ही नहीं कर पाते और इस तरह हम किसी वैज्ञानिक प्रक्रिया को समझने के बदले उसे याद कर डालते हैं, रट डालते हैं।

3. हम सोचते हैं कि विज्ञान सबके लिए नहीं है और वैज्ञानिक विधियाँ कुछ खास क्षेत्रों में ही सीमित रह जाती हैं।

विज्ञान में जो हम सीखते हैं या पढ़ते हैं कई बार वह किताबों तक ही सीमित रह जाता है। हमारे जीवन के उतार चढ़ाव में उन सीखी हुई बातों या ज्ञान का कहीं उपयोग नहीं दिखता। ऐसे में हम स्वतः ही अपने आपको विज्ञान सीखने की प्रक्रिया से खारिज करते चले जाते हैं और सोचते हैं कि विज्ञान तो केवल चिकित्सा या अभियांत्रिकी पढ़ने के लिए ही है।

ऊपर दिये गए बुनियादी कारणों को ध्यान में रखते हुए और पिछले 4 सालों से शिक्षकों से लगातार

बात करते हुए हमने पाया कि इन कारणों को सबसे पहले गहराई से समझने की जरूरत है। क्या वाकई में विज्ञान शिक्षण यही है, या इसके इतर बहुत कुछ और है?

इस प्रयास में ही अजीम प्रेमजी फ़ाउंडेशन द्वारा शिक्षकों के पेशेवर क्षमतावर्धन की दिशा में लगातार और गहनता के साथ जुड़कर किया जाने वाला प्रमुख प्रयास, विषय आधारित शिक्षक सर्वर्धन कार्यशाला है। इन कार्यशालाओं में संवाद के दौरान शिक्षकों को नवाचार अपनाने के लिए प्रेरित करना, उनके आत्मविश्वास को बढ़ावा देना शामिल है। साथ ही विज्ञान शिक्षण के प्रति उनकी गंभीरता तथा शिक्षण प्रक्रिया में आने वाली चुनौतियों से संबन्धित कई पहलुओं को जानकर या विषय शिक्षण को कैसे विषय के प्रति के अनुरूप बनाया जाए, इस पर गहन चर्चा की आवश्यकता भी महसूस होती है।

इसी कड़ी में हमने शिक्षकों से बात की और पाया कि विज्ञान शिक्षण का एक प्रमुख उद्देश्य हमारे बच्चों को सवाल उठाने, प्रयोग करने और सोचने के नए वैज्ञानिक तरीकों का विकास करने को प्रेरित करना है। उच्च प्राथमिक स्तर की पूरी अवधि में प्रक्रिया कौशलों पर ज्यादा जोर हो ताकि बच्चा खुद के पहलकदमी से, अपने स्तर पर ही कैसे सीखें, यह सीख सकें।

उक्त संदर्भ को ध्यान में रखते हुए और धमतरी की शिक्षक शिक्षा कार्य योजना के अंतर्गत शिक्षकों की क्षमतावर्धन हेतु मांग अनुरूप पहल तय किए गए। इसमें जिले के उच्च प्राथमिक शिक्षकों के लिए विषयवार, अवधारणा आधारित कार्यशालाओं का आयोजन एवं बाद में विद्यालयों तक उसका फॉलोअप “स्वैच्छिक शिक्षक मंच (अवसनदजंतल जमंबीमते वितनउ-टज्)” प्रमुखता में है।

इसी तारतम्य में “वीटीएफ़ एक अवधारणा” को मजबूत करने की कोशिश में जुड़ गए हम सभी—चाहे वो फ़ाउंडेशन के साथी हो या हमारे शिक्षक साथी।

सभी ने मिलकर इस दिशा में कदम बढ़ाने का ठाना, और इसकी शुरुवात हुई फोन द्वारा अकादमिक चर्चा। धीरे धीरे इस चर्चा से ऊर्जा मिलने लगी, जिले के कुछ शिक्षकों के साथ मिलकर न केवल अवधारणा बल्कि कक्षागत प्रक्रिया को मजबूत कैसे बनाए, कक्षा की व्यवस्था कैसे हो कि विज्ञान विषय को उसकी प्रति के अनुसार पढ़ने या पढ़ाने का माकूल माहौल मिल सके आदि पर गहन चर्चा निरंतरता के साथ होती रही। फोन पर बात करते हुए, एक निश्चित अंतराल में बैठक की आवश्यकता भी महसूस की गयी ताकि सभी विज्ञान शिक्षण में किए गए अपने प्रयास, सीख, चुनौतियों आदि का साझा कर सकें, और इस तरह से वीटीएफ़ एक फोरम का उदय हुआ।

इस वीटीएफ़ के लिए प्रारम्भिक तैयारी के साथ “एक शिक्षक” के साथ इस पर चर्चा की गयी। उन्होंने अपने भी फीडबैक को शामिल करते हुए अंततः वीटीएफ़ को संचालित करने की पूरी तैयारी का जिम्मा लिया ताकि वो एक सुविधादाता के तौर पर समुह के साथ काम कर सकें।

पहली मुलाकात

सुविधादाता ने अपनी बातचीत एक सवाल से शुरू की जिसमें उन्होंने उपस्थित शिक्षक समूह से पूछा कि कक्षा में “प्रकाश” पढ़ाते हुए क्या अनुभव हुए हैं, बच्चे किस तरह के सवाल करते हैं, और प्रकाश संबंधी बच्चों के पहले के अनुभव या ज्ञान किस तरह के हैं। ऊपर जिन सवालों का उल्लेख किया है, वो इसी संवाद के हिस्से हैं। बच्चों के उत्तर किस प्रकार के होते हैं इस पर कुछ प्रतिक्रियाएँ इस तरह से आई कि वस्तु को देखने के लिए आँख, लेंस, रोशनी, कैमरा, सूक्ष्मदर्शी, वस्तु की आवश्यकता होती है।

अधिकतर शिक्षकों का ये कहना था कि किसी भी वस्तु को देखने के लिए किसकी आवश्यकता होती है, पूछने पर ज्यादातर बच्चे आँख कहते हैं। इस

स्थिति में एक शिक्षक ने बताया कि वो दूसरा सवाल कक्षा में करते हैं— अगर आँख ही देखने में सहायक है तो क्या बता सकते हो कि दीवार की दूसरी तरफ क्या है? इस तरह बातचीत के माध्यम से रोशनी तक पहुँचते हैं। फिर और भी सवाल आते हैं जैसे रोशनी क्या है, रोशनी कहाँ से आती है, सूरज तो बहुत दूर है फिर उसकी रोशनी कैसे पहुँचती है, सूरज की रोशनी सर्वप्रथम कैसे पहुँचती है, अगर सूरज नहीं होता तो क्या होता आदि।

सवाल करना विज्ञान अध्ययन और शिक्षण का प्रमुख कौशल है क्योंकि जिज्ञासा एवं प्रश्नों की जगह बनाने पर जोर देने से ही वैज्ञानिक ज्ञान निर्माण, ज्ञान के पुष्टीकरण, वैज्ञानिक प्रक्रियाओं एवं विधियों को प्रदर्शित या समझने में मदद मिलती है। सुविधादाता ने प्रकाश का एक गुण “प्रकाश सीधी रेखा में चलता है” को बतौरतथ्य लेते हुए इसे लगभग तीन गतिविधियों के माध्यम से समझने की कोशिश की। गतिविधियों के बारे में विस्तृत वर्णन इस प्रकार है:

मोमबत्ती की लौ और कागज की बनी नली—

इस गतिविधि के लिए समाचार पत्र से कागज की नली बनाई गयी और सामने जल रही मोमबत्ती के लौ को फोकस करने को कहा। जब लौ दिखने लगी तो प्रतिभागियों से पूछा गया कि अगर नली को कुछ इस तरह से मोड़ा जाए कि उसका मुँह बंद न हो वो खुला रहे पर नली मुड़ जाए, क्या तब भी लौ दिखाई देती है? ज्यादा अच्छे से समझने के लिए पाठक चित्र द्वारा समझ सकते हैं।

