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RESEARCH REVIEW ARTICLE

Elementary Education in India: A Review of Research

RESEARCH PAPERS

Enhancing Teaching-Learning of Mathematics among Grade II
Children Using Storytelling Strategy

Changing School Education Amidst Covid-19 Pandemic: Perspectives
from Rajasthan

Demographic Variables and Psychological Well-being of Teachers

SUMMARY OF ERIC PROJECT

Developing Multimedia Package of Local Folktales and Its Impact on
Functional English of Rural Children

विद्यया ऽ मृतमश्नुते



एन सी ई आर टी
NCERT

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INDIAN EDUCATIONAL REVIEW

The *Indian Educational Review* is a bi-annual journal, brought out by the National Council of Educational Research and Training (NCERT), New Delhi. The journal publishes articles and researches on educational policies and practices and values material that is useful to practitioners in the contemporary times. The journal also provides a forum for teachers to share their experiences and concerns about schooling processes, curriculum, textbooks, teaching-learning and assessment practices.

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EDITORIAL

The current issue of *Indian Educational Review* carries one research review article on the theme of elementary education in India, three research papers, and summaries of an ERIC sponsored research project. Hindi versions of the abstracts of the research review and research papers have also been included.

The current issue carries review of researches on elementary education conducted in India since 2000 by C.G. Venkatesha Murthy and Mythili Ramchand. The review extensively covers studies concerning various aspects of elementary education focusing on access, retention, dropout, quality, teaching-learning process, education of children belonging to disadvantaged groups, teachers and their training, policies issues, etc. An attempt has been made to identify the research gaps and suggest areas for future research.

Three research papers have been included in this issue. The first paper 'Enhancing Teaching-Learning of Mathematics among Grade II Children Using Storytelling Strategy' by Pooja Keshavan Singh and Haneet Gandhi is an action research through which researchers have to enhance the participation of Class II children in the mathematics class. In the second paper 'Changing School Education Amidst Covid-19 Pandemic: Perspectives from Rajasthan', Tasha Agarwal, Deepinder Kaur, and Jyoti Arora have analysed the changing classroom scenario as well as the roles of the students, teachers and parents in COVID-19 pandemic situation. Lastly, Papia Saraf and C.G. Venkatesh Murthy in their paper 'Demographic Variables and Psychological Well-being of Teachers' have examined the psychological well being of teachers of school and higher education institutions.

The summary of a completed ERIC project by N.Vasuki, A.Mangalambai, C.Karthik Deepa and S.Shanthi titled 'Developing Multimedia Package of Local Folktales and Its Impact on Functional English of Rural Children' have been included in this issue. The study reveals the facilitating effect of multimedia package based on folktales on the learning of rural children.

The *Indian Educational Review* focuses on enriching the discipline of education by disseminating findings of educational research, providing opportunities for exchanging research experience among fellow researchers, motivating academicians and providing inputs to all those involved in policy making and planning. Contributions of academicians, researchers and freelancers are cordially invited for the next issue. We seek your suggestions and views on improvement of the journal and research initiatives.

Academic Editor

Do You Know

According to the 86th Constitutional Amendment Act, 2002, free and compulsory education for all children in 6-14 year age group is now a Fundamental Right under Article 21-A of the Constitution.

**EDUCATION IS NEITHER A
PRIVILEGE NOR FAVOUR BUT A
BASIC HUMAN RIGHT TO
WHICH ALL GIRLS AND WOMEN
ARE ENTITLED**

*Give Girls
Their Chance !*



Elementary Education in India A Review of Research

C.G. VENKATESHA MURTHY*

MYTHILI RAMCHAND**

ABSTRACT

Elementary education in India has faced the challenges of access, retention, equity and providing quality education to children. Research in elementary education in India has focused on these aspects. The paper first highlights the international perspectives on elementary education. It then reviews Indian studies conducted after 2000 under 10 sections: Access and enrolment, retention and dropout, teaching-learning process, learning achievement, Education of the socially disadvantaged, availability of teachers, their dispositions and training, learning resources including textual materials and ICT, community participation, infrastructure, resources and grants, and policies and their implementation. Each section summarises the research trends, gaps and offers suggestions for future research. It also describes in detail an empirical analysis of more than 400 researches conducted for award of various degrees as well as research papers or reports. The review recommends that future research should prominently focus on in-depth study of various issues as recommended by the National Education Policy, 2020 by adopting qualitative methodology.

सार

भारत में प्रारंभिक शिक्षा के समक्ष कई चुनौतियाँ, जैसे बच्चों का विद्यालय में पहुँच, अवधारण, इक्विटी और गुणवत्तापूर्ण शिक्षा इत्यादि शामिल हैं। प्रारंभिक शिक्षा में अनुसंधान द्वारा इन पहलुओं पर ध्यान केंद्रित किया गया है। यह शोध पत्र सर्वप्रथम प्रारंभिक शिक्षा के परस्पर

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अंतरराष्ट्रीय दृष्टिकोण पर प्रकाश डालता है। तत्पश्चात् सन 2000 के बाद किए गए भारतीय अध्ययनों की समीक्षा की गयी है जो 10 खंडों में विभाजित है : प्रवेश और नामांकन, अवधारण और ड्रॉपआउट, अध्यापन-अधिगम प्रक्रिया, अधिगम उपलब्धि, सामाजिक रूप से वंचितों की शिक्षा, शिक्षकों की उपलब्धता, उनके स्ववृत्ति और प्रशिक्षण, पाठ्य सामग्री और आईसीटी सहित अधिगम संसाधन, सामुदायिक भागीदारी, आधारभूत संरचना, संसाधन और अनुदान, नीतियां एवं उनका कार्यान्वयन। प्रत्येक खंड के अंत में शोध के रुझान, कमियों तथा भविष्य के अनुसंधान के लिए सुझाव भी दिये गये हैं। इस शोध समीक्षा में 400 से अधिक शोधों का एक विश्लेषण भी प्रस्तुत किया गया है जिसमें डिग्री प्राप्त करने हेतु किये गये अनुसंधान, शोध पत्र एवं प्रतिवेदन शामिल हैं। यह समीक्षा इस बात पर बल देता है कि भविष्य में प्रारंभिक शिक्षा से सम्बंधित अनुसंधान में राष्ट्रीय शिक्षा नीति, 2020 में सुझाए गये मुद्दों का गुणात्मक विधि द्वारा गहन अध्ययन किया जाना चाहिए।

Introduction

Providing education to children at the elementary school stage has assumed significance as it is a vital stage for the development of any nation. It lays the foundation for the development of an autonomous and informed citizenry. That is why, all the countries across the world are engaged in the process of planning, preparing and implementing school education with an emphasis on elementary education. Indeed in any nation, its educational system is based on its historical, political, social, cultural and economic realities and aspirations. However, currently, international level reform initiatives and compulsions inform and influence individual country's system of education in varying degrees. To gain a more nuanced understanding of this complex backdrop under which educational systems operate, researches have been conducted in varied contexts, using a variety of conceptual, empirical and normative frameworks.

In India, after the year 2000, there have been a series of policy directions aiming at the improvement of access and quality of school education. Prominent among them are the launch of Sarva Shiksha Abhiyan, Rashtriya Madhyamik Shiksha Abhiyan, centrally sponsored scheme of teacher education, promulgation of Right of Children to Free and Compulsory Education Act, 2009 and now the Samagra Shiksha. The policy of providing all children up to the age of 14 years free and compulsory education has received broad national and international support. The National Education Policy, 2020 has recommended redesigning of the stages

of school education: Foundational Stage (3 years of Anganwadi/ pre-school+grades 1 and 2; 3–8 years), Preparatory Stage (Grades 3–5; 8–11 years), Middle Stage (Grades 6–8; 11–14 years), and Secondary stage (Grades 9–12; 14–18 years). This review however, focuses on studies related to Grades 1 to 8.

At the international level, it has been reported that free and compulsory schooling increases the probability of children obtaining education beyond middle school in developed countries (Ou, 2013; Smith and Joshi, 2016). Alongside policies, an enabling environment is important (Opoh et al., 2015). Studies indicate that students value a feeling of getting success in schools, in terms of learning the required competencies along with a chance to interact with adults to continue to remain in school (Ekstrand, 2015). Literature also indicates that targeted spending (Machin, McNally and Wyness, 2013) and smaller schools (Leithwood and Jantzi, 2009; Bascia and Faubert, 2012) are beneficial to children from disadvantaged backgrounds. Increased state role (Janet and Thomas, 2005) and accountability policies (Diamond, 2012) were problematic as well as language policies that imposed English as a medium of instruction in contexts where, English was not the language of the local communities (Kamwendo, 2016; Mokibelo, 2016; Trudell, 2016). Standardised tests have led to unintended negative consequences (Feniger, Israeli and Yehuda, 2016).

A creative and dynamic school environment showed a positive effect both on student attainment and teacher professional development (Davies, 2013). Also in such cases, leadership agency was found more important than policy or legal freedoms for ensuring curriculum innovations and effective implementation (Greany and Waterhouse, 2016). Critical studies of curriculum implementation point to the pervasive role of the hidden curriculum in excluding the underprivileged (Jay, 2003). Trends indicated increasing politicisation of the curriculum development process with a greater focus on managerial aspects (Kelly, 2009). While, it is important to measure fidelity of implementing the curriculum interventions and its effect on student learning outcomes, high stakes assessments were found to be problematic (Wyse and Torrance, 2009). Instead, literature indicates that formative classroom assessments have the potential to ensure evidence of learning visible as assessment data. More importantly, they were found beneficial to the learning of both students and teachers in the long run (Clark, 2015).

Research shows that technology interwoven comprehensively into pedagogy acts as a powerful tool for effective learning of elementary students (Chauhan, 2017). ICT use has also been proved effective for inclusive education, be it for students from low socio-economic status (Callow and Orlando, 2015), students with disabilities (Arthanat, 2015) or gifted students (Zimlich, 2015). ICT integration in classrooms was shaped by factors such as teacher attitudes and expertise, available equipment and support, pedagogical decisions related to working with technology and the particular student group participating in the technology use (Badia et al., 2013; Bielefeldt, 2012; Tondeur et al, 2013). The impact of mobile technology were extensively studied. Two of its main impacts are facilitating access to information and increased engagement in learning (Akçayır and Akçayır, 2017). However, studies on the use of other specific technologies and tools are fragmented and a scarcity of comparative studies (Boyle et al., 2016) either among the different technologies or between them and 'traditional' teaching methods preclude possibilities of drawing conclusions about their impact.

Experiences of countries like Finland provides evidence that adopting inclusive policies can lead to an education system that ensures both quality and equity (Halinen and Järvinen, 2008). Inclusive schools are found to have a positive effect in terms of developing friendships and reducing abusive behaviour (Bunch and Valeo, 2004).

Action research has gained wide acceptance in the education sector. Later reviews indicate that action research theory and practices are remodeled in local contexts and are being used to support educational reforms (Somekh and Zeichner, 2009). A common feature across all of them is an attempt to resolve issues or generate new practices through a reflective process of inquiry and knowledge generation (*ibid*). However, there is a lack of robust literature on building theory from action research, and on action research and complexity (Dick, 2004). Literature reporting on the evidence of its impact on the field is also scant.

In India, attempts were made to review the researches related to elementary education earlier. The fourth survey of research in education contained a chapter on research in elementary education (Grewal and Gupta, 1991), the fifth survey on primary education (Dave, 1997) and sixth survey on management of elementary education (Jain, 2007).

The sixth survey reviewed studies conducted till 2000. Against the above backdrop, this review attempts to capture the broad trend of research that has been undertaken in India after 2000. It also attempts to find out gaps in the researches and suggest future areas for research.

Research in the Indian Context

The present review of research conducted in India in the field of elementary education has been divided into 10 sections: Access and enrolment, retention and dropout, teaching-learning process, learning achievement, education of the socially disadvantaged, availability of teachers, their dispositions and training, learning resources including textual material and ICT, community participation, infrastructure, resources and grants and policies and their implementation.

Access and Enrolment

The health of any educational system depends upon how its society is providing access to education and is enrolling its children in the educational system. Both access and enrolment are crucial at the elementary levels. With the implementation of SSA since, 2002 and further policy support from the RTE Act of 2009, access to school education has eased out in India. The issue of providing access has almost saturated. On the issue of access and enrolment, the situation has improved drastically and yet there are issues the system is still grappling with. On these issues, researches have been undertaken in different contexts.

Access

Providing access to elementary school children is one of the responsibilities of the state. “Article 21-A of the Constitution of India and its consequent legislation, the Right of Children to Free and Compulsory Education (RTE) Act, 2009 became operative in the country on 1 April 2010. This development implies that every child has a right to elementary education of satisfactory and equitable quality in a formal school that satisfies certain essential norms and standards. The reform processes initiated in 2010 has since then continued. As per *Annual Report 2014–15* of MHRD, “All States/UTs have notified their State RTE Rules”. As per the Right of Children to Free and Compulsory Education (RTE) Act, (2009), children at the primary level must have access to a school within 1 km of radius from their habitation and the upper primary

school children within 3 km of radius. The ultimate objective of this provision was to ensure that children who did not stay out-of-school feel encouraged to attend school and continue their studies. The central and state governments have taken initiatives of providing access to elementary education in formal as well as alternative modes of education to all children. Under Universal Access, the central government has taken the following initiatives (MHRD, 2015-16): Opening of new schools, special training of teachers for mainstreaming out-of-school children, providing residential transportation or escort facilities to the needy ones, and distribution of uniforms and learning material.

Education Guarantee Scheme (EGS) and Alternative and Innovative Education (AIE)

The EGS and AIE are important components of SSA to bring out-of-school children into the fold of Elementary Education. The scheme envisages that child-wise planning needs to be undertaken. It is planned as an intervention that addresses the need for inaccessible habitation where there is no formal school within the radius of 1 km and where at least 15–25 children of 6–14 years age group are available who are not going to school. In remote habitations in hilly areas even for 10 children, an EGS school was allowed to be opened. Provision was made to upgrade EGS centres to primary or upper primary schools, along with teachers, and infrastructure facilities as mandated under RTE Act, 2009.

Alternative and Innovative Education (AIE) interventions were planned for specific categories of deprived children, for example, child labour, street children, migrating children, working children, children living in difficult circumstances and older children in the 9+ age group — especially adolescent girls are supported all over the country.

A sizable number of out-of-school children were in the habitations where schooling facility is available but these children either did not join the school or dropped out before completing their schooling. These children may not fit into the rigid formal system. To bring such children back to school; Back to school camp and Bridge Course strategies were implemented. Bridge courses and Back to school camps can be residential or non-residential depending upon the need of children. (Source: National Portal Content Management Team, Reviewed on: 19.01.2011) There are certain studies conducted by researchers on the above issues.

There are a few studies on alternate schooling. In Uttar Pradesh, schools were opened in 53 per cent of the un-served habitations. In the previous academic session, alternate schooling facilities were available in only 35 per cent of un-served habitations (Srivastava, Pandey, and Srivastava, 2008) while, in Rajasthan alternative schools provided access to schooling facility to children in the age group 6-14 residing in hamlets or difficult areas. Schools worked for 4 to 6 hours per day and timings were flexible to suit children needs (Chakraborty and Khanna, 2008). A study conducted at the national level on the role of EGS and AIE centers in mainstreaming the children to formal schools in Rajasthan and Madhya Pradesh found that the EGS and AIE centers were predominantly run by the government with the help of community and were providing access to children who were not going to school earlier. There was no difference in the running of EGS and AIE centers except the timings. Both the states differed on the issue of mainstreaming (Sangai, 2004).

Studying the effectiveness of the Education Guarantee Scheme (EGS) in covering out-of-school children in Assam, it was found that all EGS centres satisfied the norms of their establishment. Community members were of the opinion that all out-of-school children had been covered by the EGS and in that the dropout rate was moderate. *Shikshamitras* made EGS accessible to children by convincing their parents and teaching in a joyful environment. In *Shiksha mitras'* view their centers were regular (Sarkar and Baruah, 2008). In West Khasi Hills district, EGS centers ran from 6.00 am to 9.00 am to cater to the needs of working children. Most of the EGS centers lacked basic facilities, such as toilets, drinking water, sufficient sitting space, blackboards, etc. Enrolment was low and teachers were untrained. Some of them were graduates. Majority of teachers were women. Children were not provided with learning materials. Grants were released annually. Enrolment in centers was low as the children were engaged in sibling care. Community participation was poor and the supervision system of EGS centers needed improvement (Lyngdoh et al., 2006).