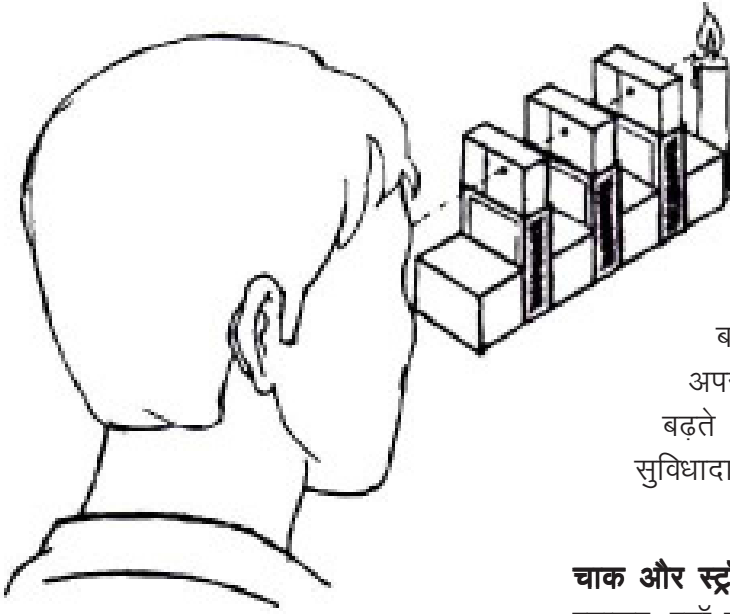
इस दौरान जो चर्चा में खुलकर आए वे बिन्दु थे कि कक्षा शिक्षण की प्रक्रिया में बातचीत द्वारा बच्चों के पूर्वज्ञान के माध्यम से प्रकाश संबंधी उनके विचार, सवाल और जिज्ञासा को जानना। फिर सीधे गतिविधि करना, और इन दोनों के बीच चर्चा। बातचीत में कुछ बातें सामने आईं जैसे गतिविधि के



महत्व को समझाना, गतिविधि करके मूल अवधारणा को समझना या पहले मूल अवधारणा बताकर उस पर आधारित गतिविधि करवाना। पूरे समूह ने ये महसूस किया, कि हमें कोई भी गतिविधि या प्रयोग या कोई मॉडल बनवाने बनाने के पहले एक चर्चा की जरूरत पड़ती है जो अध्ययनकर्ता को अवधारणा के साथ जोड़ पाये। इस बीच एक प्रतिभागी द्वारा संवाद में यह भी जोड़ा गया कि घरों के छप्पर से आने वाली पतली रोशनी और यह गतिविधि काफी कुछ एक दूसरे से मिलती है और प्रकाश के सीधी रेखा में चलने को इंगित भी करती है। कुछ सवाल इस तरह से रखे गए कि गतिविधि एक में लिए गए कागज की नली की लंबाई कम या ज्यादा या नली के अनुप्रस्थ काट के व्यास कम या ज्यादा होने से क्या प्रकाश के गुण के अध्ययन में कोई फर्क पड़ेगा या देखने की प्रक्रिया में किसी तरह का कोई भी बदलाव होगा? इसी तरह अगर इस नली को स्थिर रखके, वस्तु को दूर या पास रखा जाए तब क्या फर्क पड़ेगा ?

माचिस के खाली डिब्बे और मोमबत्ती की

लौ— दूसरे गतिविधि के लिए माचिस के तीन खाली डिब्बों की जरूरत पड़ी। माचिस के डिब्बे में दो हिस्से होते हैं, एक उपर वाला खोखा और एक नीचे वाली ट्रे। तीनों माचिस के डिब्बे के नीचे पतली सुई की सहायता से छेद करने को कहा गया। एक



कारण ट्रे में किया गया छेद सीधी लाइन पर नहीं थे। थोड़ी देर के डिब्बे गिरने-उठाने की कसरत के बाद वह वह भी समझ पाई कि छेद को सीधे लाइन में लाना होगा तभी मोमबत्ती की लौ दिखाई देगी। एक शिक्षक ने जोड़ते हुए कहा कि ऐसे गतिविधि में बच्चों को बहुत आनंद आता है और वो खुद अपने स्तर पर प्रयास करते हुए आगे बढ़ते जाते हैं। वहाँ शिक्षक सिर्फ एक सुविधादाता के तौर पर होता है।

मोमबत्ती को जलाया गया और सभी प्रतिभागी शिक्षकों से माचिस के डिब्बों को इस तरह जमाने के लिए कहा गया कि इन डिब्बों के कतार में से अंतिम डिब्बे के ट्रे के छेद से अगर देखा जाए तो मोमबत्ती की लौ दिखाई दे। शिक्षकों में डिब्बो को जमाने का उत्साह देखने लायक था और उन्होंने बहुत ही कम समय में ऐसा कर भी लिया। डिब्बों को करीने से इस तरह जमाया गया कि तीनों डिब्बे के छेद से सीधे मोमबत्ती का लौ दिखाई पड़ रही थी। हमारे प्रतिभागियों में से एक बच्ची मेघा (एक प्रतिभागी शिक्षिका की बिटिया) ने भी इसे देखने की कोशिश की, इस बीच माचिस के डिब्बे गिर गए। अब फिर से जमाना मतलब एक छोटा सा प्रयास और। रुचिकर था ये देखना कि मेघा डिब्बों को जमाती है या नहीं?

उसने डिब्बों को फिर से जमाया पर इस बार तीनों डिब्बे के छेद एक सीध में नहीं थे। ये कुछ ऐसा ही था जैसे कागज के नली को मोड़ देना। दरअसल सारे ट्रे एक ऊंचाई से नहीं जम पाये थे, जिसके

चाक और स्ट्रॉ- इस गतिविधि में चाक को खड़े रखकर, स्ट्रॉ को क्षैतिज दिशा में रखना था। स्ट्रॉ को ऐसी स्थिति में लाना था कि चाक स्ट्रॉ के छेद से दिखाई दे। चर्चा के समय शिक्षकों ने जोड़ा कि यदि वस्तु स्ट्रॉ के सामने है तो ही दिखाई देगी। कुछ सवाल इस तरह से भी आए कि अभी तो स्ट्रॉ के अंदर हवा है, यदि इसे किसी और पदार्थ से भर दिया जाए तो क्या तब भी स्ट्रॉ से चाक दिखाई देगा?

तब पारदर्शी और अपारदर्शी वाला मामला भी सामने आया। बातचीत में यह भी आया कि कैसे जुड़ता है उस अनुभव से जिसमें एक शिक्षक साथी ने अपने बच्चो से सवाल किया था कि आँख रहते हुए भी क्या दीवाल के दूसरे पार की चीज़ दिखाई देगा? एक रोचक सवाल यह भी आया कि सूरज की रोशनी धरती पर पहुँचती है, तो क्या इसका मतलब यह भी हुआ कि दोनों के बीच जो भी है सब पारदर्शी है। एक और शिक्षिका साथी ने इसे बताया कि किस तरह निर्वात और वायुमंडल में से होते हुए सूरज की रोशनी धरती पर पहुँचती है जिसमें जरूरी नहीं कि सूरज की रोशनी पूरे समय सीधे चलता रहे। तो इस तरह बातचीत करते हुए यह बात भी आई कि निर्वात में प्रकाश तेजी से चलता

है, मतलब माध्यम का बड़ा योगदान है प्रकाश को समझने में। सवाल यह भी आया कि यदि कमरे के हवा को पूरी तरह से बाहर निकाल दे तो निर्वात हो जाएगा, तब प्रकाश के स्वभाव में कोई अंतर आएगा क्या? तीनों गतिविधि करते समय यह भी बातचीत किया गया कि कक्षा में कैसे उचित प्रबंधन किया जाए कि हर बच्चे को सीखने के अवसर प्राप्त हो। कुछ विचार इस तरह से आए जैसे समूह कार्य, साथ में अधिगम की प्रक्रिया को बढ़ावा देना, शुरुवात में दिक्कत आती है, पर जैसे जैसे बच्चों में रोचकता आने लगती है, काम आसान हो जाता है जहां वे ही नेतृत्व करते हैं। इस चर्चा के बाद समूह को प्रकाश संबंधी एक आलेख पढ़ने को दिया गया जिसमें समूह से कहा गया कि इस आलेख में प्रकाश के कौन से गुण स्पष्ट समझ आ रहे हैं, कौन सी घटना और परिघटना का जिक्र है, उसे नोट करें?

इसे पढ़ने के बाद पाठकों के कुछ प्रतिक्रियाएँ आई जो इस तरह से हैं—

- प्रकाश फैलता है,
- अपारदर्शी वस्तु के आने से परछाई बनती है,
- प्रकाश को हाथ से नहीं पकड़ पाते हैं,
- श्व प्रकाश कई रंगों से मिलकर बना है,
- प्रकाश के कारण ही रंगों को देख पते हैं,
- प्रकाश के अनेक स्रोत हैं,
- आग में प्रकाश और ऊष्मा दोनों हैं,
- तड़ित भी प्रकाश का एक स्रोत है,
- कुछ घटना जैसे अमावस्या का उल्लेख है,
- प्रकाश संश्लेषण संबंधी परिघटना का उल्लेख है।

इस दौरान शिक्षकों से यह भी बात किया गया कि किस तरह छोटे छोटे कहानी या आलेख का सहारा लेकर भाषायी कौशलगत दक्षता को बढ़ाया जा सकता है ताकि विद्यार्थी पढ़े हुए या समझे हुए

अवधारणा को अपने दूसरे साथी के साथ अनेक माध्यमों का इस्तेमाल करते हुए साझा कर सके। इस बीच यह चर्चा भी बड़ा रोचक था कि कैसे खास समय पर ही सूर्य का प्रतिबिंब अच्छे से दिखता है और कड़ी दोपहर में सूर्य का प्रतिबिंब देख पाना मुश्किल होता है।

सुविधादाता ने आलेख का सहारा लेते हुए और प्रकाश के सीधी रेखा में चलने संबंधी बातचीत को समेकित करते हुए एक प्रयोग और किया जिसमें उन्होंने पानी में सेवलान डालकर बाहर से लेसर टॉर्च के प्रकाश को विलयन से निकलते हुए दिखाया। सभी प्रतिभागियों ने भी यह प्रयोग किया। इस प्रयोग को करते हुए कुछ सवाल आए जिस पर चर्चा अगली वीडियो में करने का सोचा गया। जैसे किस रंग के पानी में प्रकाश पुंज या किरण अच्छे से दिखेगा, इस प्रक्रिया में प्रकाश कितने



माध्यम से होकर गुजर रहा है, विलयन का गाढ़ा या हल्का होने से क्या प्रकाश पुंज या किरण के दिखने की तीव्रता में कोई फर्क पड़ेगा, इत्यादि। बहुत समय तक तो एक अनसुलझा सवाल और था, जिसमें आने वाले समय में चर्चा होगी और वो सवाल था क्या प्रकाश पदार्थ है? हाँ तो कौन सा पदार्थ है, नहीं तो फिर क्या है ?

लेकिन यह चर्चा यही समाप्त नहीं होता। कार्यशाला के माध्यम से शुरू हुई इस सीखने-सिखाने की प्रक्रिया की निरंतरता को बनाए रखने तथा आपसी समझ को आधार बनाकर विद्यालय की प्रक्रियाओं को और करीब से समझते हुए विद्यालय विकास

योजना को परिणति तक पहुंचाने के क्रम में इस चर्चा को कुछ सवालियों के साथ रोका गया, जो लगभग हर गतिविधि के साथ लिखा हुआ है। अगली बैठक के पहले, सबने फोन द्वारा सवालियों पर चर्चा करने का सोचा जिसके लिए एक तारीख तय की गयी और अगली चर्चा के लिए “अपवर्तन” एक अवधारणा चुना गया, जो माध्यम बदलने के साथ प्रकाश के गुण में आए बदलाव को बताता है।

इस पूरी बातचीत को रखने का उद्देश्य केवल एक वीडियो का जिक्र करना नहीं है, बल्कि ऐसे पहल को उजागर करने का प्रयास है जहां शिक्षक साथियों को अपने विचारों को साझा करने का मंच मिलता है। समझे हुए बातों को अपने विचारों में लाना और दूसरे शिक्षकों के साथ साझा करना भी विज्ञान शिक्षण का प्रमुख कौशल है जो इस बात की वकालत करता है कि किसी भी तथ्य की व्याख्या करने के लिए किया गया बातचीत पाठक या श्रोता के उम्र और समझ अनुरूप करने के लिए सरल बनाया जाए पर इतनी सरल भी ना हो जाए कि मूल बात कहीं खो जाए। विज्ञान शिक्षण में जितनी आवश्यक गतिविधि है, उतना ही आवश्यक है कि लिखित सामग्री का इस्तेमाल हो जिसे पढ़कर सीखे हुए अवधारणा को पक्का किया जा सके और उससे संबंधित अन्य अवधारणाओं का भी जुड़ाव देखने का गुंजाइश बना रहे। इस वीडियो में यही जिक्र है।

इस बातचीत को यहाँ रखने का एक आशय और है कि किसी भी विषय में क्षमतावर्धन के लिए कोई एक कार्यशाला पर्याप्त नहीं होता बल्कि यह एक लगातार चलने वाली प्रक्रिया है जहां एक अवधारणा से संबंधित कुछ ज्यादा गहराई से बातचीत की जाए, और कक्षागत प्रक्रिया में आने वाले चुनौतियों को सबके सामने रखा जाए। साथ ही यह भी कि इन वीडियो में प्रकाश को इस स्वरूप में समझना, शिक्षक साथियों को, जहां एक नयी अवधारणात्मक दृष्टि दे रहा था वहीं बच्चों के

साथ काम करते हुए उन्हें करके सीखने के आनंद और अपने आसपास विज्ञान को देखने के रोमांच के साथ बेहतर समझ बनाने में मदद भी कर रहा था।

इसी मंच पर ऐसे कई शिक्षकों के साथ रूबरू होने का मौका भी मिला, जो तमाम चुनौतियों से जूझते हुए बेहतर कार्य करते हैं और बेहतरी की दिशा में आगे बढ़ते जाते हैं। ऐसे शिक्षक, इस कार्यशाला में दूसरे शिक्षकों के लिए प्रोत्साहन और प्रेरणा देने का कार्य करते हैं।

लेकिन कार्यशाला के साथ वीडियो की चर्चा यही समाप्त नहीं होता। कार्यशाला के बाद वीडियो के माध्यम से शुरू हुई इस सीखने-सिखाने की प्रक्रिया की निरंतरता को बनाए रखने तथा आपसी समझ को आधार बनाकर विद्यालय की प्रक्रियाओं को और करीब से समझते हुए विद्यालय विकास योजना को परिणति तक पहुंचाने के क्रम में हमारी आगामी गतिविधियां इस प्रकार हैं –

- हम लगातार शालाभ्रमण के द्वारा शाला विकास प्रक्रिया में सहयोग करने का प्रयास करते हैं जिससे कि शाला को और भी बेहतर संस्थान के रूप में विकसित किया जा सके।
- संकुल एवं शाला स्तरीय मासिक बैठक में शाला विकास योजना, अवधारणाओं पर आधारित अकादमिक मुद्दों पर चर्चा जैसी गतिविधियों को नियमित प्रक्रिया के रूप में स्थापित करने की दिशा में प्रयास करना।
- संकुल अकादमिक समन्वय का एक अकादमिक प्रतिनिधि के तौर पर विकास, तथा संकुल और विकास खंड स्तर पर शिक्षकों का एक अकादमिक मंच की तरफ पहल कर पाना जहां शिक्षक साथी अपने विषय से संबंधित चुनौतियों को खुलकर रख सके और बेहतर अकादमिक प्रयास को एक दूसरे के साथ साझा कर सकें।