On the issue of Residential Bridge Course facilities (RBCs) in Andhra Pradesh, it was found that most of the RBCs were located in rural areas. Majority of the RBCs started during the years 2000–2006. The highest number of children enrolled in RBCs was 222 and the lowest number was 54. Most of the enrolled children had

dropped out-of-school at different stages. However, one-fifth of them were never enrolled in the school earlier (Devi and Kumari, 2007). Attempting to mainstream the children from non-residential Bridge Courses (NRBC) to formal schools in five districts of UP, it was found that most of the NRBC centers were working in the constraints, such as inadequate space and lack of basic facilities like drinking water and toilets. RBCs enjoyed certain advantages over NRBCs for obvious reasons (Saluia, 2008).

Studying the status of *Madhyamik Shiksha Kendras* (the Institution for upper primary level) in West Bengal, it was found that, nearly half of the centers had one or more than one high/higher/junior basic schools within the 3 km radius to meet the demand of elementary education in that particular area. Total enrolment in sampled centers varied from 117 to 290 with PTR varying from 22 to 48. In all the centers, girls' enrolment was higher as compared to the boys and their proportion varied from 54 per cent to 70 per cent. Most of the students admitted to the *Madhyamik Shiksha Kendras* were those who could not be accommodated in government schools due to the intake capacity of the schools at the elementary level (Salam and Mandal, 2005).

Enrolment

The enrolment in the country has moved quite steadily over the years except at certain points when the enrolment decreased, i.e., during 2008–09, it was lesser compared to the previous year 2007–08. Likewise, at the primary level, 2001–02 figure was lesser than the previous 2000–01, 2012–13 was lesser than the previous year 2011–12. At the macro-level, it may be difficult to attribute any specific reasons. However, it is a fact that the enrolment figures in the country were progressing (Source: Statistics of School education, 2007–08, MHRD; Educational statistics at Glance, 2011; Statistics of School Education, 2010–11, MHRD; and U-DISE, NUEPA). There are a number of research studies conducted on different issues related to enrolment at the elementary level.

General Issues of Enrolment

A national evaluation of Kasturba Gandhi Balika Vidyalayas (KGBVs) in 12 states found that most of the states had a high proportion of older girls who had dropped out. In states like Arunachal Pradesh, Bihar, Gujarat, Rajasthan and Uttar Pradesh,

girls who were never enrolled were also admitted in the KGBVs, with their proportion varying from 69 per cent in Gujarat to 11 per cent in Rajasthan. Across the states, girls in most of the KGBVs seemed to have settled down well and were happy and confident (Gender Unit, TSG-SSA, 2007). While assessing the functioning and effectiveness of KGBVs in 12 districts of UP, it was found that in most of the districts, the school building of KGBV was under construction and the school was running in DIET. In all 1059 girls were enrolled in 12 KGBVs visited by the teams. Most of these girls were from OBC category followed by SC/ST, general and Muslim categories (Mehrotra, 2006).

The effect of NPEGEL on girls' education in the educationally backward block with non-NPEGEL blocks in Haryana was studied and it was found that there was a decrease in the enrolment at the primary level from 2002–03 to 2005–06. In upper primary classes there was an increase in enrolment; for SC category the increase was 13.4 per cent and for backward category 9.1 per cent; the overall increase being 5 per cent. In non NPEGEL blocks the enrolment decreased by 7 per cent (overall) at primary level. No difference was observed in enrolment at upper primary level from 2002–03 to 2005–06. However, increase in enrolment was observed for the SC (11.5 per cent) and OBC (8.8 per cent). Assessing the impact and effectiveness of innovative programmes in girls' education programme in Uttarakhand covering upper primary schools in 6 districts, it was found that barring the years 2001–2002, girls' enrolment in the selected upper primary schools was higher than that of boys during the last five academic sessions. The proportion of girls' enrolment improved over a period of five years particularly for SC girls (ORG Centre for Social Research, 2006).

In a study comprising of 45 districts of Madhya Pradesh, enrolment of students was found to be 100 per cent to 105 per cent in the districts. The average attendance of students was 69 per cent (range 63 per cent to 80 per cent) at the primary level and 73 per cent (range 69 per cent to 88 per cent) at the upper primary level (Rajya Shiksha Kendra, 2003). In Rajasthan, a survey was conducted which saw district wise variations in average enrolment of the girls at primary and upper primary stage. At primary school level, the lowest was 31 and highest was 71, and average enrolment was 53 per cent. At upper primary school level, the average enrolment of girls was 116 (Rao, et al., 2008).

A sample survey of school children in 5 districts found that, in all 16,878 children in the age group of 6–14 years were mapped from 11,295 households enlisted during the course of study. About 54.4 per cent of them were boys and the rest were girls. Among the total children identified in the age group of 6–14 years, 69 per cent were in the age group of 6–11 years, while the rest (i.e., 31 per cent) were between 12 to 14 years of age. The majority of them were enrolled in different types of schools. Less than 1 per cent of children were enrolled in alternative schooling systems, such as EGS, AIE, etc. While two-third of the children were enrolled in government schools and nearly a third were enrolled in private schools. In urban setting, 51 per cent were in private schools (Misra and Baraj, 2008).

In a study of 13 districts of Uttarakhand, it was found that out of a total of 5,29,025 children in the age group of 6–14 years 94 per cent of them were enrolled in school. Around 45 per cent were girl children, out of which 17.2 per cent were in the age group of 11–14 years and 27.9 per cent in the age group of 6–10 years. Amongst boys, 21.40 per cent were in the age group of 11–14 years and 33.5 per cent were in the age group of 6–10 years. Across the districts, enrolment ranged from 93.2 per cent to 99.6 per cent (Sharma, 2007). In a comparative study of birth rate and enrolment rate of children in Gujarat, it was found that the ratio of the school-going children to the total children in the age group of 5 to 12 years was 84.1 per cent in 2003 that got improved by 3.8 per cent points in 2004. The boys' enrolment improved by 3.8 per cent points in two consecutive years while, the girls' enrolment improved by 3.7 per cent points during one year. Better performing districts were comparatively smaller in size in terms of population. Districts like Ahmedabad, Rajkot and Surat showed a lower enrolment ratio despite, having large enrolment in schools. Districts like Dangs, Narmada and Banaskantha showed an improvement in enrolment ratio (Shah et al., 2006).

Evaluating the impact of Integrated Education for Disabled intervention with a focus on enrolment and retention in schools of Gauhati, it was found that over the last three years there has been improvement in the identification of CWSN. Out of the total CWSN identified, two-third were enrolled in the schools in 2006–07 (Das, 2007). While, in Jharkhand out of 66,721 children enrolled in these schools, there were 1,023 CWSN with 58.7 per cent

boys and 41.3 per cent girls. Enrolled boys (CWSN) were 1.8 per cent of the total boys' population and enrolled girls (CWSN) were 1.3 per cent of the total girls' population (Chadha, et al., 2005).

Impact Studies

In the Terminal Assessment Survey (TAS) for DPEP Phase II districts of Rajasthan, it was found that after the intervention of DPEP, enrolment increased from 2.1 million children in 2001–02 to 2.5 million children (increase of 17 per cent over baseline) in 2006–07. Girls' enrolment increased from 0.9 million in 2001–02 to 1.18 million in 2006–07 (increase of 26 per cent). The overall gender gap in nine districts came down from 12.5 per cent in 2001–02 to 5.3 per cent in 2006–07. The gender gap was reduced to less than 5 per cent in Jaipur (4.1 per cent) and Dausa (3.8 per cent). It reduced from 14.9 per cent in 2001–02 to 5.8 per cent for SC and from 13.1 per cent to 3.9 per cent for ST categories (Singh et al., 2008).

Causes of Low Enrolment

Studying the causes of low enrolment of SC and ST girls in primary schools in four districts of Gujarat, it was found that the enrolment of SC/ST girls was low in schools. Nearly half of the sampled schools had 60 per cent to 90 per cent enrolment of SC/ST girls. Low enrolment was due to the children's involvement in domestic work, large family size and economic backwardness, lack of awareness about the benefits of education, migration and social customs such as polygamy and underage marriages. Teachers' non-teaching activities, their transfers, home not being in the village and lack of female teachers in the school also resulted in low enrolment of girls (Shah et al., 2006).

Studying the problems of enrolment among the students of primitive tribes of Odisha, it was found that most of the tribal schools were single teacher schools and were held either in thatched huts or in open spaces. Pupil-teacher ratio was very high and the attendance rate was low. Schools lacked a systematised and suitable curriculum, relevant to their lifestyle. Parents had little faith in education. Teachers lacked proper training to influence the Tribal. Children lacked adequate verbal ability and achievement motivation (Acharya, 2007).

In Maharashtra, it was found that during 1998–99 to 2003–04 enrolment of children in Classes I and II declined by 9 per cent.

This was more pronounced in the DPEP districts and in non-DPEP districts, the decline was only 3 per cent from the base year. This may be because when most of the children of age five got admitted in the first grade in a certain year, in the next year, the availability of children went down. The impact of the Household Enrolment Survey was visible in many of the districts. In DPEP districts where this survey was initiated in the year 1997–98, changes in the form of bulk enrolment in Classes I and II were noticed. The study revealed a sharp difference in infrastructure facilities among the schools. Decline in enrolment was evident in significant number of schools with poor infrastructure facilities.

At the national level, among the children who were out-of-school, 68.26 per cent were those who never went to school and 31.7 per cent were those who had dropped out from school after one or more years of schooling. Among those, who were reported to be attending school in the age group 6–13, an overwhelming number of 73.07 per cent were in government school, in the private recognised schools, 0.66 per cent in private unrecognised schools and 0.68 per cent in AIE centers, Madarasa etc. More than 10 per cent of the urban children in the age group of 6–13 year was living in slum areas and 3.74 per cent of these children were out-of-school. Estimates provided by the survey were expected to be quite reliable at the level of the country and for major states, as the sample was fairly large and representative of all the regions (RESU and Social and Rural Research Institute – IMRB International, 2005).

Thus, different issues concerning access and enrolment have been studied. However, at this time researchers start penetrating deeper into the same issues for quality in all aspects of access and enrolment. Hitherto, researchers have studied access and enrolment as given manifest facts. There is a need to see issues of access and enrolment not just as facts but as dynamic issues where and why access and enrolment are looking up and where they are suffering. This is an area that requires larger institutional researches. The different states can also take it up as multi-centric studies where, the local realities and dynamics can be understood better. At the macro-level decisions can be taken to facilitate systemic reforms.

Retention and Dropout

Attendance of Students

Retaining learners in the system is an important challenge. There are researches on different aspects of retention covering status

and impact of retention. In a national-level study focusing on the attendance of students in primary and upper primary schools in 20 major states, it was found that overall, average attendance rate of students was 68.5 per cent at primary and 75.7 per cent at upper primary level. The attendance rate of girls was a little higher than that of boys. At the upper primary level, there was not much difference between attendance rates of different social groups. It was between 76 per cent and 79 per cent. The lowest attendance rate was in Class I (65.6 per cent), which increased gradually by 2 to 3 percentage points from one class to the next. However, there was no such increase from Classes IV to V. The overall average attendance was a little lower in rural schools than in urban schools (68.0 per cent and 71.2 per cent respectively at primary level). But in some states, the opposite was the case. The main reasons for children being absent from schools given by headteachers, teachers and VEC members were lack of adequate school, teachers' shortage and overcrowded classrooms, children requirement for household work or sibling care at home, children required to help parents in agriculture or other occupational requirements or being involved in some income generating activity and parents' indifference or lack of interest in child's education. Parents mostly felt that lack of facilities at school and the child's unwillingness to go to school were main reasons for frequent absence from school (RESU, TSG-SSA, 2008).

Studying the effect of school and home factors on the attendance of children at the primary stage in five districts of Karnataka, it was found that variation was observed in the attendance rate of students across districts. The phenomena of irregular attendance and dropout was observed to be highest in Class IV followed by Classes I and III. Irregular attendance was found to be higher amongst rural children. Long absence, irregular attendance and dropout of students were prevalent more in schools with unfavourable environment having untrained teachers, lacking TLM and midday meals and having children from families with low socio-economic status and disadvantaged social groups (SC/ST). A significant positive relationship was observed between attendance and home variables. The reasons for the children not being in school were poor economic status of parents, lack of home support for education, strict teachers, non-availability of learning material and lack of basic facilities in schools (Kulsum, 2008). In Uttar Pradesh, students' attendance rate at primary schools was 64 per cent

and at upper primary schools it was 67.0 per cent (Ahmed, 2008). In 45 districts of M.P. the average attendance of students was 69 per cent at the primary level and 73 per cent at the upper primary level. Students' attendance at primary level was between 63 per cent to 80 per cent and 69 per cent to 88 per cent at the upper primary level (Rajya Shiksha Kendra, 2003). The retention rates in Mumbai were marginally higher than in Delhi (Banerji et al., 2005).

Factors influencing Attendance and Retention

Different factors have been found to influence the retention and attendance of students. They include the following: Innovative multimedia programme (CAL Team and Singh, 2007), teachers' attendance (CMS, 2008), teachers' presence (Oxi-Zen Research Group, 2008). IED intervention lead to high retention of CWSN children (Das, 2007), computer education (Das, 2008), mid day meal (Day et al., 2008), interesting teaching learning, supplementary learning material, good learning environment, better communication skills and command on medium of instruction and subject matter (Kishore and Kulhari, 2008), cleanliness in the classrooms, cleanliness of dress of students, activity-based-education, application of TLM, attractive behaviour of teachers with students and favorable environment (Sahu, 2006), free textbook distribution (Sarkar, 2008), school-community networking. Major incentives were given to children covering scholarship, mid-day meal, uniform, cycles, textbooks (Srivastava et al., 2008), mid-day meal programme (Subramanyam, 2009), residential bridge courses to facilitate CWSN children and got mainstreamed (Rastogi and Batra, 2008), retention of girls in schools due to the influence of vocational training, (Gender Unit, TSG-SSA, 2008). Shah and Chaudhari (2006) found that attendance of girls also depended on their guardians' awareness.

Several other factors also influence attendance and retention. Included among these were factors within school and classroom processes, the quality of classroom processes, use of corporal punishment, untrained teachers, poor participation of parents and community in school activities, non-conducive physical and educational facilities and teachers' professional qualifications (Soni, 2005), poverty or assisting parents in economic activities (Rao et al., 2008).

Dropouts

Normally, dropouts are those children who absent remains from school continuously for a long time without permission from the school authorities, as stipulated by the respective states. Different States have their own definitions of dropout and equally important is that different States have their own strategies in arresting dropouts. It is seen that, the dropout rates have reduced over the years (*Statistics of School Education, 2011–12, MHRD, GoI*). However, dropout is an eternally disturbing phenomenon of school education system. There are different strategies used by the system in different contexts. Researchers have identified different factors as responsible for dropouts. There are economic factors, social factors, family factors, health factors, interest factors and school related factors that contribute to school dropouts. Economic factors covering poverty (Soni, 2005; Sarkar and Baruah, 2008; Lochan, 2007), slum dwelling (Duraismy, 2006), poor social economic background (Sudhir, 2003) and continuing with of the father's occupation (Patel et al., 2006) and additional income generation (Shekhar, Nair, Prabhakar, and Rao, 2008) are the factors that force children to dropout.

There are other social factors responsible for dropout. They include engagement in ancestral occupation (Kristian and Gupta, 2006), not considering education as important by some communities (Misra and Baraj, 2008), illiteracy of parents and lack of awareness in the community about education as well as early marriage of child (Mohan and Pandey, 2004), additional income generation (Sekhar et al., 2008), scattered houses, distance from home, lack of proper transport facilities, keeping girls busy in agriculture, sending girls for cattle grazing (Shah, et al., 2006), domestic work (Misra and Baraj, 2008; Sudhir, 2003) sibling care (Kristian and Gupta, 2006; Shekhar et al., 2008), social conventions (Lochan, 2007) and lack of educational facilities at home (Mohan and Pandey, 2004). There are also family factors including broken families, lack of parental interest and migration (Soni, 2005), discouragement by parents (Sudhir, 2003) compulsion of staying in slums (Duraismy, 2006) and inadequate use of facilities, (Chakraborty and Khanna, 2008). Migration of the family (Soni, 2005 and Sudhir, 2003) has also been found to be a contributing factor of dropout.