लर्निंग कैंप में विज्ञान शिक्षण के अनुभव

‘सेवा मंदिर’स्वैच्छिक संस्थान, पिछले कई वर्षों से उदयपुर के ग्रामीण क्षेत्रों में शिक्षा, स्वास्थ्य व स्वावलंबन के लिए विभिन्न प्रकार के काम कई स्तरों पर कर रहा है।सेवा मंदिर ने सरकारी स्कूलों के ऐसे बच्चे जिन्होंने अपनी पढ़ाई बीच में ही छोड़ दी है या वे अपने स्कूलों में नियमित नहीं हैं, को शिक्षा से पुनः जोड़ने के लिए 20 मई से 25 जून 2015 तक उनके लिए विद्या भवन स्कूल में एक आवसीय लर्निंग कैंप का आयोजन किया। विद्या भवन शिक्षा संदर्भ केंद्र ने इसमें अकादमिक सहयोग दिया। इस लर्निंग कैंप का मुख्य उद्देश्य इन बच्चों को उनकी कक्षा के स्तर तक लाना तथा उनमें पढ़ाई के प्रति रुचि जगाना था ताकि वे अपनी पढ़ाई नियमित रूप से जारी रख सकें।

इस कैंप में लगभग 50-55 बच्चे आए थे जोकक्षा 8, 9 व 10 में नामांकित थे। ये बच्चे आयु अनुसारप्राथमिक कक्षाओं से सीधे माध्यमिक कक्षाओं में प्रवेश पा गए थे। यह एक चुनौतिपूर्ण काम था। अतःसेवा मंदिर के साथ मिलकर बच्चों के संदर्भ में प्राप्त जानकारी के आधार पर विषय अनुसार शिक्षण योजना बनाई गई। यहां विज्ञान समूह से जुड़े स्रोत सदस्य अपने अनुभवों को साझा कर रहे हैं।

एकता पाटीदार

बच्चों के साथ काम करने के लिए मैंने अपनी कार्य योजना में कोशिका, पदार्थ, बल और गति पाठों को शामिल किया। कार्य की शुरुआत कोशिका नामक पाठ से की औरइसके तहत बच्चों का ‘प्रयोगशाला से परिचय’ करवाया गया। इसमें सूक्ष्मदर्शी, बीकर, बर्नर (स्प्रीट लैंप) अभिरंजक, कांच की छड़ आदि को छूकर देखने, और उनके उपयोग पर बात की गई तथा उनके चित्र बनावाकर उनपर नाम लिखवाए गए। तीसरे दिन कक्षा आठ व दस दोनों के बच्चों को शामिल करके प्याज की कोशिका व रियों की पत्ती की कोशिका की स्लाइड सूक्ष्मदर्शी से देखने का व स्वयं भी बनाने का अवसर दिया गया। उनके साथ कोशिका की खोज कैसे हुई? किसने की, सूक्ष्मदर्शी का आविष्कार कैसे हुआ, उसके विकास के बारे में बात की गई। इस सारी प्रक्रिया में गतिविधि-अवलोकन-ब्याख्या विधि का प्रयोग किया गया। बच्चों द्वारा बनाई गई स्लाइड में कोशिका कैसी दिखी, उसका कॉपी में चित्र बनवाया गया।चित्र

नामांकित करने पर भी बात की गई।उनके द्वारा बनाए गए चित्र को आधार मानकर कोशिका भिन्नी, कोशिका झिल्ली, कोशिका द्रव्य, हरित लवक, रिक्तिका की पहचान, कोशिकाओं की रचना व इसके कार्यों पर विस्तार से बात की गई।

सभी बच्चे सीखने के लिए जूझ रहे थे। जैसे जंतु व वनस्पति कोशिका का चित्र कुछ बच्चों से नहीं बन पा रहा था। वे बार-बार कोशिका कर रहे थे और लगभग चार-पांच बार चित्र बनाने का प्रयास करने पर उनसे ठीक-ठाकचित्र बन पाएं। हम भी अलग-अलग तरीकों द्वारा उन्हें समझाने का प्रयास कर रहे थे। इन कोशिकाओं ने हमारे बीच की दूरियों को काफी कम कर दिया।

जो बच्चे पाठ्यपुस्तक के साथ भी सहज नहीं थे उनसे कहा कि जो पढ़ना आता है उसे पढ़ो, जो नहीं आता है उसे अंडर लाईन करो। पुस्तक में पाठ कैसे ढूँढते हैं, यह भी अधिकांश छात्रों को पता नहीं था। पाठ्यपुस्तक को कुछ ने तो खोला भी पहली बार था। अनुक्रमणिका को कैसे देखकर

पाठ को निकाला जाता है। पृष्ठ संख्या का मतलब क्या है। पाठ के मध्य चित्र का नंबर दिया है तो उसको उसके विवरण से कैसे जोड़कर देखा जाए। यह सारी प्रक्रिया करने पर छात्रों को पाठ पढ़ने में कुछ-कुछ रुचि उत्पन्न होने लगी और वे पाठ पढ़कर आने लगे। पाठ पढ़ने के दौरान आई दिक्कतों पर अगले दिन कक्षा में सबसे पहले चर्चा की जाती, उसके बाद आगे बढ़ते।

पाठ्यपुस्तक पर कार्य करते हुए कक्षा में तीन समूह बनाए गए। प्रथम समूह में दस बच्चे जो पुस्तक पढ़ लेते हैं लेकिन अर्थ निर्माण नहीं कर पाते। लेकिन भाषा सरल होने पर अर्थ निर्माण की प्रक्रिया शुरू हो जाती थी। दूसरे समूह में वे बच्चे थे जो रुक-रुककर पढ़ पाते थे लेकिन अर्थ निर्माण नहीं कर पाते। लगभग दस बच्चे तीसरे समूह में थे जिनको पढ़ने में समस्या आ रही थी। सहयोगी संदर्भ साथीद्वारा इस तीसरे समूह की मदद से यह तीसरा समूह भी सीखने लगा। वे सरल कहानी की किताबों को पढ़ने लगे और धीरे-धीरे उनमें पढ़ने का आत्मविश्वास बहाल होने लगा।

पाठ पढ़ने-पढ़ाने की इस प्रक्रिया के दौरान, पाठ में आए नए शब्दों के उच्चारण एवं अर्थ पर भी चर्चा की गई। इस सारी प्रक्रिया का उद्देश्य बच्चों की पढ़ने में रुचि उत्पन्न करना था ताकि वे आगे भी पढ़ना जारी रख सकें। कठिन शब्दों जैसे भित्ती, झिल्ली, एक कोशिका, बहुकोशिका, पादाभ, उत्तक, कोशिकांग, गुणसूत्र, प्रोकैरियोटिक, यूकैरियोटिक, हरित लवक, आदि के उच्चारण व अर्थ समझ आने पर उन्हें पाठ समझ में आने लगा व वे पढ़ने में रुचि लेने लगे।

समूह में चर्चा के दौरान बच्चों ने कहा कि आप डांटते व मारते नहीं हैं, जबकि विद्यालय में तो दोनों ही पड़ती है जिससे उनकी पूछने की इच्छा ही नहीं होती। सभी बच्चे अलग-अलग विद्यालयों से थे इसलिए विद्यालय के उनके अनुभव अलग-अलग

थे। शुरुआत में बच्चे को कक्षा में दो घंटे बैठने में भी दिक्कत आती थी लेकिन जैसे-जैसे विषय व प्रकरण में रुचि बढ़ी, समय कहां निकल जाता, पता ही नहीं चलता। कक्षा आठ अब पढ़ने में रुचि लेने लगी थी। 5 जून को कैंप के सभी बच्चों ने समूह में विद्या भवन के विभिन्न प्रांगणों में वृक्षारोपण किया जिसमें गुलाब, नीम, गुलमोहर, गेंदा आदि के वृक्ष लगाए तथा इनके नामों व उनके विभिन्न उपयोगों के बारे में चार्ट बनाए।

कैंप का दूसरा सप्ताह खत्म होते-होते मुझे कक्षा दस पढ़ाने को मिली। जैव प्रक्रम नामक पाठ में जैव प्रक्रम, पोषण, स्वपोषी, परपोषी, पाचन तंत्र, पाचन, पाचक रस आदि पर कक्षा में चर्चा की। पाचन तंत्र के अंगों को छात्रों को पढ़कर चित्र बनाने व उनका वर्णन अपने शब्दों में करने को कहा गया। फिर पाचन तंत्र के अंगों व पाचन की प्रक्रिया को पाठ्यपुस्तक से पढ़ाया गया। प्रत्येक को पढ़ने का अवसर दिया गया। इस दौरान किसी प्रश्न का उत्तर कैसे खोजा जाता है पर भी उनसे चर्चा की गई तथा कुछ प्रश्नों के उत्तर खोजने को दिए गए। बच्चों की विज्ञान में रुचि बढ़े, इसके लिए विभिन्न क्रियाकलापों जैसे प्रयोग, अवलोकन, विश्लेषण व निष्कर्ष निकालने के अवसर दिए गए। इसके तहत मड, स्टार्च, वसा टेस्ट करवाए; पारदर्शी, अपारदर्शी व पारभासी वस्तुओं का समूहीकरण करवाए गए।



कक्षा नौ में ग्यारह बच्चे थे जिनमें छह को पढ़ना व थोड़ी सरल भाषा होने पर समझना भी आता था। पांच को पढ़ने व अर्थ निर्माण में समस्या थी। इस कक्षा में भी कोशिका व उत्तक पर कार्य किया गया। प्याज की कोशिका एवं रियों की पत्ती की कोशिका की स्लाइड बनवाकर अवलोकन द्वारा चित्र बना कर करवाया गया। इसके पश्चात इलेक्ट्रान सूक्ष्मदर्शी कोशिका के प्रारूपिक चित्र के विभिन्न भागों पर चित्र देख कर चर्चा की गई। इस दौरान सांद्रता, परासरण, विसरण, निष्कासन आदि पर विभिन्न दैनिक जीवन के उदाहरणों द्वारा समझ बनाने का प्रयास भी किया गया। कोशिका झिल्ली, माइटाकोन्ड्रिया, केंद्रक, केंद्रिका झिल्ली, केंद्रिका, गुणसूत्र, अंतःप्रदायी जालिका, कोशिका द्रव्य, केंद्रक द्रव्य, लाइसोसोम, राइबोसोम, गाल्जी बॉडी रिक्तिका आदि की संरचना व उनके कार्यों पर चर्चा की गई। इस दौरान छात्रों की समस्याओं को समझ कर उनकी मदद करने एवं चर्चा द्वारा उन्हें प्रेरित करने का प्रयास भी किया गया। इन सब कोशिशों व चर्चाओं के करते हुए चालीस दिन कब समाप्त होने आ गए, पता ही नहीं चला। इस



कैंप ने हमें माध्यमिक स्तर के बच्चों को समझने, सीखने-सिखाने उनकी समस्याओं को जानने का अवसर मिला। बच्चों को पाठ्यपुस्तक की भाषा कठिन लग रही थी और उन्हें अर्थ निर्माण करने में परेशानी आ रही थी, इसके लिए हमने उन्हें पाठ को सरल भाषा में दिया। इस प्रक्रिया में हमने दो पाठ कोशिका तथा उत्तक सहजता से समझ में आ जाने वाली भाषा में बना कर दिया। बच्चों को यह काफी सहज लगा और उन्हें पढ़ने व समझने में आसानी होने लगी थी।

श्रुति भड़भड़े

विज्ञान समूह में काम करते हुए यह पहला अवसर था जब मैं बच्चों के साथ किए जाने वाले सीखने-सिखाने के कार्य से जुड़ी। बच्चों से बात करने पर पता लगा कि कई बच्चों के पास शिक्षा से जुड़े रहने के लिए अनुकूल वातावरण नहीं है। ये बच्चे अपने माता-पिता के साथ काम पर जाते हैं जैसे मजदूरी करने, खेती-बाड़ी करने अथवा कहीं और व्यस्तता के चलते अपनी पढ़ाई को निरंतर नहीं रख पाए थे। इन सबमें कई बच्चे ऐसे भी थे जिन्होंने पांचवीं के बाद सीधे आठवीं कक्षा में प्रवेश लिया था। अपनी उम्र के मुताबिक ये बच्चे बड़ी कक्षाओं में तो आ गए थे, किंतु इन बच्चों का पूर्वज्ञान उनकी कक्षा के अनुरूप नहीं था, उस स्तर तक आने के लिए अभी भी उन्हें बहुत कुछ जानना बाकी है। कैंप के शुरू होने से पहले हमने जो योजना बनाई थी, वह ज्यादा उपयोगी साबित नहीं हुई। यहां पर आए बच्चों की परिस्थितियां मेरी कल्पना से विपरीत थी। मेरे लिए ऐसे बच्चों के साथ काम करना एक चुनौती थी।

कक्षा नवीं के बच्चों के साथ मैंने 'रसायनिक विज्ञान' के पाठ 'हमारे आसपास के पदार्थ' के साथ शुरुआत की। यह पाठ मैंने इसलिए चुना क्योंकि इन बच्चों से बातचीत करने पर हमने पाया कि इन बच्चों को वैज्ञानिक शब्दावली की ज्यादा समझ तो नहीं थी, किंतु उनके दैनिक जीवन में होने वाली कई घटनाओं और चीजों के बारे में उनके अवलोकन अच्छे थे। जैसे ये बच्चे कई तरह के पदार्थों और उनके गुणों के बारे में जानते थे परंतु इनके वैज्ञानिक कारण नहीं जानते थे। कई बुनियादी शब्दावलियां जैसे ठोस, द्रव और

गैस से वे ज्यादा वाकिफ नहीं थे। कई शब्दों को वे अपनी क्षेत्रीय भाषा में समझ पाते थे किंतु वैज्ञानिक शब्दावली को समझ पाने में उन्हें दिक्कत हो रही थी। सबसे बड़ी समस्या तो यह थी कि इन बच्चों को उनकी पाठ्यपुस्तक की भाषा समझने में भी मुश्किल होती थी। मेरी समझसे शायद यह भी एक वजह रही होगी जिसके कारण बच्चों की पढ़ने में रुचि नहीं बन पाई थी। एक और बात थी कि इन बच्चों के साथ कभी विज्ञान को प्रयोगों द्वारा करके समझने-समझाने की कोशिश नहीं की गई थी। इन बच्चों के साथ अवलोकन, प्रयोग करने तथा स्वयं सीखने की क्षमताओं पर काम करना सबसे बड़ी जरूरत थी।

इसलिए उन्हें एक प्रयोग कर, अपने अवलोकनों को अपने शब्दों में लिखने को कहा गया। यह प्रयोग विलयता से जुड़ा था। इन बच्चों को समूह में बांटा गया और उन्हें एक सूची दी गई जिसमें विभिन्न पदार्थ जैसे नमक, शक्कर, शहद, रेत, मोम, हल्दी, नींबू का रस के नाम थे। ये पदार्थ उन्हें दिए गए और उन्हें विलयता का प्रयोग करके आपस में बातचीत करने के लिए समय दिया गया। उन्हें इस प्रयोग के दौरान कुछ चुनौतियां भी दी गईं जैसे, उनसे कहा गया कि वे विलेय की मात्रा को बदल-बदलकर देखें कि क्या होता है। उन्हें ये तो पता था कि शक्कर को गर्म पानी में घोलना, ठंडे पानी में घोलने से अधिक आसान है पर जब उनसे पूछा कि ऐसा क्यों होता होगा तो वे सब निरुत्तर हो गए। इस प्रयोग को उस दिन इन्हीं सवालियों के साथ खत्म किया और बच्चों से कहा कि वे आपस में बातचीत कर इस प्रश्न के उत्तर खोजने की कोशिश करें।

हमें ये अपेक्षा तो नहीं थी कि बच्चे एकदम सही उत्तर ढूंढकर ले आएंगे, पर यह जरूर चाहते थे कि बच्चे कुछ सोचना शुरू करें। इस चीज में कुछ हद तक हम सफल भी हुए। मुझे अगले दिन खुशी हुई जब कुछ बच्चों ने यह सवाल उठाया कि शक्कर

को पानी में घोलने पर शक्कर कहां गायब हो गई? हल्दी घोलने पर पानी का रंग पीला क्यों हो गया? मैं चाहती थी कि इस प्रकार के सवाल बच्चों के दिमाग में उठे ताकि उनमें जिज्ञासा का विकास हो सके जो विज्ञान शिक्षण के लिए बहुत आवश्यक है।