Health related factors covering handicaps (Kristian and Gupta, 2006; Soni, 2005; Sudhir, 2003), illness of children (Mohan and Pandey, 2004; Kristian and Gupta, 2006), lack of health facilities (Shah et al., 2006) and malnutrition (Sarkar and Baruah, 2008) had also been found to contribute for drop out of children. Lack of parental interest (Soni, 2005) and personal interest (DRS and RESU-TSG 2009; Misra and Baraj, 2008) were also found to contribute for drop out.

Further, there were school related factors also which was responsible for drop out of children. Children felt it difficult to understand textbook language (Shah et al., 2006), basic facilities not being available in schools (Lochan, 2007; Patel and Bhatnagar, 2006), unhealthy school environment (Sudhir, 2003), apart from other factors, such as single teacher schools, lack of quality teaching, teachers' involvement with other non academic assignments, and poor condition of the school buildings (Lochan, 2007). All the above factors were found responsible for school dropout.

Out-of-school Education

Out-of-school education in the Indian context is quite a mosaic. Different States have their own determinants and definitions even though, it is understood alike by all in the country. Different States have different criteria to consider students as out-of-school. It even keeps on changing within a State too.

In a national level study on out-of-school children covering almost all States and UTs, it was found that the percentage of out-of-school children was relatively higher among those in the age group 11–13 years (5.23 per cent) compared to those in the age group 6–10 years (3.69 per cent). Percentages of out-of-school boys and girls in the age group 6–10 years were 3.40 per cent and 4.04 per cent, respectively. For the age group 11–13 years, the percentage of out-of-school children was relatively higher among girls (5.79 per cent) than boys (4.77 per cent). Among the different social groups, the estimated percentage of out-of-school children was 7.67 per cent for Muslims, 5.60 per cent for STs, 5.96 per cent for SCs, 2.67 per cent for OBC and others. The survey revealed that estimated 2,897,096 children in the age group 6–13 (i.e., 1.52 per cent of the total number of children in the age group 6–13) were physically or mentally challenged. Of these, 38 per cent suffered from orthopedic disability whereas, the

percentage of children suffering from hearing, speech, visual, mental, and multiple disabilities was 7.72 per cent, 13.05 per cent, 13.29 per cent, 17.95 per cent, 9.75 per cent respectively. Out of the total physically or mentally challenged children, 9,88,359 (34.12 per cent) were out-of-school. Analysis by different types of disability showed that 58.57 per cent children with multiple disabilities were out-of-school followed by those with mental disability (48.03 per cent) and speech disability (36.96 per cent). Among those with visual disability 29.7 per cent were out-of-school. At the national level, among the children who were out-of-school, 74.89 per cent were those who never went to school and 25.11 per cent were those who had dropped out from school after one or more years of schooling. Among the out-of-school children in the age group 6–10 years, the percentage of dropout was 26.61 per cent. Among the dropouts, the highest percentage was of those who dropped out after completing Class II and Class III i.e., 19.64 per cent and 19.55 per cent respectively. Next was the percentage of those who dropped out after Class V which was 19.17 per cent. There was considerable decrease in the proportion of out-of school children over the last 3 years. The percentage of out-of-school children was 4.28 per cent in 2009 compared to 6.94 per cent in 2006 survey. This decrease was higher in rural areas (4.53 per cent in 2009 from 7.8 per cent in 2006) than in urban areas (3.18 per cent compared to 4.34 per cent in 2006). In terms of age and gender, the decrease was nearly same 3.71 per cent from 6.1 per cent in 2006 for age group 6–10 and to 5.23 per cent from 8.56 per cent in 2006 for male children and 4.64 per cent in 2006 for female children. Among the different social groups, the decrease was highest in case of ST children (5.6 per cent from 9.54 per cent), OBC and others (2.67 per cent from 5.55 per cent in 2006), SC (5.96 per cent from 8.17 per cent) and Muslim children (7.67 per cent from 9.97 per cent) (Social and Rural Research Institute IMRB International and RESU, 2009).

In another study on 13 districts of Uttarakhand, it was found that about 6 per cent children were out-of-school of these, 3 per cent belonged to 6–10 years age group and 3.2 per cent were in the age group 11–14 years. Overall there was no difference by sex with regard to children being out-of-school in any of the two age groups. High illiteracy rate, floating population and high percentage of parents who were unskilled workers were cited as some of the causes of children being out-of-school (Sharma, 2007).

A study of out-of-school children of migratory families in Gujarat found that 50 per cent of VEC members reported that teachers were interested in bringing the migrated children back to school. Around 83 per cent head teachers felt that facilities of school uniform, textbooks, scholarships etc. are necessary incentives to bring the migrated children back to school. There was a need to inform students or guardians about migration card. Nearly, half of them perceived the problem of migration as an obstacle to school and classroom teaching. Around 85 per cent of the class teachers were in favour of providing uniforms or textbooks or scholarships to children from migrated families. As per teachers' views, children of the migrated families affected the results. Problem of frequent absence and understanding of the language was also reported by nearly two-third of the teachers. Guardians attributed their children dropping out-of-school mid way to migration, enjoying their childhood and lack of optional scheme for the child's education. Majority of children were not going to school at migrated place, though they got sufficient opportunity to study at the place of migration. They were not comfortable at the migrated place and did not get proper support from the teachers of the school at the migrated place (Gohil et al., 2006).

In another study on the migration of students in Rajasthan it was found that the percentage of migrants out of total enrolled students ranged between 1.12 per cent to 5.07 per cent. The reasons for migration were poor economic condition, small size of agricultural land, large family size, lack of education among parents, lack of interest in studies and low quality of education in schools. The agencies and persons responsible for migration of children were parents, contractors, relatives, other labourers of village, employers and friends (Arora and Pandey, 2008).

On the issue of retention and dropout, researchers have studied facilitators and impellers. Eventually, it is each schools' responsibility to retain children and arrest dropouts. Since schools have failed to retain and to arrest dropout, State at the top and the community at the local level have to take the responsibility for not being able to sufficiently support the school in achieving its objectives of retention and dropout. There is a need to study the State policies, the loopholes in the policy implementation, in its monitoring and supervision as well as its inability to make policies achievable. Studies which can throw light on the States' role perhaps would be useful. At the same time, the role of the

community, the SDMCs and SMCs need to be studied in depth. This issue could be taken at using community-based collaborative action research by the sub-district functionaries of the education department in order to ensure that the system is able to function better. Independent researchers probably would only be able to provide facts and figures but they may not be able to bring about systemic changes. Therefore, these concerns are to be undertaken with education departments through community-based action researches.

Since the research trends indicate that a large chunk of disabled children contribute for out-of-school pool in spite of the fact that the home-based education has been able to cover even the severely disabled children, it becomes important for researchers to study in depth as to what is happening in the home-based educational settings. Apart from that there are more researches required in understanding the disabled children who are out-of-school and to enroll them to the nearby schools.

Teaching and Learning Process

Teaching and learning constitute the crux of school education. There are different concerns related to teaching and learning on which researches have been conducted. Included among them are: remedial education, teaching and learning process for CWSN and teaching, learning and evaluation. They are discussed as follows.

Teaching and Learning Process

Teaching learning process is the heart of any education programme. To bring out change in the teaching-learning process from memorisation to competency building, NCERT (2017) brought out a document, *Learning Outcomes at Elementary School Stage* for Classes I to VIII across different subjects. In addition to the learning outcomes, the pedagogical processes required for achieving learning outcomes have also been enumerated.

Studies have been conducted on different aspects of teaching-learning process. In a study conducted by Bhatta and Bora (2009), it was found that in most of the schools, teaching learning aids were being used viz. thematic activity book, songs, rhymes and games book, TLM kit box, drawing and coloring book, crayons, pencil and eraser, play material. Beginners English, and Karmaputhi. Teaching learning process was activity-based in schools supported by Ka-sreni and schools supported by ka-sreni

workers (Bhatta, and Bora, 2009). Activity-based teaching learning process was observed in two thirds of the centers where CRCCs and BRCCs provided support on content, lesson planning and activity development (Nayak, 2006). Studying the effectiveness of use of computers in teaching learning, it was found that many teachers were developing teaching learning materials, lesson plans etc by using computers. Computer as a teaching tool minimised the task of most of the teachers as it became easier to explain the subject matter through visualisation and practice (Das, 2008). Assessing the impact of CLIP I and II programmes, it was found that teachers spoke fluently, their voice was clear and audible and they maintained eye contact while, teaching or speaking to children. A sense of competition was evident among teachers to make their class best in the school by upgrading students' class performance and cleanliness (Devi et al., 2006), and in almost all the subjects, the home assignments were a repetition of the class work done and without any enrichment indicating that the purpose and importance is not clear to the teachers (Bhatia, 2014).

Inclusive Concerns in Teaching and Learning Process

There are studies exclusively on the teaching-learning process for CWSN children. Banerjee and Mehandale (2006) found that the resource teachers under IEDC scheme felt that educating a challenged child with normal school children would provide opportunities to such children to develop an awareness of their abilities rather than their disabilities. A number of initiatives were undertaken to promote inclusive education such as creating awareness in society regarding the education of the disabled children, providing solutions for problems arising in the classroom, encouraging the children with disabilities to achieve their maximum, organising training programmes for parents and teachers of children with disabilities, conducting different programmes and cultural activities to draw the attention of the members of community towards the problem of children with disabilities, encouraging various organisations and NGOs to provide help to the children with special needs (Verma, 2004). Integrated Education of the Disabled helped in improving the attendance of CWSN in schools, facilitated their progress and participation in curricular and co-curricular activities, developed positive attitude among general teachers and non-disabled children, improved

their personal, social and academic skills, self-esteem of children with disabilities and reduced the dropout rate (Verma, 2002). Different programmes organised for the education of children with special needs included identification of such children through home-to-home enumeration work, faculty of scholarships and medical assistance, organisation of medical camps, providing training to teachers as IED teachers and organisation of awareness programmes for the classroom teachers, parents and public (Venkatesh, 2006). Studying the training on how to deal with CWSN, some teachers said that they used TLM according to the topic and disability of the child. Training increased the positive attitude towards CWSN, a small segment of teachers even prepared Individualised Education Plans (IEPs) for CWSN or provided remedial teaching to CWSNs. IED intervention was found to improve their children to some extent. But very few felt that intervention had any great impact on the personality and behavior of CWSN (Das, 2007). The Resource teachers (RTs) and volunteers provided home-based education and counseled parents, and around half of the parents felt that their CWSN were treated like other children and were satisfied with resource support (Choudhury et al., 2008).

Insufficient infrastructure, level of disability of CWSN and lack of parent's cooperation were some of the major problems faced in implementation of IED intervention (Das, 2007) in Assam. Nearly half of the population of CWSN was still not in any school and there were a number of obstacles faced by the local governments in educating children with disabilities in mainstream schools (Julka, 2005). The resource teachers for inclusive education and regular teachers were of the view that integrating children with special needs in regular schools makes it difficult for teachers and quite a few of them were of the opinion that education of such children should be in special schools or home-based (Banerjee and Mehandale 2006). A majority of teachers did not adapt instructions frequently in the classroom to meet the special needs of the children and most of the teachers preferred to use lecture method for teaching. The teachers' lack of knowledge and their empowerment were the reasons for making no adaptations (Julka, 2005). A majority of the children were not satisfied with the aids and appliances supplied to them and teachers' attitude towards students needed improvement (Choudhury et al., 2008). There was non-cooperation among government officials in the implementation of inclusive education under SSA. It may be due to the lack of

understanding of scheme by educational administrators, lack of awareness, attention and attitude of government officials (Dubey and Pandey, 2012). In the context of making teacher education programme more meaningful, Julka (2003) proposed that there is a need to revise the existing teacher education course contents in order to prepare the teachers to respond to diversities in the classroom. There is an overwhelming need for all teacher education institutions including DIETs to orient teachers to the issues of inclusive education, teaching approaches and styles.

Remedial Education

Remedial education programme Balsakhi in Vadodra for children in Classes III and IV was found to be very effective by way of increasing average test scores using Computer Assisted Learning (CAL) programme (Banerje et al., 2004). In a Remedial Teaching Programme (RTP), it was found that most of the teachers were using specified curriculum while, a small segment of teachers were not following the curriculum. Relatively, more female teachers were conducting RTP compared to male teachers. A large number of teachers used innovative methods while, teaching the students (Joshi, 2007). In a national level study, it was found that in a couple of states like J and K and Chhattisgarh remedial teaching and student evaluation for learning outcomes was carried out at block and cluster levels to raise the learning capacity of girls. Remedial teaching and private tuitions were fairly common as parents and girls were eager to do well in examination once they were in school (Gender Unit, TSG-SSA, 2008).

Teaching, Learning and Evaluation

Evaluation is an integral part of teaching-learning. There are studies concerning this issue as well. Studying the education scenario at local levels, it was found that teachers usually taught more than two subjects. A large majority prepared lesson plans before teaching. Around half of them used dictionaries but reference books were used by very few. About half of the teachers used charts, globe and maps as teaching aids (Lynoo et al., 2006). Schools have become regular and the presence of teachers in the schools has improved teaching learning transactions are predominantly activity-based and prone to question-answer sessions, students ask questions and students' participate especially, those from the category of SC and

girl students had improved in visible ways. Over all, a salutary effect was perceptible in most of the districts (Pandey, 2005).

In a classroom process study it was found that there was a perceptible paradigm shift from teacher-centered to learner-centered method. Children were active in all the activity-based learning classrooms. Improvement was observed in children's reading, writing, narrating and other cognitive domains including numerical skills. Seating arrangement increased children's access to teachers whereas, learning in groups increased children's curiosity and socialisation, tendency to help peers, self-esteem, and involvement in learning process and subsequent learning, personal hygiene and order in the classrooms as well as the overall mental health (Prema, 2009). Studying the teachers' activities in the class, it was found that on an average, 29 per cent of the teachers' time in classroom was being spent on student-centric activities (RESU, TSG-SSA, 2008). A large majority of teachers found that effective use of TLMs in teaching learning process have benefited students in getting their concepts clear to a great extent (Pandey et al., 2008). In a comparative study of ADEPTS and non-ADEPTS schools it was found that relatively more students' portfolios were prepared and updated in ADEPTS schools than in non-ADEPTS schools. Reading corner was also more accessible to children; ADEPTS' teachers were also more conscious of the desirable practices and also willing to put an extra effort required (SARED, 2009). Studying the effectiveness of new assessment scheme, it was found that teachers' work increased at the initiation of scheme but it came down to an acceptable level once, they understood the intricacies of the scheme. The scheme improved systematic observation, recording and reporting of students' performance in scholastic and co scholastic areas. Teachers used variety of techniques for assessment of students' performance. Students learned about peer-assessment and self-assessment techniques. Diagnostic testing and remedial instructions were found effective in improving students' performance. Students' performance improved steadily in co-curricular activities (Rajput, et al., 2003).

In the context of Meghalaya, it was found that almost half of the teachers were untrained and had not received any kind of in-service training during the last five years. The teachers were sincere and regular and a majority of them came to classrooms well prepared with new materials, new teaching methods and

had good rapport with their students (Momin et al., 2006). Shah and Chaudhari (2006) reported that girls liked going to school, enjoyed studying in the class, helped one another in learning in the classroom and were of the view that teachers were taking interest in their education, their teachers taught them with the help of pictures and charts and used play-way method. Most of them liked to play games regularly in the school and did not hesitate to play games with boys. On the multi-grade teaching learning context, it was found that a large majority of respondents were in favour of using teaching learning material in multi-grade teaching. Nearly, one third of the respondents said that their first priority was to 'make use of group system' in multi-grade education in order to increase students' participation and suggested that use of more teaching learning material would increase students' interest. According to BRCs, training for teaching in multi-grade was essential because multi-grade classes are unavoidable. Multi-grade training had some effect on class-room interaction (Malav, 2006).

Distribution of free textbooks also contributed positively towards enhancing the school enrolment, retention and quality education (Sarkar, 2008). TLMs were found in a majority of the schools and library books were also available. Teachers spent grant either for TLM only or for purchase of stationary articles for students. The use of TLM varied from district to district. A majority of teachers maintained records and felt that the amount of grant was adequate (Yadav, 2004).