बच्चों के प्रश्नों का उत्तर देते हुए उन्हें पदार्थ में उपस्थित बारीक कणों के बारे में बताया। उनको यह एक जादूई चीज जैसा लगा। उन्हें ये जानकर आश्चर्य हुआ कि ठोस वस्तु जैसे मेज के सख्त होने से लेकर, खुशबू का कमरे में फैल जाने के पीछे का एक कारण इन कणों की व्यवस्था है। ये कण जो हमें खुली आंखों से नहीं दिखते, इनकी अद्भुत गुणों को जानकर सभी बच्चे खुश हुए।

बच्चों से जब मैंने कहा कि रेत के एक कण में भी हजारों कण होते हैं, तो बच्चों ने अपनी कल्पना के घोड़े दौड़ा दिए। एक बच्चे ने पूछा कि 'चॉक का यह कण जो मेरे उंगली से चिपका हुआ सफेद सा दिख रहा है, क्या उसमें भी कई और कण होते हैं?' तब मैं समझ गई कि अब इन बच्चों में कल्पना करने और अपनी सोच के दायरे बढ़ाने की शुरुआत हो गई है। विज्ञान की दृष्टि से चीजों को देखने की क्षमता ही विज्ञान में रुचि उत्पन्न करा सकती है। यह सही है कि इन बच्चों के स्तर को उनके कक्षानुसार लाने में अभी और समय व मेहनत लगेगी। लेकिन मेरा मानना है कि निरंतर कार्य करने से इन बच्चों को सफलता अवश्य मिलेगी। यहां सफलता के मायने परीक्षा में उत्तीर्ण होना नहीं है बल्कि आशय यह है कि बच्चे अपने सीखने की क्षमता और ज्ञान को और बढ़ा पाएंगे। किसी के ज्ञान का



आंकलन करना कठिन है क्योंकि ज्ञान की कोई सीमा नहीं होती। इन बच्चों के साथ मैंने पाया कि कई बातों में इन्हें मुझसे ज्यादा जानकारी थी, जैसे खेती-बाड़ी के संबंध में, पेड़-पौधों की पहचान, मिट्टी की परख एवं खाद संबंधी ज्ञान जो मैंने किताबों से लिया था, उसकी तुलना में इन बच्चों का व्यवहारिक ज्ञान अधिक स्पष्ट था। अतः मैं यह कह सकती हूँ कि शिक्षण सीखने की निरंतर चलने वाली प्रक्रिया है। एक शिक्षक का कार्य सिर्फ ज्ञान देने तक सीमित न होकर ज्ञान के आदान-प्रदान को महत्त्व देना भी होना चाहिए। मुझे इस अनुभव से कुछ बातें जो सीखने को मिलीं, जैसे—

- 'विज्ञान की भाषा/शब्दावली' सीखने के लिए भाषा पर पकड़ होना बहुत जरूरी है। विज्ञान की हर कक्षा भाषा की भी कक्षा होती है। जरूरी है कि भाषा, विज्ञान को सीखने के बीच अवरोधक न बने।
- विज्ञान में रुचि पैदा करने के लिए जिज्ञासा को बढ़ावा देना बहुत जरूरी है।
- जरूरी है कि बच्चे अपनी बात को रख पाएं। यह देखना भी जरूरी है कि, वे क्या देख रहे हैं और उनका नजरिया क्या है।

- बच्चों को इस तरीके से पढ़ाया जाए कि उन्हें मजा आए। जब उनके मन में सवाल उठेंगे तभी तो उन्हें विज्ञान के द्वारा अपने इन सवालों के उत्तर मिलेंगे।
- हम जिन तरीकों से पढ़ाते हैं, अगर बच्चे उससे नहीं सीख पाते हैं तो उन्हें उसी तरह से पढ़ाया जाना चाहिए जिस तरीके से वे ज्यादा समझ पाए।

पहला अनुभव होने के कारण मेरे मन में भी कई सवाल उठे, शिक्षा को लेकर, शिक्षा प्रणाली को लेकर, शिक्षा से जुड़े कई मसलों पर एवं किस प्रकार विज्ञान शिक्षण को सरल और दिलचस्प बनाया जाए, आदि मुद्दों पर। लेकिन मैं चाहूंगी कि समय के साथ इन प्रश्नों के उत्तर मैं स्वयं खोजूँ। आखिर मुझे भी तो खोजने व हासिल अनुभवों के जरिए सीखने की कोशिश करते रहना चाहिए।

(एकता पाटीदार एवं श्रुति भड़भड़े – विद्या भवन शिक्षा संदर्भ केंद्र, उदयपुर में विज्ञान टीम में कार्यरत हैं।)

Shikha Takker & Ritesh Khunyakari

Re-imagining classrooms as spaces for learning and professional development of teachers and teacher educators

Abstract

In this article, we identify the potential areas of support required by teachers while teaching in the classroom. We discuss two classroom episodes where the teacher educators did not engage with the struggles of the teacher and the demands of the teaching situation. The lack of support from teacher educators and persistence in routinising classroom observations, has refrained teachers and teacher educators in utilising the potential of classrooms as spaces for learning of all. An exploration into the beliefs of teacher educators indicates that they overlook critical aspects of teaching and learning when observing classroom teaching. We conclude by suggesting possible ways in which teachers and teacher educators can collaborate by reflectively engaging with learning opportunities arising from classrooms.

Radha has newly joined as a primary teacher in a private school. As she enters class 5, she feels excited and nervous. She wants to listen to students, know more about them and work towards making mathematics accessible to all. The principal assures Radha that she will visit her class in the first week. She is happy that the principal is interested in her teaching. The principal comes and sits in her class for a few minutes and then leaves. After the class, Radha immediately goes to meet the principal and excitedly asks, "how was it?" The principal tells her that she is new and should learn to have a disciplined class, students should attentively listen to the teacher. As a teacher, she should be able to say the last word on every (mathematics) problem. Radha's class was just the opposite! As time passes, the principal and other senior colleagues observe Radha's classes and find them to be very noisy, slow in completion of textbook exercises, and therefore not up to the mark. Radha continues to receive similar feedback from other observers but she does not have anyone to discuss her struggles about teaching, the new curriculum, and student difficulties. The fear of performance during classroom observations by seniors leaves her disappointed!

An Experience illustrating the teaching concern

The reality of Radha's (pseudonym) classroom is not very different from several teachers who begin teaching with enthusiasm and try novel pedagogic ideas in their classes. Teachers do not receive the required support in classrooms for them to be able to teach constructively (Takker, 2012). Developing a culture of teaching does not involve seeking feedback and reflection on the content alone but also requires an engagement in teaching of peers. The school culture does not have mechanisms by which teachers are encouraged to engage in their own and others' teaching. When teaching is observed by the school principal or teacher educator, teachers receive cursory remarks about improving classroom management and organisation. The feedback on teacher's delivery or knowledge of the content is uni-directional (from teacher educator or senior teachers to the junior teacher) and does not involve discussion about teaching and classroom struggles of the teacher. The impression of classroom observations as events, where teachers prepare the lesson and teacher educator gives feedback, gets ingrained with time. We believe that the purpose of these interactions between teachers and teacher educators requires serious rethinking. Engagement with teaching requires more deeper deliberations on 'what' is

being taught in the classroom, and 'how' can learning be made more responsive and engaging for all. As we notice in Radha's case, her goals of teaching include listening to students and making mathematics accessible to all. In her attempt to listen to students, the classroom becomes noisy. The feedback she receives from the principal focuses on the disciplinary aspects of classroom observation. The content of teaching and Radha's struggles in making classroom more interactive are not discussed. Based on Radha's example where the feedback from the principal and her colleagues is limited, it is important to ask what is the role of teachers and teacher educators in their growth as professionals. Further, how classroom observations and deliberations around them are utilised as learning opportunities for teachers and teacher educators. We intend to deliberate on these two questions in this paper.

Perceptions about teacher's role

Teachers are responsible for communicating the curricular ideas into practice in the process of educating learners. Textbook is the key resource available to teachers to comprehend the curricular principles (in their own ways). It is important to ask about the perceived role of the teacher in planning and designing a new curriculum. Do teachers have a (collective) voice in the process of curriculum development and revision? Teachers' voice and agency in shaping the curricular discourse is compromised even in the democratic processes of curricular reforms as in National Curriculum Framework (NCF) 2005 (Batra, 2005), which envisions the larger goal of education as mediating social transformation (NCERT, 2005). The gap between the theoretical principles, values, and suggestions in NCF 2005 (proposed curriculum) and teachers' perspective on their implementation in practice (enacted curriculum) needs to be bridged through the creation of support structures at the ground level, and close to the work of teaching (Takker, 2011). Further, teacher's role in the discourse around the curriculum and its implementation needs to be re-imagined. The revision of teacher's role from being an implementer to a reflective practitioner requires that teachers develop the tools for

deliberation on the content of teaching and making conscious connections with the curriculum and aims of education. This is another important area which can be strengthened and utilised for discussion between teachers and teacher educators, with classrooms as sites for learning. Classroom can serve as rich contexts for deliberating about students' backgrounds, bridging knowledge with students' ideas, create discourses which encourage questioning, etc. We believe that there is a need to strengthen teacher's identity as a professional, thus utilising their experience in designing and revision of curriculum. A more practical concern remains how and in what ways can teachers be supported while they are teaching. We attempt to respond to this concern through use of anecdotal experiences of working with teachers and teacher educators.

Teachers and classrooms

In the context of formal education, classrooms are spaces where the process of teaching and learning takes place. It is a meeting ground for students of different abilities, aspirations, and backgrounds. The complexity and richness of classroom comes from the interactions between the teacher, students and the subject-matter at a socio-cognitive plane. Teaching is an act of complex, social and intellectual collaboration (Lampert, 2001) and the classroom space offers challenging realities to teachers. In this space, the prime responsibility of making learning possible resides with the teacher. A teacher is expected to maximise student learning by planning the learning experiences as well as reciprocating appropriately to in-the-moment situations arising while teaching. However, after a few years, a teacher tends to get moulded into the routines of teaching. Teachers get caught up in a vortex of framed responsibilities and managerial accountability such as maintaining registers, completing the syllabus even if the number of teaching days are compromised, managing the cultural programmes, etc. Teaching often ends up becoming a job aimed towards completion of the prescribed syllabus. In our participant classroom observations, we have often found that teachers miss noticing potential learning opportunities for students while

teaching in the classrooms. Keeping in mind students' backgrounds and prior knowledge when teaching content, probing an interesting student question or response, unpacking students' thinking underlying procedures, thinking deeply about the content to be taught beyond the textbook, etc. are some of the examples. The institutional work environment has created a dominant culture of teaching, usually referred to as *traditional teaching*. This culture of teaching includes beliefs held by teacher and parents, such as children do not learn unless taught, mistakes need to be corrected immediately, children should be kept away from conflicts, etc. Teachers, constantly immersed in a work culture that propagates and reinforces such beliefs, either accede to or passively imbibe such beliefs. Other stakeholders such as the principal, parents, curriculum designers, teacher educators, etc. contribute by enforcing systems to ensure that the teaching happens in "prescribed" ways. As Dewan (2009) points out, it is not just the teachers who do not want to teach the poor children and take the responsibility of their non-learning, but the academicians and administrators from state level institutions also do not value diversity. The traditional culture of teaching needs to be challenged and alternate images of teaching need to be co-constructed with the teachers. This would require breaking off from the demarcated roles operating within the structure of schooling, where the students are expected to learn, teachers make the learning possible, and teachers educators are experts assessing teachers and their teaching. This structural edifice marks the failure in acknowledging the worth of classrooms as a valuable resource for learning of teachers and teacher educators. There is a need for understanding the complexity of classrooms and utilising their potential for learning of students, teachers and teacher educators.

Observing classrooms: purposes and challenges

In India and elsewhere, teacher preparation (pre-service) as well as evaluation (in-service teacher education) relies significantly on experiences of classroom observations (Batra, 2005; Lasagabsater & Sierra, 2011). Education officers, teacher educators and principals, with a certain teaching experience and training, make visits to

classrooms. In the case of in-service teachers, this visit is once or twice a year and the teacher whose lesson is to be observed is informed about the day and session for observation in advance. The teacher's performance of a lesson on a particular day then decides her/his identity as a 'particular kind' of a teacher and subsequently her/his promotion. Classroom observations can vary from taking a passing look at the class or notebook work to sitting in an ongoing class for a few minutes by a teacher educator. The teacher educator 'inspects' a class and fills up a proforma on teacher's performance. However, observations with an exclusive evaluation orientation misses out opportunities for drawing insights from an understanding of student-teacher interactions, in making sense of how students' thinking mediates with content such that it shapes the learning discourse in dynamic, insightful ways. Also, an understanding from classroom observations in this manner does not translate in any meaningful way to support teacher in reflecting on her teaching practice. Scholars (Saginer, 2008; Wragg, 1999) in the field draw our attention to this value of classroom observations in preparing teachers for their profession.

In pre-service teacher education programmes, practical teaching experience includes micro-teaching, practice teaching, peer teaching, etc. As teachers teach, mentors or teacher educators observe and comment about their teaching. Student-teachers are expected to prepare special lessons for observation so that they can display not their routine but their best. The 'best' implies executing the lesson plan closely aligned with what they had stated, have all the materials in place to conduct an activity, manage to keep a class disciplined, and achieve the objectives promised in the lesson plan. When preparing to teach, the student-teachers need to develop a culture of *talking about teaching* and tasks entailed in it. Such a discussion is crucial for becoming reflective about teaching and discussing concerns that arise later.

So what is it that teacher educators observe in pre-service and in-service teacher's teaching? What kind of perceptions do teacher educators hold about classroom observations? What aspects do they consider as significant? In order to

explore this understanding, let us begin by studying an anecdotal experience shared by a science teacher, Tarique. He has been teaching in a government school for over five years.

Tarique is introducing the idea of biodegradation to seventh graders. He begins his class by asking children to look around and list things around them. Children say wooden chair, cotton clothes, bananas, potato-chips, wooden duster, chalk piece, plastic bottle, steel tiffin-box, slippers, etc. After having about 20 different names on the board, he picks up a plastic water bottle and asks, 'what will happen to a bottle after you throw it in a bin? Where does it go from our bins?' Some children say it goes into a big dumping ground and that they have seen it. One girl said that she has seen some old women, sitting at the end of a street and separating all junk. Tarique then asks 'why do they separate these things and how do they know which thing to put where?' In groups, children discussed different criteria for classification. The criteria used included nature of material, breakability, edibility, etc. Tarique then asks children to imagine, 'what will happen to these materials if they had been there in a very old house, unused for several years?' Children respond, 'the colour may fade, the thing may break into pieces, will become soil, etc.' Tarique asked 'Does that happen with all the materials? How do we know which one will become soil and which will not?' Children were certain that glass and plastic bottle will not become soil while peels of fruits and vegetables, potato-chips, will mix and become soil. They were not sure of the old clothes. Later, Tarique tells them that objects that completely mix with soil are called biodegradable materials and others non-biodegradable. Students shared some of their observations about materials and how they look when they are old. They decide to find old things around and note down how they looked. Together they identified empty spaces in the classroom to keep some objects and observe them over time. The items they agreed upon were bananas, potato chips, cloth piece, iron key and chalk piece.

After observing the session, the teacher educator remarked that it was an activity-based classroom but the teacher did not use any teaching aids. Students were making a lot of noise. More than that, they were asking unnecessary questions like, would a (rubber) *chappal* (footwear) be degradable or non-degradable, is their tiffin-box which is made of stainless steel, biodegradable or not? Tarique (also a pseudonym) wanted to discuss a student's experience of seeing an onion kept over several days in a plastic bag, developing black and green spots. He was not quite sure about this observation. When he later sought a clarification from the teacher educator, he was advised to use textbook examples rather than wasting time in making students think about so many objects around them. Tarique was asked to include more structured written work and focus on his classroom management skills. He was told to teach more content in reference to the textbook.