Studying the levels of scholastic achievement of rural elementary school children, Uma et al., (2006) found that classroom teaching practices were significantly and positively related to academic skills. Major determinants of academic skills were classroom teaching practices, teachers' attitude towards teaching, classroom quality, parental education and mother's income. Major determinants for scholastic competencies were classroom teaching practices, school infrastructure, teachers' efficiency and attitude, father's occupation and childrens attendance. Studying the use of cooperative teaching strategies, Verma (2005) found that self-learning methods made students responsible for their own learning as well as for the learning of their peers. Working in small groups made each child to participate and enhance her or his self-confidence. Peer tutoring was successful in language teaching. Keeping flexible

pace, providing varied material and giving alternative assignments helped children to learn.

Studying the effectiveness of hands-on activities in science, in enhancing the teaching skills of elementary school teachers in Delhi, it was found that all the teachers found these activities interesting, innovative and helpful in inculcating scientific attitude among the learners. They also felt that it is possible to organise activities without lab material or equipment. These activities were found useful in enhancing science teaching skills (Singh, 2008) and experiential learning was found helpful in enhancing awareness of pupils regarding a particular subject and also to build their actual beliefs by real hands-on-experiences (Mehra and Kaur, 2010).

Comparing the government and private schools and teachers, it was found that average attendance of students in private school had an edge over government schools. However, all government schools teachers were trained and underwent in-service training whereas, in private schools one-third was untrained and no in-service training was provided for them. Yet, private schools attracted more parents due to good and motivated teachers, better teaching quality, punctuality and discipline, school environment, infrastructure and facilities, practice of giving homework regularly and periodic tests. Whereas, government schools attracted parents due to free education, books, study material, mid-day meals, qualified or good teachers and teaching quality. Perhaps, this is a true picture that one could see in urban pockets throughout (Mehta et al., 2007).

Problems in Teaching-Learning Process

Effective teaching and learning process is the goal of school education. In this process, there are many problems and impediments. Naseema (2008) found that teaching learning process in Classes V to VII lacked effectiveness, poor participation of students in classroom activities and ambiguity in the process of Continuous and Comprehensive Evaluation (CCE). Teaching learning materials were not used effectively by teachers and they mostly taught through textbooks instead of demonstration in teaching science. Curriculum transaction was limited to 'completing textbooks' using lecture method. Textbook was the only teaching aid for most of the teachers and they were unaware of different tools and techniques of evaluation and remedial teaching was

not undertaken (Warjri et al., 2006). The problems faced during answer-script evaluations included illegible handwriting of the students, lack of time, no provision of detaining weak students and lack of training and guidelines (Hazarika, 2009).

In terms of the effectiveness of the system it was found that teacher's skills in curriculum transaction through competency-based and child-centered method needed to improve. Teachers' motivation level was low and in-service training was not effective. There was lack of school supervision, head-teachers' were ignorant about school management skills and there was lack of commitment (Mahanta and Barua, 2008). The attitude of most of the teachers was apathetic and gender sensitivity was not evident in teachers' behaviour at class level (Oza, 2006). Studying the 'Meena Manches', it was found that a majority of upper primary schools exhibited no interest in preparing charts to promote regular attendance of girls in schools (Pandey, 2008), the use of TLMs during teaching-learning processes was not found to be very encouraging (Pandey et al., 2008). The records of delivery of textbooks were not available at school, block or district level and the use of workbooks in the class needed to be improved (Sarkar, 2008).

The absence rate of teachers was found to be 22 per cent with district wise variations. The overall percentage of teaching days lost due to teachers remaining absent from school was 13.6 per cent and teachers' in-service training during working days was one of the reason for it (Sharma and Phull, 2009). The absence rate was higher amongst male teachers in comparison to female teachers and the major causes of absence were authorised leave, deputation, non-academic duties, training or meetings, etc. (Singh, 2009).

In another context, it was found that the awareness of needs and problems of teachers in government schools was more than their counterparts in private schools (Shastri, 2006). While the training needs of teachers belonging to rural areas were found to be higher in different areas, their difficulties in teaching were higher and teaching aptitude was low, as was their efficiency in class management, control and discipline apart from their lack of efficiency in using black board and teaching aids and poor classroom interaction while, teaching (Shukla, 2003).

Studying the disabled children and their facilities, Soni (2003) found that special facilities for disabled children were non-existent in schools. Parents, teachers and disabled students were not aware of the provisions of facilities for disabled children under SSA.

In another study, Soni (2005) found that there were no special teachers to help children with disabilities in any of the states. Some orientation to inclusive education has been given which did not meet the specific needs of different categories of disabled children.

Dogra's (2013) study on the challenges and issues involved in teaching EVS at primary stage found that the purpose of teaching EVS was not realised in most of the classrooms. Most of the activities were either conducted by the EVS teachers or conducted by students in groups. There were hardly any individual activities where, they themselves can perform experiments. Time constraints, lack of space, difficulty in handling apparatus and indiscipline were mentioned as problems faced by most of the EVS teachers in organising activities.

It is thus, evident that inclusive concerns are gaining more attention. But, paradoxically inclusion is getting restricted to the issues of either disadvantaged or more of the disabled children. The CWSN ideally covers the entire bandwidth, covering not only the socially disadvantaged or the disabled but also the creative children, the talented children and the gifted children. The educational functionaries at the sub-district level need to be sufficiently oriented about providing learning opportunities for the children who are creative, talented and gifted. More and more researches are necessary in understanding what is happening to the needs of these children. Teaching-learning process is also taking place differently at different places, which is obvious. There is a need for a large number of researches on the teaching and learning process. These researches need to focus on the classroom processes in relation to the presage and the product variables. Studies need to focus not only on the health of teaching-learning processes but also on the effectiveness of different interventions which can work in different contexts and should be shared with the practitioners that they are doable interventions. Hitherto, researchers are concerned about conducting research and then publishing their findings elsewhere. Research and practice are disjointed activities. They need to be integrated.

Learning Achievement

Studies indicate various issues related to learning achievements. It was found in a study that, there was an improvement in mathematics achievement from MAS to TAS in Bhiwani and Mohindergarh districts while, there was a loss in Gurgaon

(Arora et al., 2002). Overall, there was a consistent increase in mean achievement scores for both subjects in Classes I and IV in Terminal Achievement Survey (TAS) over Baseline Achievement Survey (BAS) and Mid-Achievement Survey (MAS), and SC students did better than ST students especially in mathematics (Datamation, 2006) and consistent improvement in the mean percentage of marks in language and mathematics (Jayalakshmi et al., 2003). Achievement levels of the learners in Classes II and V showed an increase in both classes and both subjects during TAS as compared to that in BAS and MAS (SIERT, 2006). Similar trends were seen in other researches as well (Singh et al., 2008; Singh and Pandey, 2006; ORG Centre for Social Research, 2006; Pandey and Tripathi, 2008). A significant reduction in gaps in achievement level of students from different social groups and different areas (rural, urban and tribal) was found by Rao (2005). The performance of Class III students was much lower than that of Class I both in language and mathematics. Urban schools had better facilities, provided better education and showed higher achievement of students (ORG Center for Social Research, 2006).

Correlates of Academic Achievement

Researchers have attempted to study different variables which have positive and negative correlates on academic achievement. Different variables which have been found to have a positive correlation with academic achievement include socio-economic status and self-consciousness (Bhuwal, 2003), mode of light available in the house, availability of *Anganwadi* centers in the village and enrolment of children in the center (SCERT, 2005). Age wise analysis showed that there was an improvement in performance by age. Within the same class, the older children acquired more competencies than the younger children (Research and Documentation Team, 2004). Girls performed better than boys in Tamil, English and Mathematics and students of Class V from private aided schools performed better than the pupils from Government and Adi Dravida Welfare schools thus, highlighting the role of gender and school managements (State Project Directorate, 2006). The achievement scores of girls in Kasturba Gandhi Balika Vidyalaya (KGBV) (total as well as in terms of their social categorisation) was significantly higher than those of the girls of Parishadiya upper primary schools in all the three subjects i.e., languages, mathematics and social sciences (Shukla and Sanyal, 2008). Computer education increased

students' interest in education, their attendance, retention, achievement level, confidence and creativity (Das, 2008), higher attendance rate of children (Kumar and Gupta, 2006), attendance of the students (Majumdar and Raychudhuri, 2012), interesting teaching learning through proper use of variety of teaching aids and supplementary learning material, good learning environment, better communication skills and command on medium of instruction and subject matter (Kishore and Kulhari, 2008). Variables such as student having attended pre-primary classes, teacher regularity, monthly assessment, reading newspaper or magazines and other motivating reading material had positive impact on students' achievement (ORG Centre for Social Research, 2006), school management, careful planning for transition from home language to school language (Kushwaha, 2012), improvement in the teaching methodology (Verma, 2007) etc. Contribution to mathematics achievement was statistically significant and substantial in case of student-centric activity (Assam), supportive instructional (Odisha) and class management (Assam and Karnataka), time spent on these activities contributed to increase in test scores (RESU, TSG-SSA 2008). CLIP (Children Language Improvement Programme) facilitated teachers in shouldering more responsibility in improving the competency level of students (Reddy and Rao, 2006). Children from EGS completed their elementary education better than other learners in schools (Sarkar and Baruah, 2008), teacher's teaching hours, regularity of staff and staff in position was more decisive for achievement levels (Upadhyay, 2003). Private schools had an edge over government schools in teacher-student interaction, overall classroom process, and co-curricular activities (Mehta et al., 2007). Computer education increased students' achievement level (Das, 2008) and Children attendance and class room teaching practices (Uma et al. 2006).

While different factors and variables, which correlated negatively included, mothers working outside home (SCERT, 2005), non usage of teaching learning aids, minimum interaction between parents and teachers, lack of academic support by family to students, irregularity of students apart from health problems, lack of motivation to students, lack of interest in using new teaching skills and no academic support from higher authorities. Achievement levels of learners were found to be low especially in mathematics due to the weak horizontal and vertical

links amongst local level institutions (Sangai et al., 2002; Sangai, 2004). The difference between home language and medium of instruction, educational level and occupation of parents had no impact on students' achievement (ORG Centre for Social Research, 2006).

Learning Achievement of Socially Disadvantaged

The learning achievement among socially disadvantaged is an important area of research. It was found that at Class II level, language learning was lesser than learning mathematics. Juanga boys' achievement in language was lower than Juanga girls both at Classes II and V while, there was no difference between boys and girls achievement in mathematics in Class II girls. Achievement in mathematics was better than boys' in Class V. Achievement of Saora children in Class II was less compared to Santhal children in Odiya language. Achievement of Saora girls in language was higher to that of boys in Classes II and V (Director, IMS 2007). At the national level, boys' achievement in Mathematics was higher than that of girls in Class V. The over all achievement variation in language and mathematics of Class V of the socially disadvantaged students was relatively low (DEME, NCERT, 2002). It was found that achievement variation in mathematics was marginal among rural students and SC students. Further, achievement of SC and OBC children improved significantly (more than 5 per cent) during round II. Maximum improvement was observed in social science and mathematics and minimum in language (DEME, NCERT, 2004, 2008). It was found that the achievement of tribal living in the Northern region was poor in comparison to the tribal's of Southern region (Padhi, 2006).

At the national level DEME of NCERT (2006) found that there was an overall enhancement in physical, instructional and ancillary facilities from BAS to MAS. Systemic Quality Index (SQI) a composite index of school and teacher related indicators having impact on health of school education and outputs like students learning achievement revealed that Pondicherry, Goa, Sikkim, Andaman and Nicobar, Daman and Diu had high resource but low achievement. Delhi, Kerala, Haryana, Chandigarh, Maharashtra, Dadra and Nagar Haveli had high resource but medium achievement. West Bengal, Karnataka, Gujarat had medium resource but high achievement. Meghalaya, Nagaland, Arunachal, J and K, Assam, Manipur and Mizoram had low resources and low achievement.

In another study, DEME (2008) reported that the achievement of SC and OBC children improved significantly (more than 5 per cent) during round II. In language achievement, Madhya Pradesh, Gujarat, Tamil Nadu and Kerala improved significantly and appreciably. In Mathematics achievement, Sikkim, Uttarakhand, Tamil Nadu, Madhya Pradesh and Kerala improved significantly and appreciably. It was observed that the average achievement of children of Class VII increased significantly among in all groups and in subjects. Maximum improvement was observed in Social Science and Mathematics (9 to 10 per cent) and minimum in language.

Evaluation Studies Concerning Learning Achievement

Different studies have attempted to evaluate the effect of certain processes on learning achievement. Academic performance of learners improved gradually with promotion to upper classes (Sarkar and Baruah, 2007), interactive and participatory method of learning along with group learning and self-learning adopted in EGS, the practices of identification of weak students, grouping them and assigning the task of improving their learning levels to a specific level, teacher providing help and guidance provided at night in study camps by the community member and teachers and Integrated Education of the Disabled (IED) (Verma, 2002) and innovative multimedia programme (CAL Team and Singh, 2007).

Learning achievements are indeed important concerns of educational researchers. Most of the studies fall into the category of finding the relationships between different variables as correlates of academic achievement. Studies which focus on the predictions, understanding the cause-effect relationships would be more useful. Undertaking meta-analysis of studies would perhaps contribute to much better purpose than merely correlations. Most of the findings seen are also amenable to common sense acceptance. Perhaps, dwelling deeper into the learning processes leading to learning achievements would be more useful.

Education of the Socially Disadvantaged

The socially disadvantaged learners include the children belonging to the Scheduled Castes, Scheduled Tribes, minorities, girls, rural children and others. These are the children who suffer certain disadvantages socially. Consequently, only a few will be able to achieve success on par with children from other social categories.

This area therefore has a special place in educational discourse. There are researches particularly carried out on these groups of learners.

Scheduled Castes and Scheduled Tribes Learners

In a study it was found that there was an increase in achievement levels of all social categories (SIERT, 2006). In another study, it was found that under SSA the major incentives given to children in primary and upper primary schools included scholarship, mid-day meal, uniform and cycles. However, textbooks were rated as the best incentive scheme (Srivastava et al., 2008). However, there are certain studies which have found the conditions to be not so good too. In a study it was found that enrolment of SC/ST girls was low in schools. Nearly half of the sampled schools had 60 per cent to 90 per cent enrolment of SC/ST girls. Low enrolment was due to the childrens involvement in domestic work, large family size and economical backwardness, lack of awareness about the benefits of education, migration, and social customs, such as polygamy and under-age marriages. Scattered houses, distance from school, obstacles, lack of proper transport facility, lack of health facility, keeping girls busy in agriculture, sending girls for cattle grazing and taking care of younger siblings were the main reasons for girls dropping out from school. Teachers' non-teaching activities, their transfers, home not being in the village and lack of female teachers in the school also resulted in low enrolment of girls. Students' difficulty in understanding textbook language, lack of interest in mathematics and deployment of teachers from other areas who faced difficulty in teaching in local language were the factors responsible for dropping out of girls from school (Shah et al., 2006).

In another study, it was found that even though SC/ST children were provided equal opportunities, diagnostic assessment and remedial teaching were not carried out in a systematic way effectively. The status of community mobilisation that motivated parents to utilise the available opportunities for education of their children needs improvement (Srivastava et al., 2008)

Education of Girl Children

Education of girls has attracted the attention of researchers. The National Programme for Education of Girls at Elementary

Education (NPEGEL) and Kasturba Gandhi Balika Vidyalaya (KGBV) are the two interventions used under SSA for the promotion of education of girls in the country. There are few studies related to these programmes.

A study conducted to assess the impact and outcomes of NPEGEL in terms of girls participation, regular attendance and learning levels in Gujarat found that 67 per cent girls liked going to school, 72.5 per cent enjoyed studying in the class, 77 per cent helped one another in learning in the classroom and 63.1 per cent were of the view that teachers were taking interest in their education (Chaudhari, 2006). In Odisha, a study was conducted to assess the impact of incentives and interventions under NPEGEL and found that evaluation was done by conducting unit tests, half yearly tests and annual tests. Oral and written tests were conducted for 'remedial' students under NPEGEL. Further, 76.4 per cent of sampled girl students made the teachers aware of their problems and only 5.3 per cent took help of class fellows. Girls' participation in games and sports was higher than in literary activities as well as in song and dance competitions. Story books, textbooks, books on general knowledge and sports equipment were used by girl students to increase their competency level (Mishra, 2007).

The NPEGEL and non-NPEGEL blocks in Haryana concerning the education of girls were compared and it was found that in upper primary classes there was an increase in enrolment. For SC category, the increase was 13.4 per cent and for backward category 9.1 per cent. Overall increase being 5 per cent. In non NPEGEL blocks the enrolment decreased by 7 per cent (overall) at primary level. No difference was observed in enrolment at upper primary level from 2002-03 to 2005-06. However, 11.5 per cent increase in enrolment was observed for SC and 8.8 per cent for OBC. Overall dropout rate was observed to be higher in NPEGEL blocks at primary and upper primary levels. However, the retention rate of girls from backward classes (OBC) decreased from 92.4 per cent to 77.8 per cent in NPEGEL blocks and from 86.7 per cent to 83.4 per cent in non-NPEGEL blocks at primary level. This could be due to increase in retention rate of SC girls in non-NPEGEL blocks. Lateral entry of girls from other schools was responsible for retention rate being above 100 per cent.

Kumari and Kumar (2009) found that the benefits of NPEGEL scheme was not reaching the prime target groups, i.e., SC/ST,

minority girl children and out-of-school girls in Jharkhand. Girls from formal schools received its benefits. Lack of good trainers was a problem in rural areas. Irregular flow of funds further demotivated trainers to continue working and caused problems for ground level implementers.

In a national level study on the evaluation of NPEGEL, it was found that the basic purpose of this scheme did not meet in the states. While, the infrastructure may be there, the usage for the purpose was often not proper. While, a range of materials was available in the Model Cluster School, their usage varied. Sewing machines were the most common equipment available. There was no specific curriculum for vocational courses. Girls learnt little bit from a variety of activities (painting, papermache, karate etc.) but competencies developed were insufficient. Part-time instructors employed for vocational courses or hobbies themselves needed professional training. Under the NPEGEL scheme, sports events, symposiums, debates and cultural programmes were carried out at zone, district, block and even cluster levels in 3–4 states. These competitions instilled a sense of achievement and confidence in the girls. Provision of cycles was quite popular and (like in Tripura and Chhattisgarh) it was targeted towards girls who live more than 2 to 3 km away. In a couple of states, like Jammu and Kashmir and Chhattisgarh remedial teaching and student evaluation for learning outcomes was carried out at block and cluster levels to raise the learning capacity of girls. Remedial teaching and private tuitions were fairly common as parents and girls were eager to do well in examinations once, they are in school. None of the states had the SSA state offices established any formal linkages with open schools perhaps because of a lack of vision. This is a major lacuna in the scheme which needs to be addressed by all states so that the efforts of the scheme may not go in vain (Gender Unit, TSG-SSA 2008).

The monitoring reports of Regional Institute of Education, Mysuru in Karnataka context on the issue of NPEGEL programme found some of the effective and non-effective elements of NPEGEL. There were a lot of initiatives to enroll and retain girl children through *meenamanch* activities (Murthy, 2012b; Somashekhar, 2015b). Girls participated well in all activities curricular as well as co-curricular (Kamath, 2011a; 2011b; 2012a; 2012b; Murthy, 2011a; 2011b; 2012a; 2012b; 2015a; Somashekhar, 2015b). Classrooms were non discriminatory (Murthy, 2011a; 2011b;

Somashekhar, 2011; 2012a; 2012b). The Government of Karnataka had introduced *Bhagya Lakshmi* scheme, which provides ₹2 per day to girl children if they attended school. This will go to their account. This is attendance scholarship (Murthy, 2015a). None of the girl children had any prolonged absenteeism (Murthy, 2012b). All boys and girls passed final year examination (Kamath, 2011a, 2011b, 2012a, Murthy, 2011b, 2012b, 2015a, Somashekhar, 2015b). There were separate washrooms for girls (Murthy, 2011a; 2012a; Somashekhar, 2012a; 2012b). A large majority of teachers and parents attended the gender sensitisation programme (Kamath, 2011a; Murthy, 2011a; 2011b; Somashekhar, 2011; 2012a; 2012b). Emergency medical kits were available in schools (Murthy, 2011a). SDMCs were active in community awareness programmes, (Murthy, 2011a).

An analysis of the above studies indicates that though, NPEGEL was conceived well at the national level, the implementation has varied and consequently paradoxically, it has lent itself to a mixed result.

The next important intervention on girls' education has been Kasturba Gandhi Balika Vidyalayas (KGBVs). There are certain studies undertaken on KGBVs which are as follows. Mandal (2007) studied the contribution of KGBV on SC/ST girl's education and found that around 70 per cent of the KGBVs had four teachers while around 30 per cent had only three teachers. In most of the KGBVs TLMs were available. Science laboratory was available in more than half of the schools. The behaviour of teachers in school was very cordial as reported by the ST students. Large majority of parents were satisfied with the teaching methodology followed in the schools. KGBVs have increased interest of people in rural areas to send their daughters to school.

Gender Unit, TSG-SSA (2007) conducted a National Evaluation of KGBV Scheme and found that it is well received by the community. The fact that the KGBV is 'completely free' is a major attraction. The teachers and all those involved in the management of the KGBVs showed high levels of commitment. Most of the states had high proportion of older girls who had dropped out and never enrolled girls were also admitted in the KGBVs. Across the states, girls in most of the KGBVs had settled down well and were happy and confident. By and large the retention of girls was fairly good in most of the KGBVs visited. Curriculum in many KGBVs was quite enriched. The teachers were not familiar with techniques for accelerated learning. Many of the part-time teachers were young

with lot of potential. Parents wished KGBVs to be extended to class X, which has already been done by Andhra Pradesh.

Mehrotra (2006) studied the functioning and effectiveness of KGBV in Uttar Pradesh and found that all girls expressed their satisfaction with the teaching, infrastructure and other facilities of KGBV. In all the KGBVs, food was served adequately as per the weekly menu. Weak girls got extra classes apart from special attention in the classrooms. Girls were doing well in other activities too such as preparation of handicraft items, singing, dancing and other cultural activities. However, there was no provision of separate head teacher and the warden acted as the head-teacher as well. Games and music teachers were not available in the KGBVs.

There was another set of studies on KGBV, that reflected dissatisfactory functioning of KGBV.. Gender Unit, TSG, SSA (2008) conducted a National Evaluation of KGBV scheme and found that in the 12 states covered, 67.7 per cent of the approved KGBVs were operational. In Meghalaya, management of KGBV was given to a missionary institution where, only catholic girls were being enrolled, which was a violation of the guidelines. In Punjab and West Bengal, these Vidyalayas were being used as hostel facility for girls enrolled in regular schools. Large proportions of girls studying in the KGBVs were already enrolled in school or had just completed Class V. Training given to teachers was inadequate. Teachers were not familiar with techniques for accelerated learning. There was a need to impart training to sensitise functionaries in all the states on gender issues. In depth interaction with the teachers revealed that wardens and teachers needed training to efficiently manage or administer the school, plan for health and nutrition and the importance of hygiene.

On the whole, KGBV is a successful conceptualisation and experiment even though there are some problems bothering the system. Apart from the studies on NPEGEL and KGBV, there are also studies focusing on other aspects of girls' education which are as follows.

Singh et al. (2008) conducted Terminal Assessment Survey (TAS) for DPEP Phase II districts of Rajasthan and found that there has been significant improvement in the performance of students in TAS compared to BAS in Language and Mathematics in Classes II and V. Girls' enrolment increased from 0.9 million in 2001-02 to 1.18 million in 2006-07, an increase of 26 per cent. Gender gap reduced to less than 5 per cent. While, ORG Centre for Social

Research (2006) studied the impact and effectiveness of innovative programmes in girls' education programme in Uttarakhand and found that except remedial teaching programme which was conducted daily, all other programmes ran twice a week. The courses were found effective as well as useful by almost all the girls who attended the particular course. Sports activities and martial arts were observed to be very effective for self-defense by girls as well as their parents. Girls learning these activities found positive changes in their personality and level of confidence. Barring years 2001–02, girls' enrolment in the select upper primary schools was higher than that of boys during last five academic sessions. The proportion of girls' enrolment improved over a period of five years particularly for SC girls. Still there was improvement in the attendance of girls in sampled schools. Girls of higher classes were more regular. Majority of the girls liked the programme to a great extent because of their usefulness for jobs and future. Parents perceived it as useful for their daughters.

There are certain studies which have talked about certain problems bothering girls' education. They are as follows. Oza (2006) studied gender concerns in school activities and classroom practices in primary schools and found that attitude of most of the teachers was apathetic. Gender sensitivity was not evident in teachers' behaviour at class level. In principle, they agreed with the programmes of gender empowerment but its impact was not evident in their practice. In rural areas, students (boys and girls) cleaned the school ground and classroom daily and filled drinking water pots regularly. Students in rural areas were more enthusiastic in curricular and co-curricular activities. Participation of girls in classroom activities was higher in urban areas. In urban areas not much attention was given to prayer or *Prarthna Sabha* whereas, in rural areas, prayer assembly was one of the important activities in school where, both teachers and students were active partners. Here, assembly was considered an important activity to develop initiative, leadership etc.

In another context, Padhi (2006) compared the scholastic achievement of Class IV girl students of residential and non-residential schools and found that the performance of girls in residential schools to be better in Odiya, English, Mathematics and General science. Social study was the only exception in which performance was poor than that of non-residential schools. Inadequate number of teachers, poor infrastructure of the school,

lack of mobilisation of financial resources from the community, lack of parental involvement and teacher absenteeism were the major barriers. In another attempt on different incentives, Soni (2008) studied the special provisions for education of SC children under SSA and found that the scholarship amount of ₹50 per month was given to SC girls only at primary stage. SC children did not receive the full amount of scholarship and they received the amount ranging from ₹90 to ₹500 for 10 months due to administrative lapses. The state government provided bicycles to girls to motivate them for education from SSA funds. Fifty percent of the purchased bicycles were provided to SC girls and rest to girls from general category at upper primary stage on the basis of distance of the school from home. Studying the learning levels of girl children Khare (2007) found that illiteracy, economic status of the parents, social and family reasons along with unhygienic condition of the schools were reported as the reasons for girls not being able to learn in the schools. Yet, attendance of girls increased and their examination results were better than boys. Misra and Baraj (2008) conducted a sample survey of school children in Uttar Pradesh and found that a few households belonging to ST and minority community perceived that education was not necessary for girls and hence, their girl child left education without completing the primary level. While Shah et al. (2006) studied the causes of low enrolment and drop out of SC and ST girls in primary schools and found that enrolment of SC/ST girls was low in schools. Nearly half of the sampled schools had 60 per cent to 90 per cent enrolment of SC/ST girls. Teachers' non-teaching activities, their transfers, home not being in the village and lack of female teachers in the school also resulted in low enrolment of girls.

Research on the socially disadvantaged groups appears to be an area, which needs much more exploration. In spite of the initiatives by the central and state governments, this area still remains unexplored. Some of the concerns studied more by researches include the problems of the children belonging to SC and ST, or girls, covering the KGBVs and the NPEGEL. All other dimensions of social disadvantage have not caught the attention of the researchers. It could include rural, marginalised, urban deprived, children of the incarcerated parents, children belonging to minority communities etc. This could be a potential area for future research.

Availability of Teachers, their Dispositions and Training

Availability of teachers in elementary schools is indeed a concern. Engaging all learners by the teacher is yet another important requirement. ESU, TSG-SSA (2008) conducted a study on teachers' absence in primary and upper primary schools of Andhra Pradesh, Madhya Pradesh and Uttar Pradesh and found that teachers not present in school were 24 per cent in Andhra Pradesh, 15.4 per cent in Madhya Pradesh and 11.0 per cent in Uttar Pradesh. These included 14.9 per cent, 10.6 per cent and 5.4 per cent teachers respectively who were on leave. The percentage of teachers who were absent without any intimation was only in the range of 2.3 per cent to 2.6 per cent among the total teachers. Absence rate of teachers was almost the same for male and female teachers. 'Family problems' and 'health of teacher' as the two main reasons cited for teachers taking leave. 'Residence being far away and 'transport not being available' were also the reasons mentioned by quite a few teachers particularly in Andhra Pradesh. 'Political or social activity' too was given as a reason for teachers being absent sometimes.

In Uttar Pradesh, it was found that teachers in the five sampled districts worked for 225 days on an average. Attendance rate of female teachers was higher than male teachers both in the primary and upper primary schools. Highest number of SC/ST teachers was on leave from school followed by general category teachers (Ahmed, 2008). The percentage of teaching days lost was 16.6 per cent in case of primary schools and 15.85 per cent in case of upper primary schools in Himachal Pradesh. Majority of teachers were present and were teaching. Not a single teacher was found absent without any intimation to the school authorities. The attendance rate of male teachers in primary and upper primary school was 78 per cent and 75 per cent respectively. Attendance rate of female teachers at primary and upper primary school was 83 per cent and 81 per cent, respectively. On an average, 3–5 days were spent by teachers in attending training or meeting. The reasons for teachers' absence were their family problems health problems and participation in political or social activities (SIEMAT, 2009). In Karnataka, it was found that the attendance rate of teachers was 78 per cent in government schools and 87 per cent in private aided schools. The three main reasons for teacher absenteeism according to the head of the school were— family problems, involvement in religious functions and festivals and transportation problem (CMS, 2008).

In Kolkata it was found that on an average absent rate of teachers at primary stage was 85 per cent and 81 per cent for upper primary stage. Attendance rate of teachers in rural area was lower than that of teachers in urban area (Karmakar et al., 2008). In another study in Kolkata it was found that teachers' attendance rate was 87.1 per cent on the first day and 90.1 per cent on the second day. Mostly teachers were absent on account of personal work and had submitted the leave application to the head-teachers' well in advance. Nearly 11 per cent teachers were absent on account of teachers training or other official works as entrusted by the school inspector (Salam and Mandal, 2008). In Bhopal it was found that attendance rate of teachers was 90.5 per cent. Nearly 6 per cent teachers were on leave and 1.6 per cent was assigned government duties, 2.1 per cent were away due to non-academic tasks. Personal health and family related problems were the main reasons for teachers' absence (Khare et al., 2007). In Andhra Pradesh it was found that overall attendance of the teachers was found to be 78 per cent at primary stage and 81.5 per cent at upper primary stage. Major reasons for teachers' absence were health problems of self, or family members. Distance from place of residence to schools was also cited as reasons of absence in some cases. Difference in attendance rate of male and female teachers was marginal. On an average teachers spent 9.68 days for training in an academic year out of which, 5.45 days were working days. Teachers reported spending 3.86 hour per week on administrative work. The absence rate was highest among 'tribal' teachers followed by 'others', Backward Castes and Scheduled Castes (Nagaraju, 2008).

The absence rate of teachers in Jharkhand was 21.6 per cent. The rates in each district, varied. Overall percentage of teaching days lost due to teachers remaining absent from school was 13.6 per cent. Conduction of teachers' inservice training during working days was one of the reason. Health problem(s) of self and family members was the main reason for teachers' absence. Distance from residence to school also emerged as a reason for teachers' absence (Sharma and Phull, 2009). In Punjab, about 82 per cent teachers were present, and of them 66 per cent were found to be taking classes. Reasons for absence included being away for training, being on casual leave or medical leave and being engaged in non-teaching duties out-of-school (Singh, 2009).

There was a slight difference between the absence rate of male and female teachers in Mizoram, but the absence was higher at the upper primary level than lower primary level. Causes of teachers' absence included family problems, teachers' health and participation in festival or religious function. A positive relationship was observed between teachers' presence and students' attendance (Oxi-Zen Research Group, 2008). Teachers' attendance rate was around 79 per cent at elementary level in Bihar. Absence rate was higher amongst male teachers in comparison to female teachers. Major causes of absence were authorised leave, deputation, non-academic duties, training or meetings, etc. Very few teachers were absent without information (Singh, 2009).

Teacher Capacity and Qualities

Teacher capacity and their attributes can inspire students and can also add to the quality in teaching-learning. In a study it was found that the teachers were sincere and regular in their job as per head-teachers and the community members. Most teachers maintained discipline, evaluated home assignments of students, and head-teachers supervised teaching activities of majority of teachers (Momin et al., 2006). On the issue of gender sensitivity of primary school teachers, it was found that nearly, three-fourth of teachers had positive attitude towards gender sensitivity (Patel and Kaswekar, 2006). The other concerns found included the need for time management, covering punctuality, discipline and reporting before school hour and leaving late after school hours by the head teachers (Acharya, 2007).