Role of teacher educators

Do we notice some similarity in the way Radha and Tarique received the feedback? What kind of an impact would it have on them? What is it that teacher educators expect to see in teachers' classrooms? Intrigued by these thoughts, we asked teacher educators in informal interviews and sessions in workshops to elaborate on the role they perceive for themselves and what they observe in classrooms. These teacher educators included District Institute of Education and Training (DIET) faculty, education officers, in-service teacher educators, teacher leaders, and principals of different schools (henceforth, we refer to all of them as teacher educators). Teacher educators have the task of observing classrooms of in-service and/ or pre-service teachers and provide feedback. So we asked them individually and in groups about what do they observe in a classroom. Here is a consolidated list, exhaustive of responses from all the teacher educators:

- a) *infrastructure*: availability of blackboard and chalk, desks in order and facing the black board and teacher, sufficient light, air, etc.
- b) *student behaviour*: disciplined, giving answers to teacher's questions, not talking to each other unless asked, maintain neatness in

notebook work, taking turns (no mass answering), copying correctly from the board and in time, listening to teacher carefully, following instructions, etc.

- c) *teacher behaviour*: asking questions from students, correcting students' mistakes, using language (mostly English) clearly, taking care of bright children as well as slow learners, ability to draw the attention of students in proper ways, fulfilling the objective of the day's lesson, classwork and homework, asking questions to individual students; and
- d) *others*: proper activity along with lecture, considering the need for using lab (should be avoided mostly as it is chaotic), use of teaching aids, correction of notebooks, tracking students' performance, completion of activity in time.

The conversations with teacher educators suggest that they pay a lot of emphasis on behavioural patterns and physical attributes of classroom. The idea of physical space is limited to desks, light, and board in the classroom. Only one teacher educator mentioned that she actually checks whether the ladies toilet in the school is functional and then goes for classroom observations. When we explicitly asked this question to other teacher educators, they said that this is not their concern. They are expected to focus on the classrooms not elsewhere. Even the physical infrastructure, which emerged as a prominent feature being observed is quite limited. The tacit protocol for observations does not include aspects which may have bearing on learning, like the students' socio-economic background, their regularity in school attendance, peer interactions during the class, etc. On probing about the kind of oral and written comments or feedback they provide to teachers, it came up that they rarely engage in any discussions with teachers. The feedback is usually handed over to the teacher-in-charge of that section or school. Occasionally, a copy of this feedback sheet is given to the teacher who was observed.

Many of the teacher educators talked about the significance of time management. They felt that, teaching an idea, such as decomposition of objects

around us or the multiplication with tens and halves should not take the whole of one lesson (30-40 minutes). There should at least be three or four different topics (or types of problems) with some written work in every class. It is no surprise that the feedback given to teachers does not include much on the content of what is being taught. For them the content to be taught should be visibly present in the textbook (exercise, page and question number). Also, there is a preference towards disciplined classrooms where children sit in order, take turns while talking, complete their class work quietly, and follow the instructions given by their teacher. Several teacher educators believe that if students respond to all the questions posed by the teacher, then they are not learning anything new.

Interestingly, many of the beliefs that are attributed to teachers, such as correction of mistakes, emphasis on (correct) answers, disciplined classroom, use of teaching aids, etc. seem to be consistent with beliefs of teacher educators. The content (subject) matter, nature and form of student-teacher and student-student interactions, teacher's thinking and decision making in class, students' questions, teaching difficulties, opportunities to learn from diverse opinions and experience, etc. are completely missing from the teacher educators' discourse. An interesting and illustrative example to notice is the concept of 'bio-degradable' in Tarique's case. Biodegradation seems to be perceived as a consequential culmination with soil. Opportunities for exploring degradation by microbes (as in the case of onion) or degradation of iron (through a process of rusting) actually would have allowed for a substantiation of knowledge across diverse examples. All of this, received a precocious termination because of a structured arrangement of evaluation with no opportunities for critical reflection and insights about the act of teaching. It is important for us to ask here why decisions which are central to teaching are missing from teachers educators' reflections on classrooms. Perhaps, an authoritarian outlook towards teacher educators' engagement with teachers and a narrowly scoped understanding of student-teacher interactions

which largely involves managerial practices (e.g. disciplining) and completion of syllabus has robbed the profession of teaching to draw upon and benefit from the emergent contexts of learning embedded in student-teacher interactions.

Nature of interactions between teacher and teacher educator

The assessment of a teacher by teacher educator without any interaction presents a unilateral mode of feedback. Also, why is teacher educators' learning from these classroom observations not discussed? The top-down approach of learning is evident as students learn from the teacher and teacher from the teacher educator. Adopting a top-down approach, it seems, will create multiple levels of cadres for training of each group. Re-envisioning the classroom spaces would require students, teachers and teacher educators to draw upon the relevant experiences of classroom teaching. We believe that a potential way to utilise classroom teaching experience as a learning resource would be through communities of teachers and teacher educators talking about the dilemmas of classroom teaching. We need to acknowledge and utilise the work of teachers and teacher educators as opportunities for learning.

The use of structured proformas is inadequate for capturing the diverse yet shared needs of teachers. The diversity of different classrooms can be captured by teacher educators through a variety of modes, such as, studying audio-video records, notes of classroom discourse, students' writing and records of response during their teaching, etc. There is a need for teacher educators to engage groups of teachers using these artefacts of teaching. Through discussions with teachers about the challenges they face in different contexts of teaching, teacher educators can expand their knowledge base and reflect on the experience of teaching. Together with teachers, they can engage in the process of identifying connections in content, develop ways to support students' learning by addressing difficulties in student learning, sharing strategies to teaching difficult concepts, appropriate sequencing, and inter-relations among concepts and domains. Such interactions will promote sharing insights about the nuances of classroom contexts,

learning, subject matter, and the learners. Exploring ways to support classroom teaching will in turn enrich the experience of teacher educator visiting different kinds of classrooms.

Reimagining classrooms as spaces for teaching and learning

Classrooms are imagined as spaces for active interaction between students and a teacher. In such an imagination, conceptually the classroom appears to be a flat-land, a level-playing field, which is largely governed by subject knowledge dealt in the class and the concerns of the students engaged in learning. This contemporary imagination envisages classroom as an 'object' or 'site' where learning is monitored. Instead of tapping the value of classrooms for learning, there is an overemphasis on pedagogic transactions over content, deliverables or outputs over the process of learning, right answers over connections with learners' knowledge, and an interest in judging students and teachers in an environment of learning more than their contribution by participating in a class discussion. As evidenced from the cases of Radha and Tarique, the imagination of classrooms as a site need some kind of a re-envisioning. Perhaps, the landscape metaphor is indicative of the dynamic nature of components within a system prone to transformational changes by an uneven topography of a classroom. Classrooms ought to be looked at as *authentic* resource for learning of students, teachers and teacher educators. Moving from 'classroom as a site for practice' to 'classroom as a resource enabling learning' reconfigures the essence of classroom spaces. The teacher's experiences of dealing with classroom realities and the teacher educators' experiences from diverse classrooms will widen the scope for nurturing learning from each other. Motivated by this idea, we have directed our efforts in drawing teacher educators' attention to these crucial aspects.

We are in a process of developing and trying out some tasks to initiate building of a community of practitioners. One of the initial efforts has been to identify artefacts of practice and designing tasks around the artefacts for focused discussions with teachers and teacher educators. We often

engage them in discussions using short classroom video clips. The focus is on student's knowledge, teacher's decision making, struggles of individuals in a classroom setting, etc. We encourage deeper engagement of teachers and teacher educators, going beyond commenting (or suggesting) to discuss different ways of dealing with situations. Often, it works well when there is a mixed group of teachers and teacher educators. We believe an appropriation of this kind creates a mutual learning environment and sharing of ideas and resources. Such a learning ambience encourages an organic building of association, not coloured by authority coming from a power position but for a pragmatic engagement with teaching *per se*. An atmosphere of mutual learning, trust, and commitment to make learning meaningful can connect Radha and Tarique with other teachers and teacher educators who share similar concerns and sense of purpose.

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