Teacher capacity and qualities can also affect adversely. Teachers having high level of burnout had an internal locus of control, i.e., they felt responsible for their own success or failure (Poonam, 2014). Mahanta and Barua (2008) found that the existing level of teacher competence and performance was quite inadequate. Instances of pupil participation, use of TLM, group learning, demonstration, activity-based teaching, etc., needed less improvement. Teachers' skills in curriculum transaction through competency based and child-centered method needed to enhance. Teachers' motivation level was low. On the issue of trained and untrained, it was found that 45 per cent of teachers were untrained and 58 per cent of them had not received any kind of in-service training during the last five years (Momin et al., 2006).

Teacher Training

Any teacher training aims at empowering teachers with needed skills and obviously, it must lead to desirable positive effects. Some training programmes also fail. There are number of studies on the effectiveness or impact of teacher training programmes. When training material was considered useful by teachers, they were happy with the training. Studies show that training module for training of *Shiksha Mitra* was found suitable (Goel, 2004). Teachers' training programme by and large was successful in sensitising teachers about the need for learning modern pedagogical inputs (Chakrabarty et al., 2005). Training of teachers for multigrade teaching had some effect on classroom interaction (Malav, 2006). The impact of training was more prominent on teachers with higher academic qualification (Khan et al., 2007). In a training programme, participants felt that importance was given to teaching skills (Naseema, 2008). Participants felt that they were benefited from the knowledge of hard spots in subjects and use of TLM (Shah, 2003). Studying the quality and impact of the training modules and the training programme under DPEP Phase-I for resource persons or trainers it was found that after teachers' training, 78 per cent mistakes made by the students were corrected on the spot. Teaching processes were found to be child centered (Singh, 2005). Another study reported that among the teachers, who underwent training, majority found it effective and teachers were implementing the training skills in classroom. Most of them were of the view that there was a scope for improvement in the training (Betsur et al., 2006).

Patel and Patel (2006) examined the impact of teacher training on activity-based participatory teaching learning process in classroom transaction. It was found that the use of self-made charts, pictures, models and students activities like puzzle solving and group work had increased in Mathematics, Environment Science and language classes after the implementation of SSA. Activities like children singing songs and children playing games came into the focus in teaching of Mathematics after implementation of the SSA. In teaching Environmental Science, classroom transaction activities included discussion about educational tours, teaching with TLM, use of action songs, collections, making albums, visit to museums, celebrations of festivals and other programmes related to environment.

In Andhra Pradesh, studying the impact of CLIP (Children Language Improvement Programme) it was found that the participants had developed cooperation among themselves. They shouldered more responsibility in improving the competency level of students. Children became confident and their achievement levels got improved. Teachers expressed positive opinion on the allotment of library period in the time table. In-service training programmes and modules were found useful by the teachers. School grant and teacher grants facilitated better teaching. Community involvement helped in successful implementation of CLIP. However, head teachers' supervision, MRPs monitoring and MEOs visits to schools were not satisfactory (Reddy and Rao, 2006). Studying the impact of CRC meetings it was found that they were useful. The methods demonstrated were implemented by teachers in classroom teaching. Teachers made use of action songs in teaching Gujarati language. Use of TLM increased students interest in learning and students' attendance also increased (Naik, 2006). In a comparative study of the effectiveness of the teacher training programmes, Mehta (2008) found that the percentage of teachers citing improvement was higher in Lalitpur as compared to Jhansi in their subject knowledge, motivation, teaching skills, increased use of new teaching methods and TLM.

A study on the in-service training programmes for teachers found that it was designed by the state level agency and DIET with no involvement of BRC or CRCs. As a result, local specific needs of teachers were not addressed appropriately (Eswaran and Singh, 2009). Mehta (2006) found that all trainers were not subject specialists and there was a lack of monitoring or follow-up and lack of motivation amongst teachers to use gains of training even though, they were satisfied with the content of training, subject knowledge and know-how for teaching of new syllabus or topics, knowledge of new teaching methods, teaching hard spots easily and effectively, increased use of TLM and improved teaching skills.

Availability of teachers is a very important concern. Apart from just the availability, it is important to study how usefully teachers invests their time in the classroom transactions. Also, training teachers based on these empirical evidence would be more appropriate. Along with the teacher absenteeism, it would also be worthwhile to study how schools engage learners meaningfully in the learning process. Apart from the formal teaching group, it is also necessary to study how schools utilise community resources

in engaging learners. The researchers also have to study issues surrounding professional development of teachers and the effect of the teacher training programmes on the actual transaction in the school contexts.

Learning Resources including Textual Material and ICT

Learning resources play a crucial role in the life of a learner. In the past it used to be called teaching aids as the teacher was understood to be the central focal point. This was prevalent for a long time. It became teaching-learning material after the realisation that learner and learning is equally important to that of teachers. With the NCF 2005, there was a complete departure where the primacy of the learner was held high and TLM became learning resources.

Shah (2003) reported that majority of teachers used poems, stories, dance, games and TLM to teach students. Teachers benefited from the knowledge of hard spots in subjects and use of TLM. In the context of RBC or NRBCs, it was found that a majority of the RBC or NRBC had adopted child-centered, activity-based practices, displayed material was attractive and the TLMs used were appropriate. Children participated actively in group activities (Savithri, 2005). Some schools also had hand-made TLM by the teachers or students (Singh, 2005). In another study, it was found that there was a maximum improvement in teachers' use of TLM. Added to that, involving children in the process of learning has also improved. In fact, it is a foregone conclusion that learning resources are very useful. Its effectiveness depends upon many factors such as its appropriateness to the age and stage of learners, its static or dynamic nature, appropriate time when and how it was used, etc.

Textbooks are one of the most important supplements of curriculum. There are researches which have been done on textbooks. It was found that distribution of free textbooks had contributed positively towards enhancing the school enrolment, retention and quality education (Sarkar, 2008; Sahu, 2006). Paradoxically, curriculum transaction was limited to 'completing textbooks'. Textbook was the only teaching aid for most of the teachers (Warjri et al., 2006). Yet, most of the teachers were satisfied with different aspects of the textbooks including the content in relation to the prescribed time limit (Jain, 2005). While another study found that the textbooks were not outright gender sensitive. The visuals portrayed women in

stereotypical gender roles in textbooks which is not desirable (Oza, 2006). The fact remains that one common denominator that exists with perhaps all teachers is textbooks. The system needs to go beyond. It has implications for both pre-service and in-service teacher education programmes.

The Information and Communication Technology (ICT) has indeed provided many opportunities for teachers and students alike. Making teaching and learning more effective is in the hands of teachers and students. Therefore, teachers need to be sufficiently trained in the art of understanding the scope and possibilities of ICTs and facilitate learners in benefitting from ICT. Eventually, ICTs need to bolster and enhance the quality of learning.

ICT brought improvement in the area of reading and social intelligence (Krishnamurthy et al., 2004). Another study found that Computer Aided Education (CAE) has been successful in developing teachers' interest towards teaching and CAE school students secured more marks as compared to non-CAE school students (Das, 2008). In another study they found a positive effect of multimedia lab on enrolment and retention of children in the project schools. Teachers in project schools felt equipped and students enjoyed their learning experiences at the Multimedia lab (CAL Team and Singh (2007). Rout (2009) reported that majority of the teachers were not involved in the production process of ER and ETV programmes and there was also lack of a separate room for listening to ER programmes.

The effectiveness of teaching-learning depends upon many factors, such as its appropriateness to the age and stage of learners, its static or dynamic nature, when and how it is used, the duration and stage of teaching-learning etc. Regarding textbooks, the researchers are focused more on the availability aspects. However, it is necessary to study how textbooks and other supplements are used by teachers in the curriculum transaction. The starting point for such a research could be the different initiatives taken by teachers to plan, prepare, execute, evaluate and reflect the curriculum transaction. Even studying the effective use of textbooks itself, apart from different ways of using textbooks can be an important consideration for future research. On the issue of use of ICT in teaching and learning it would be worthwhile to study the use and abuse of ICT. In the Indian context, it has remained comfortable in the hands of very few and feared by many. There

is a need to see the facilitators and impeters of ICT mediation in teaching-learning situation.

Community Participation

One of the important aspirations of elementary education is to make schools accountable to community and also community owning school. The school and community linkage is very important for a healthy existence of the social system. There are few studies of which there are some success stories, failures and mixed stories. Among the success stories, Hussain and Hazarika (2008) found that community members monitored the work of teaching and non-teaching staff individually or in groups by checking registers and/or by other innovative methods. The community members' attitude towards the development of their schools was helpful and majority of them were also involved in different school activities including monitoring of the schools, academic improvement of the schools and supply of material (Momin et al., 2006). Community participation was high as school buildings were made available by the community who also contributed in terms of labour to build the school building. Frequent visits by SDMC members to schools resulted in mutual support and constant monitoring of school development and illiterate members were found to be as effective as literate members (Vaijyanthi et al., 2004). The establishment of volunteer support services and their functioning helped in improving awareness of the need of education and increase in the enrolment and they even distributed textbooks to children. VEC meetings were held regularly and minutes were maintained in the schools. Most head-teachers and VEC members were satisfied with the quality of work done under school grants (Kulkarni and Sadolikar, 2004). Parents and the VEC members recognised the role of VEC in organising environment building campaigns leading to considerable increase in demand for education and community involvement helped in successful implementation of CLIP (Reddy and Rao, 2006).

Singh et al., (2007) reported that the number of members in School Development Management Committees (SDMC) were as per the guideline and norms, but did not represent various groups. Meetings of SMDCs were irregular, mainly need based. They discussed construction, repair and maintenance of school building, purchase of TLM, etc. School grant were released and utilised through SDMCs. In another study (Lynoo et al., 2006), it

was found that PTA was formed in all blocks. VECs were in position in most villages. Most VECs looked into issues related to enrolment of children of relevant age group but, voluntary organisations as well as Village *Durbars* did not help in setting up new schools and render needed support services. Srivastava et al., (2008) recommended that there needs to be a community mobilisation to motivate parents to utilise the available opportunities for education of their children. Yet in another study (Warjri et al., 2006), it was found that about two third of the schools had PTAs and school staff, who did not understand how to mobilise the community. Another study found that the community participation was seen more as a means to achieve SSA goals rather than empowering community and creating awareness among them. Programme has been able to generate commitment in community to educate their children (Mahajan et al., 2008). A large majority of *Village Shiksha Samiti* sent utilisation certificate to district, a little more than half of the schools planned utilisation of school development grant and more than two third of the schools planned works for repair and maintenance grant (Singh and Pandey, 2007). A few VECs were found taking initiative on their own to generate resources from the village community by way of donations to meet demands of infrastructure for example, classrooms, boundary wall, etc. for the school while, most of the VEC members were not fully aware of the role of VEC (Sharma, 2004). Sahu (2006) found that the community served by government schools was more in favour of separate school for girls than that served by private schools. There was better cooperation of community for providing facilities in the government schools. The community served by government schools considered free textbook distribution, mid day meal, scholarships, sports facilities in the school and promotion of activities that children liked, as factors necessary for retention. The community served by private schools considered sports facilities, scholarships, more attention by teachers, more facilities in schools and activities liked by children as important factors for retention.

There are studies which depict a poor picture of community participation. The involvement of Panchayati Raj Institutions (PRI) was found to be low and so was the linkage between the school and the community (Kanwer and Sarmah, 2009), and the participation of parents and community in school activities was very low (Soni, 2005). SDMCs played an ineffective role in disseminating the

information about the programme related to schools (Research and Documentation Team, 2004) and failed in mobilising financial resources from the community. Lack of parental involvement was a major barrier (Padhi, 2006).

It would be interesting for researchers to undertake community-based collaborative action researches. These studies would be appropriate if the field level functionaries undertake them. But the success of educational programme could be ensured if community is prepared to own up the process and product of educational programmes. Studying the community participation issues superficially, would contribute little. Therefore large scale adoption studies by educational functionaries perhaps would be more appropriate. Different intervention studies to understand and bring about changes in the mindset of the community would also be useful as the present school community development models are not completely successful. There's a lot of scope for educational researchers in this area.

Infrastructure, Resources and Grants

A school can run effectively if it has the pre-requisites necessary to run. Some of them include infrastructure, resources and grants. Studies conducted on them include the following.

Infrastructure is indeed a critical requirement for any school to function. A positive correlation was found between the test scores with maintenance of existing classrooms (Barnhardt and Khemani, 2005). Most schools had insufficient classrooms and so the existing classrooms were overcrowded (Momin et al., 2006). The type of schools and the classrooms that had favourable environment was found to retain children in school (Sahu, 2006). The availability of separate toilets for girls was found to increase cleanliness amongst girls and increased their self-confidence (Merchant, 2006). Thus, infrastructure facilities facilitate learners to remain and participate in schooling process.

Included among the resources are human resources, material resources and time as a resource. Studies concerning human resources indicate that training teachers improved their subject knowledge, motivation and teaching skills (Mehta, 2008). In Meghalaya, majority of the teachers were found to be untrained, nor were they given equal opportunity to attend orientation or short term training programmes (Kharkongor, 2006). This adequately

emphasises the need and necessity of training for teachers. Teachers in KGBV were found to be very cordial (Mandal, 2007) which is also very important for enhancing the learning ambiance. Good and motivated teachers, better teaching quality, punctuality and discipline, school environment, infrastructure and facilities, practice of giving homework regularly and periodic tests were some of the things that prompted parents to send their children to private schools (Mehta et al., 2007), and ADEPTS' teachers were willing to put an extra effort required which resulted in the improvement of students' attendance, retention and achievement (SARED, 2009). Attention was also given to students' neatness. Good thoughts were found written on the walls. Patel and Patel (2006) reported that teachers followed the time table. Arrangement of proxy teachers was made whenever, a teacher was on leave. Teachers' interaction with the children was full of affection. Another study (Soni, 2005) found that facilities for education of children with disabilities were in the initial stages in HP and MP and non-existent in Meghalaya and Mizoram. No special teachers were appointed to help children with disabilities in any of the states.

Material resources are also necessary for effective functioning of a school. A study found that majority of schools had activities like TLM, Metric Mela, *Balmela*, Bridge courses and VEC/MTA/PTA assistance for school improvement and a majority of teachers used poems, stories, dances, games and TLM to teach students (Shah, 2003). Cycling to school improved the self confidence levels of girls and vocational trainings inputs improved retention of girls (Gender Unit, TSG-SSA, 2008). Use of instruments by experts and printed literature materials distributed during in-service training was useful and consequently students could learn easily with the help of pictures in the classroom. They liked going to school, listening to various types of stories in the classroom, enjoyed studies, played games in the school and took part in various activities. Reading materials for visually handicapped children were not available in schools of the four states (Soni, 2005).

Elementary schools get school grant, teacher grant, TLM grant and maintenance grant. Teacher grant was discontinued in between. These grants have also been a concern of researchers. A study found that in majority of the cases, the schools utilised the school grant, TLM grant and maintenance grant fully. *Village Shiksha Samiti* sent utilisation certificate to district. Planned utilisation of school development grant was seen in little more

than half of the schools (Singh and Pandey, 2007). Another study found that VECs were involved in the yearly maintenance of the buildings in the school complex. In Tamil Nadu and Gujarat the school took initiatives to develop and maintain provisions for children with special needs (Civil Works Unit, TSG-SSA, 2007), and grant was utilised mostly for maintenance, purchase or repair of furniture, purchase of blackboards, writing of motto and maps, etc. About half of the schools considered the grant to be adequate (Sharma, 2004).

Policies and Implementation

Ideally, any educational policy is to be formulated based on empirical evidences. The educational researchers and administrators need to inform and influence policy makers through their programmes, studies and outcomes. However, the gap between the policy makers and educational researchers continue to exist. It may not be incorrect to say that they run parallel without convergence. People in the system are expected to implement the policies by converting them into programmes. Implementers are many in the chain who function at different levels, with differing levels of understanding, involvement and insights in to the intrinsic aspirations. The successful implementation of any policy is directly related to the clarity and ease of implementation. There are different studies which have bearing on the policies and their implementation.

It was found that in the States with non-detention policy, teachers taught properly, students' attendance and enrolment increased, study stress and dropout rate at primary stage reduced (Chandrasekhar and Gupta, 2005). Use of TLM in the class made children participate actively during teaching learning (Ghose, 2007). Meena Manch enhanced and redeemed the educational and social life status of girl children (Pandey, 2008). CALP (Joshi et al., 2007) and involvement of teachers in the computer-based learning had a beneficial impact (Research and Documentation Team 2004) and Shiksha Mitra created classroom friendly and sympathetic atmosphere and they used TLM (Goel, 2004).

Savithri (2005) found that children in Residential Bridge Course (RBC) participated actively in group activities, they continued beyond teaching hours and they maintained records satisfactorily. In a satisfactory context, sampled upgraded schools in the initial

year of their establishment as EGS centers enrolled on an average about 52 children per center including boys and girls in almost equal members (Sharma, 2007). Some of the incentives for children have been implemented in schools satisfactorily. Scholarship amount of ₹50 per month were given to SC girls only at primary stage, at the upper primary stage ₹40 to SC girls and ₹30 to SC boys per month was given (Soni, 2008), and majority of eligible girls received the cycle in good condition at the beginning of the session which increased the enrolment of girls (Sharma and Yadav, 2008).

The above studies depict some of the success stories. However, there are stories which have a mixed texture. Sangai (2007) found that grading of schools and classrooms developed a sense of responsibility and a healthy competition among schools and teachers while, parents' meetings did not discuss irregular attendance. Another study found that majority of learners reported adequate availability of teaching-learning material but basic facilities of seating and drinking water were inadequate (Ghose, 2006).

About in-service training of teachers, it was found that most of the teachers had undergone in-service training of various kinds and durations but, it did not reflect in their classroom practices as 'good practices', and sound pedagogical practices' have not necessarily resulted in better performance of students (Prasad and NEEV research team, 2004). In another study, it was found that nearly, all teachers who were trained under IEDC scheme were familiar with the information regarding disability and had sufficient information about the special care to be taken of disabled children but, the facility of resource room was not available at block level (Chudasama et al., 2006). Another study found that the training modules were good but they should be revised from time to time (Singh, 2005). Another study found that the content included in all the programmes was observed to be adequate, relevant and useful except for tribal education. The quality of management of various teleconferencing programmes was satisfactory. Use of audio-visuals as support to presentation need to be more relevant and content based. Language needs to be simplified (Director, IMS 2007).

On the roles of CRCs and BRCs it was found that CRC in rural area appeared to receive relatively less support from BRC in their activities compared to their urban counterparts while, DIET provided guidelines to CRCs and schools in monthly assessment

meetings (Joshi and Gautam, 2009) and there was no practice of center level training by CRCC (Director, CYSD 2006). On the EGS centres it was found that mid day meal was being provided to the students but the performance of Shiksha Mitras need to be improved through regular training and orientation programme. Another study found that PTAs or MTAs were formed in a limited number of villages and they needed orientation and empowerment. Training was helpful to the EVs in teaching with activity-based and joyful learning methods (Director, CYSD 2006).

There is another set of studies where, the picture is not satisfactory at all. On the issue of mid day meal, Nath (2006) suggested that there has to be an additional financial support for increase in honorarium for the Bhojan Mata, supply of fuel and condiments and variations in recipes, and supplies need to be regularised by streamlining the supply system. It has been reported that more time was spent on cooking mid-day meals and less number of teachers and over-crowded classrooms affected teaching-learning processes (Barve, 2003). Regarding EGS centers, it was found that Education Volunteers (EVs) were not paid their honorarium regularly, their training was also inadequate and monitoring and evaluation of the EGS needed further strengthening (Das, 2006). In another study it was found that selection or appointment of Education Volunteers (EVs) in EGS was not based on merit and a majority of them were untrained and irregular. Added to that the VECs were also least interested in the affairs of the centers and the community participation was the least (Kharkongngor et al., 2006). Salam and Mandal (2007) showed that higher proportion of boys was mainstreamed compared to girls and this proportion was highest for STs and lowest for SCs. Reasons for non-mainstreaming of children in majority of cases were engagement in income generating or household activities.

It is felt that it would be appropriate to study where policies succeed and fail, in terms of their inability to reach the stakeholders and the dynamics of their implementation. Since education cannot succeed in the absence of the cooperation from all the stakeholders, it would be worthwhile to study the policy implementations in relation to the stakeholders' understanding and their willingness to co-operate in their implementation. Ideally, any policy should not fail and in reality all policies do not succeed. Therefore, the gap between the ideal and the real situations need to be studied and the policymakers need to be informed accordingly. Another potential

area which needs further exploration is the functionaries that exist at the sub-state levels, such as the district level functionaries, block level functionaries, clustered level functionaries and school level functionaries. Though, if different structures exist, the coordination and the navigation is not smooth. The school community linkages are yet another concern which could be examined by researchers. Midday meals scheme and its implementation is another key area. Hitherto, this has remained as only an act of providing food to children in order to retain them as healthy children. Perhaps, many case studies and in-depth studies about the whole implementation of mid day meal would even support the system to function better. The possible impact of midday meal on children, their health, their retention, their learning and overall development of personality need to be studied.

State-of-the Art of Research in Elementary Education in India: An Analysis

Murthy (2004) collected 438 researches (157 or 36 per cent conducted for the award of M.Phil., Ph.D. and D.Litt. degrees and 281 or 64 per cent covering the research papers published in journals and research projects) and analysed them into degree-oriented and non-degree-oriented studies. These studies were analysed in terms of methodological concerns and substantive issues in elementary education. Among the degree-oriented studies, it was found that 82 per cent of studies belonged to the PhD level. So, doctoral level studies contributed a major chunk to the above pool which was followed by the M.Phil (17 per cent) and D.Litt. (1 per cent) studies. Further, among the 157 studies of the degree-oriented studies, those in education consisted of 91 per cent while, research studies in other disciplines comprised 9 per cent only.

Under the methodological concerns, issues such as the sample used, sample size, tools and techniques used and choice of the treatment of data were studied. It was found that a majority of the Degree-Oriented Studies (DOSs) included samples ranging from '100 to 600' while, majority of Non-Degree-Oriented studies (NDOSs) used sample ranging 'less than 100 to 300 subjects'. This suggests a tendency on the part of DOSs to select a relatively larger sample as compared with that of NDOSs. With regard to the large sample sizes, i.e., 600 and above, both DOSs and NDOSs showed more or less a similar trend. Hence, DOS and NDOS groups differed specifically on the use of small samples. DOS and NDOS researchers were also

compared on other methodological concerns i.e., studying student sample of different classes or standards. On the whole, researchers studying elementary education used other than student sample to the tune of almost 30 per cent. Hence, the category 'Others' formed a perceptible portion. This was true irrespective of whether it was degree-oriented or non-degree-oriented studies. As the data did not indicate any class specific preference an attempt was made to study the relative preference of levels/standards/classes and found that relatively Class IV was studied the most followed by Classes V, III, I, II, VIII, VII, and VI. If one analyses the preferences, one gets a picture that the terminal stage of primary education, (in some states it is Class IV and in some, it is Class V) was the choice of both the DOS and NDO groups. With regard to the sample composition, it was attempted to segregate different samples studied by DO and NDO groups and found that researchers on the whole studied student samples mostly, to the tune of 43 per cent followed by teachers of elementary schools and schools or NFE centres.

Researchers predominantly used different tests or scales or inventories followed by achievement or diagnostic tests, questionnaires, interview and different schedules. Though, other tools and techniques were used, their use was much less. Further, it was also found that DOSs used tests or scales or inventories and achievement or diagnostic tests, relatively more than NDOs, while NDOs used other tools and techniques i.e., questionnaire, interview, proforma, observation, intervention and textbooks or modules more in comparison with DOSs. The use of qualitative techniques was relatively higher in NDO studies. This preference is perhaps due to the kind of training that educational institutions impart in education. It could perhaps be explained on the following lines: Firstly, DOS researchers undergo training in research methodology and generally, belong to the learner generation while, NDO comprise learners and teachers or professionals. Secondly, quantitative data treatment techniques are progressing rapidly. Therefore, it is but natural on the part of DO researchers to get attracted more to quantitative techniques as the use of figures help in proving or disproving a conjecture tested with an element of precision. Thirdly, acceptance of the qualitative data analysis in educational research is still slowly percolating down to the levels of students of education. This methodology is borrowed more from sociology and psychology and is not easy to master.

With regard to the use of inferential statistics, it is evident that, DO researchers outnumbered NDO researchers. This could be understood and explained from two viewpoints. Firstly, a DO researcher cannot negotiate on certain assumed requirements i.e., the chapter scheming of the research reporting, requirement of certain pattern of methodological use, coverage of a certain number of variables etc. Therefore, DO researchers perhaps, prefer to use all possible exercises of testing their hypotheses using different statistics. The NDO researcher does not have to satisfy these conditions. Secondly, NDOs cover research projects as well as research papers published in professional journals. Research papers vary in terms of the coverage apart from the use of both qualitative and quantitative methods. In research papers one cannot expect the use of application of as many statistics as we do in a degree-oriented study.

In order to study whether, DO and NDO researchers differ with regard to their preference on substantive concerns, different kinds of data were generated based on the analysis of the substantive issues studied by different researchers. The substantive concerns covered issues that have been studied, the nature of the sample studied or the sample composition. It means teaching learning had been the substantial focus of researchers. This trend is almost the same with both the groups. Relatively speaking, DO researchers studied both students and teachers slightly more than NDO researchers.

Researchers have attempted to study many concerns within different factors. On systemic factor, it was found that around two-third was contributed by NDOSs while about one third was contributed by DOSs, it indicates less number of DOSs and more number of NDOSs have studied systemic factors. Within the systemic factors, it was found that programme evaluation was on the top, followed by problems of education, educational development, school assessment or profile, social factors and policy, administration and management of education and project evaluation. This indicates the relative priority shown by the researchers at the elementary education level.

Among the DOSs, the focus was on programme evaluation, followed by educational development, social factors and problems of education. Programme evaluation was studied most because it followed a methodology, which as students they would have studied. With regard to educational development, perhaps, this is

one area that did not demand the use of sophisticated designs—another set of DO researchers might have felt comfortable with approaches like historical approaches, using secondary source of data on desk. With regard to studies on social factors, researchers who had either sociological orientation or those who had interests in sociological perspectives might have seen education from their perspectives and might have preferred to undertake such research for degrees too.

Among DOSs, problems of education were also studied. These studies focused on various problems associated with access, enrolment, retention, stagnation, dropout etc. However, relatively less preference was given to problems of education in comparison to educational development. Therefore, it seems positive concerns attracted DO researchers more than the problems and issues that are plaguing education.

If one analyses the direction of priorities given by NDO researchers, it is evident that they tried to study impediments of UEE through problems of education, followed by school related issues, evaluation of different programmes within teaching learning institutions. With regard to DOS, more studies were conducted on the evaluation of programmes, followed by educational development, social factors and forces at work in education. Problems of education have received the least priority.

Concerns identified with respect to school factors focused more on concerns about teaching-learning factors followed by curriculum studies, teacher and training factors and issues related to educational technology. The other areas were researched the least. The proportion of DOSs and NDOs were almost in proportions 1:2 respectively. It is DOSs who predominantly focused on teacher and teacher training factor, followed by curriculum studies, teaching-learning factors and educational technology. Whereas, among the NDOs, teaching-learning factors dominated the scene, followed by curriculum studies, teacher and teacher-training factors and educational technology. DOS researchers studied more teacher-related issues and curriculum issues followed by teaching-learning factors while, the reverse was the priority accorded by NDOs. This indicates the difference in the priorities. If one looks at the percentages of DOSs and NDOs, it is evident that around 35 per cent of DOSs were teacher-centered while, almost the same percentage of studies were teaching learning-centred among NDOs, suggesting that DOSs were more or less presage-factors concerned

while, NDOSs were process factors concerned. The core requirement of educational research is to study educational processes. Since, more number of NDOSs have attempted on this, they have become more relevant in elementary educational researches. It is argued that studying the presage components should be the concern of other cognate disciplines such as Philosophy, Psychology and Sociology while, educational research must focus on process and processes leading to products. From this viewpoint, the research studies undertaken by NDOSs are more relevant.

Trends and their foci with regard to pupil factors indicates that on the whole, correlates of achievement were researched the most, followed by pupil assessment, disability and cognitive and personality development. A majority of DO researchers studied Pupil assessment more than NDO researchers while, the reverse was true on 'Achievement correlates'. Concerns related to 'Pupil assessment' belonged to Presage aspects, while the concerns related to 'Academic achievement' belong to product aspects. It has been argued earlier that the educational research need to focus on educational processes leading to product and the presage aspects be studied by cognate disciplines. Educational researchers need to build on the available research knowledge on presage aspects and invest time, money and resources on process and product variables. From this perspective, the contributions of NDO researchers seem to be more relevant to education in comparison to DOS researchers.

The above broad trends seen in educational researches at elementary education suggests that there is a need on the part of student researchers who wish to work in the area of elementary education as well as their supervisors, to move away to become more relevant to the cause of elementary education than focusing more on obtaining or getting degree following accepted procedures of research in justifying their degrees alone. There is a need for bold initiatives in studying elementary education concerns are needed.

Conclusion

There have been impressive set of researches in the area of elementary education conducted at the national level. This report has attempted to synthesise the researches into different sections and enumerated what is required. It is important to bring all children to school and ensure that they learn. Whereas, access is no longer an issue, improving quality of elementary education need to be focused in research. Quality is a multidimensional term which

includes quality of physical space in the school, teaching-learning material, classroom processes including assessment procedures, academic support to teachers, involvement of community in the functioning of the school, and so on. A participative process of governance needs to be evolved. The *National Education Policy 2020* recommends adopting the pedagogy of experiential learning (i.e., integration of art, sports, story-telling, ICT) in the schools. In addition to recommending a new structure of school education, the Policy also calls for curricular integration of essential subjects, skills and capacities. The need today is to develop a holistic learner through the process of education. Providing equitable and inclusive education to all, including the gifted, is the demand. There is a need to undertake in-depth research on these issues using different methodologies, be it quantitative, qualitative, or mixed, to inform policy and practice. The researchers need to move beyond the pure academic pursuits and undertake socially relevant researches having implications for the school education system in the country. This will help all stakeholders to follow and undertake evidence-based decisions. It is hoped that elementary education in India will address this challenge in the future research.

REFERENCES

- ACHARYA, S. 2007. *Problems of Enrolment, Retention, and Achievement among the Students of Primitive Tribes of Orissa*. Post graduate Department of Anthropology. Utkal University, Bhubaneswar.
- AHMED, M. 2008. *A Study on Teacher Absenteeism and Students' Attendance in Primary and Upper Primary Schools in Uttar Pradesh*. Haryali Center for Rural Development, New Delhi.
- AKCAYIR, M. AND G. AKCAYIR. 2017. Advantages and Challenges Associated with Augmented Reality for Education: A Systematic Review of the Literature. *Educational Research Review*. Vol. 20, pp. 1–11. <https://doi.org/10.1016/j.edurev.2016.11.002>
- ARORA, Y., R.P. HURIA, A.R. SHARMA AND V.K.B. SINGH. 2002. *Terminal Assessment Survey in DPEP Phase – II Districts of Haryana*. SIEMAT, Bhiwani.
- ARORA, S., AND J. PANDEY. 2008. *Migration of Child labor to Gujarat: Reasons and remedies*. State Institute of Educational Research and Training, Udaipur.
- BALDAUF, R.B., R.B. KAPLAN, N. KAMWANGAMALU AND P. BRYANT. 2011. Success of Failure of Primary Second/foreign Language Programmes in Asia: What Do the Data Tell Us? *Current Issues in Language Planning*. 12, 309–323.

- BANERJI, R., H. SHETTY, R. KARBARE AND S. SRIANARAIN. 2005. *Education for All in India's Mega-Cities Issues from Mumbai and Delhi*. Pratham Resource Center, New Delhi.
- BANERJE, A., S. COLE, E. DUFLO AND L. LINDEN. 2004. *Remedying Education Evidence from Two Randomized Experiments in India*. Pratham Resource Centre, New Delhi and Cambridge, USA.
- BANERJEE, R. AND A. MEHANDALE. 2006. *Understanding Inclusive Practice and Community Initiatives to Make Education Accessible*. Sava in Action Association, Bangalore.
- BARNHARDT, S. AND S. KHEMANI. 2005. *Why Do Some Schools Do Better Than Others in the Same Region*. Azim Premji Foundation, Bangalore.
- BARVE, A. 2003. *Analytical Study of the Factors Causing Obstacles in the Implementation of Different Aspects of Educational Quality in DPEP*. Govt College of education, Raipur.
- BASCIA, N. AND B. FAUBERT. 2012. Primary Class Size Reduction: How Policy Space, Physical Space, and Spatiality Shape What Happens in Real Schools. *Leadership and Policy in Schools*. Vol. 11, No. 3. pp. 344–364. <https://doi.org/10.1080/15700763.2012.692430>
- BETSUR, N.C., S.S. SWAMY, T.M. GEETHA AND M. JAMAL. 2006. *An Evaluation of Integrated Education of the Disabled Program in Karnataka*. Karnataka State Women's University, Bijapur.
- BHATIA, K. 2014. Analysis of Home Assignments of Students at the Primary Level an Evaluative Study. *Journal of Indian Education*, (May).
- BHATTA, B.K. AND P.K. BORA. 2009. *Joyful Learning of Kasren*. Nagaon: An Impact Study Nowgong Girls College.
- BHUWAL, M.K. 2003. *Comparative Study of the Effect of Socio-economic Status on the Self-perception and Scholastic Achievement of SC and ST Students*. Govt College of Education, Raipur.
- BIELEFELDT, T. 2013. Guidance for Technology Decisions from Classroom Observation. *Journal of Research on Technology in Education*. Vol. 44, No. 3, pp. 205–223.
- BOYLE, E.A., T. HAINEY, T.M. CONNOLLY, G. GRAY., J. EARP, M. OTT, ... J. PEREIRA. 2016. An Update to the Systematic Literature Review of Empirical Evidence of the Impacts and Outcomes of Computer Games and Serious Games. *Computers and Education*. Vol. 94. pp. 178–192.
- BUNCH, G. AND A. VALEO. 2004. Student Attitudes Toward Peers with Disabilities in Inclusive and Special Education Schools. *Disability and Society*. Vol. 19, No. 1. pp. 61–76.
- CAL, TEAM. AND V.P. SINGH. 2007. *An Impact Study of the Innovative Multimedia Program in Increasing the Enrolment and Retention of Children at Elementary Level*. Office of the UEE Mission. Department of Education, New Delhi.
- CALLOW, J. AND J. ORLANDO. 2015. *Enabling Exemplary Teaching: A Framework of Student Engagement for Students from Low Socio-Economic Backgrounds with Implications for Technology and Literacy*

- Practices. *Pedagogies: An International Journal*. Vol. 10, No. 4. pp. 349–371. <https://doi.org/10.1080/1554480X.2015.1066678>.
- CHADHA, A., ET AL. 2005. *Evaluation of Inclusive Education under DPEP III in Jharkhand*. Jharkhand Education Project Council. Ranchi, Jharkhand.
- CHAKRABARTY, A., B. BAGCHI, ET AL. 2005. *An Assessment of In-service Teachers Training Programs in Five Districts of West Bengal*. Institute of Development Studies, Calcutta University. Kolkata, West Bengal.
- CHAKRABORTY, T. AND R. KHANNA. 2008. *Study of the Status of Alternative Schooling under SSA*. Mott mac Donald, Noida.
- . 2008. *Study of Different Interventions for Out-of-school Children in the State of Rajasthan*. Mott Mac Donald, Noida.
- CHANDRASEKHAR, K. AND S.K. GUPTA. 2005. *Non-detention Policy in the States*. Department of Measurement and Evaluation. NCERT, New Delhi.
- CHAUHAN, S. 2017. A Meta-analysis of the Impact of Technology on Learning Effectiveness of Elementary Students. *Computers and Education*. 105, pp. 14–30. <https://doi.org/10.1016/j.compedu.2016.11.005>
- CHOUDHURY, A.N., J. PRANAB AND G. BHARALI. 2008. *Impact of IED Intervention in the Areas with Full Resource Support and Partial Resource Support Provided from SSA- a Comparative Analysis*. Xavier's Foundation for Social and Educational Development and Research, Guwahati.
- CHUDASAMA, G., Y. JADEJA AND D. MAHETA. 2006. *Impact of Integrated Education for Disabled Children*. Shikshan Ane Samaj Kalyan Kendra, Amreli.
- CLARK, I. 2015. Formative Assessment: Translating High-level Curriculum Principles into Classroom Practice. *The Curriculum Journal*. Vol. 26, No. 1. pp. 91–114. <https://doi.org/10.1080/09585176.2014.990911>
- CIVIL WORKS UNIT, TSG-SSA. 2007. *National Evaluation of Civil Works Under Sarva Shiksha Abhiyana Programme*. Civil Works Unit Technical Support Group–SSA, EdCIL, New Delhi.
- CMS. 2008. *Teachers' Absence and Students' Attendance in Primary and Upper Primary Schools of Karnataka*. State Catalyst Management Services Pvt. Ltd., Bangalore.
- DAS, B.B. 2008. *Performance Assessment of Computer-aided Education under SSA*. Xavier Institute of Management. Bhubaneswar, Orissa.
- . 2006. *Comparative Assessment of the Functioning of EGS Centers Managed by Government and NGOs in Orissa*. Xavier Institute of Management. Bhubaneswar, Orissa.
- . 2007. *Evaluation of the Impact of IED Intervention with a Focus on Enrolment and Retention in the School*. University Guwahati. Gawahati, Goa.
- DATAMATION. 2006. *Terminal Achievement Survey with Reference to BAS, MAS under DPEP*. Phase-I Datamation, New Delhi.
- DAVIES, D., D. JINDAL-SNAPE, C. COLLIER, R. DIGBY, P. HAY AND A. HOWE. 2013. Creative Learning Environments in Education—A Systematic Literature Review. *Thinking Skills and Creativity*. 8, pp. 80–91. <https://doi.org/10.1016/j.tsc.2012.07.004>

- DAY N., V. CHAUHAN AND L.M. SANWAL. 2008. *Study on Students' Attendance in Relation to Mid-day Meal Scheme in Primary Schools*. Academy of Management Studies. Dehradun, Uttarakhand.
- DEME. 2002. *Learning Achievement of Class V Children*. Round I Department of Measurement and Evaluation. NCERT, New Delhi.
- . 2004. *Learning Achievement of Class III, VII and VIII Children Round I*. Department of Measurement and Evaluation. NCERT, New Delhi.
- . 2006. *Learning Achievement of Class V Children – Round II*. Department of Measurement and Evaluation. NCERT, New Delhi.
- . 2008. *Learning Achievement of Class III, VII and VIII Children – Round II*. Department of Measurement and Evaluation. NCERT, New Delhi.
- DEVI, S. AND S.R. KAMARI. 2007. *Situational Analysis of Residential Bridge Course in Andhra Pradesh*. Acharya N.G. Ranga Agricultural University. Hyderabad, Andhra Pradesh.
- DEVI, S., S.R. KUMARI, L.U. DEVI, L. SREEVANI, S. PRASANTHI AND K. SUJATHA. 2006. *Evaluation of DPEP in Andhra Pradesh*. Acharya N.G. Ranga Agricultural University. Hyderabad, Andhra Pradesh.
- DIAMOND, J.B. 2012. Accountability Policy, School Organization and Classroom Practice: Partial Recoupling and Educational Opportunity. *Education and Urban Society*. Vol. 44, No. 2. pp. 151–182. <https://doi.org/10.1177/0013124511431569>
- DIRECTOR, CYSD. 2006. *Effectiveness of Monitoring System of EGS Center*. Centre for Youth and Social Development. Bhubaneswar, Orissa.
- DIRECTOR, IMS. 2007. *Learning-teaching Problems of Tribal Children and Development of Strategies*. Institution of Media Studies. Bhubaneswar, Orissa.
- . 2007. *Report on Feedback Analysis on Teleconference Programmes*. Institution of Media Studies. Bhubaneswar, Orissa.
- DOGRA, B. 2013. Challenges and Issues in Environmental Studies (EVS) Teaching at the Primary Stage. *Indian Educational Review*. Vol. 51, No. 2.
- DUBEY, V.K. AND Y. PANDEY. 2012. Problems Faced by Special Teachers in Implementing Inclusive Education under Sarva Shiksha Abhiyan. *Journal of Indian Education*, (May).
- DURAISAMY, M. 2006. *Enrolment and Retention of Girls in Elementary Education in Tamil Nadu*. SSA State Project Directorate. Tamil Nadu, Chennai.
- EKSTRAND, B. 2015. What It Takes to Keep Children in School: A Research Review. *Educational Review*. Vol. 67, No. 4. pp. 459–482. <https://doi.org/10.1080/00131911.2015.1008406>
- FENIGER, Y., M. ISRAELI AND S. YEHUDA. 2016. The Power of Numbers: The Adoption and Consequences of National Low-stakes Standardised Tests in Israel. *Globalisation, Societies and Education*. Vol. 14, No. 2. pp. 183–202. <https://doi.org/10.1080/14767724.2015.1010438>
- GENDER UNIT., TSG-SSA. 2007. *National Evaluation of Kasturba Gandhi Balika Vidyalyaya Scheme*. Gender unit, Technical Support Group – SSA, EdCIL, New Delhi.

- . 2008. *National Evaluation of Kasturba Gandhi Balika Vidyalaya Scheme*. Gender Unit, Technical Support Group SSA, EdCIL, New Delhi.
- . 2008. *Evaluation of National Programme for Education of Girls at Elementary Level*. Gender Unit, Technical support groups – SSA, EdCIL, New Delhi.
- GHOSE, P.P. 2006. *Evaluation of Mahila Samakhya*. Asian Development Research Institute (ADRI). Patna, Bihar.
- GHOSE, A.K. 2007. *Utilization of TLM, SIG and R and M Grants in Primary Schools*. District Institute of Education and Training, Sankara, Sundargarh.
- GOHIL, S., M. RADADIYA AND D.P. PATEL. ET AL. 2006. *Study Regarding Out-of-school Children of Migratory Families*. The Causes and Solutions Shikshan Ane Samaj Kalyan Kendra, Amreli.
- GOEL, S. 2004. *Evaluation Study of Para-teachers*. State Institute of Educational Management and Training. Allahabad, Uttar Pradesh.
- HAZARIKA, D. 2009. *Effectiveness of the Present Evaluation System in Elementary Level*. Society for Socio-economics Awareness and Environment Protection, Nagaon.
- HUSSAIN, T.A. AND R. HAZARIKA. 2008. *Functioning and Effectiveness of Involvement of Members of Various Peoples Committees in SSA*. Activities North East Social Trust (NEST). Golaghat, Assam.
- JAIN, N. 2005. *A Critical Appraisal of Primary Level Textbooks on Environmental Studies*. Govt College of Education Institute of Advanced Study in Education (IASE). Bhopal, Madhya Pradesh.
- JALALUDDIN, A.K., S.N. PRASAD AND NEEV RESEARCH TEAM. 2004. *Study of Pedagogical Practices and Learning Achievements in LGP Schools*. Azim Premji Foundation, Karnataka.
- JAY, M. 2003. Critical Race Theory, Multi Cultural Education, and the Hidden Curriculum of Hegemony. *Multicultural Perspectives*. Vol. 5, No. 4. pp. 3–9. <https://doi.org/10.1207/S15327892MCP05042>.
- JAYALAKSHMI, T.K., ET AL. 2003. *Terminal Assessment Survey in DPEP Phase II districts in Karnataka*. RV Educational Consortium. Bangalore, Karnataka.
- JOSHI, S.N., V. CHAUHAN AND L.M. SANWAL. 2007. *Study on the Impact of Computer Aided Learning. On Achievement Level of Students Academy of Management Studies*. Dehradun, Uttarakhand.
- JOSHI, S. 2007. *Effectiveness of Remedial Teaching on Learner's Achievement at Elementary Level M.P.* Ujjain: Institute of Social Science Research.
- JOSHI, S. AND N. GAUTAM. 2009. *A Study of the Effectiveness of Cluster Resource Centers Shiksha Kendra' in Madhya Pradesh*. Institute of Social Science Research. Ujjain, Madhya Pradesh.
- JULKA, A. 2003. *Strengthening the Teacher Education Curriculum of DIETs from the Perspective of Special Needs Education*. Department of Education of Groups with Special Needs. NCERT, New Delhi.

- . 2005. *A Study of Programme and Practices for the Education of Children with Special Education Needs*. In Different States Department of Education of Groups with Special Needs. NCERT, New Delhi.
- . 2005. *A Review of Existing Instructional Adaptations (General and Specific) is being Used in Integrated / Inclusive classrooms*. Department of Education of Groups with Special Needs. NCERT, New Delhi.
- KAMATH, A.V.D. 2011A. *First Half Yearly SSA–RTE Monitoring Report of Mysuru, Karnataka*. Regional Institute of Education. NCERT, Mysuru.
- . 2011B. *Second Half Yearly SSA–RTE Monitoring Report of Davanagere, Karnataka*. Regional Institute of Education. NCERT, Mysuru.
- . 2012A. *Third Half Yearly SSA–RTE Monitoring Report of Chikkaballapura, Karnataka*. Regional Institute of Education. NCERT, Mysuru.
- KAMATH, A.V.D. 2012B. *Fourth Half Yearly SSA–RTE Monitoring Report of Madhugiri, Karnataka*. Regional Institute of Education. NCERT, Mysuru.
- KANWER, S. AND J.S. SARMAH. 2009. *Involvement of Panchayati Raj Institutions (PRIs) in School Support System*. Department of Political Science, Gauhati University. Guwahati, Goa.
- KELLY, A.V. 2009. *The Curriculum: Theory and Practice*. SAGE Publications Ltd; Sixth Edition Edition. pp. 336–336. <https://doi.org/10.1080/02615470802681344>.
- KHAN, F.S. AND A. ASIF, ET AL. 2007. *A Study of the Impact of Teachers Training at the Primary and Upper Primary of Level*. Institute of Advanced study in Education. Bhopal, Madhya Pradesh.
- KHARE, M. 2007. *Effect of Classroom Culture on the Learning Level of Girl Child*. Jan Mangal Institute Chindwara, Madhya Pradesh.
- KHARE, U., A. PALKER AND Y.S. KHATANA. 2007. *A Study of Teachers' Absence at Primary and Upper Primary Level*. LASE, Bhopal.
- KHARKONGOR, J. 2006. *Study on the Assessment of Quality Education in elementary schools*. District Institute of Education and Training. Nongpoh, RiBhoi, Meghalaya.
- KHARKONGOR, J., B.D. MARBANIANG, O. RAPSANG AND R. KYNTA. 2006. *Case Study on the Effectiveness of Education Guarantee Scheme*. District Institute of Education and Training. Nongpoh, Ri-Bhoi, Meghalaya.
- KISHORE, L. AND P. KULHARI. 2008. *An In-depth Study of Classroom Processes and Their Bearing Upon Learners' Retention and their Achievement*. Centre for Unfolding Learning Potentials, Jaipur.
- KRISTIAN, B. AND D.R. GUPTA. 2006. *Dropout Children in Himachal Pradesh*. Himachal Pradesh University. Shimla, Himachal Pradesh.
- KRISHNAMURTHY, H. ET AL. 2004. *Impact of Computer Aided Learning on Children with Specific Learning Disabilities*. Shimla Spastics Society of Karnataka, Bangalore.
- KULSUM, U. 2008. *Effect of School and Home Factors on the Attendance of Children at a Primary Stage in Karnataka*. Department of Post Graduate studies in Education. Bangalore University, Bangalore.

- KULKARNI, V. AND P. SADOLIKAR. 2004. *Evaluation of Infrastructural Grants under DPEP. (1994 to June 2003)* Jnana Prabodhini, Pune.
- KUMAR, K. AND J.K. GUPTA. 2006. *Role of Block and Cluster Resource Centers for Quality Improvement in Elementary Education.* Society for Applied Research in Education and Development (SARED), Noida.
- KUMARI, S. AND N. KUMAR. 2009. *Impact Study on the Functioning of NPEGEL Programme in Jharkhand.* Madhur Muskan. Ranchi, Jharkhand.
- KUSHWAHA, M. 2012. Effects of School Language-home Language Gap on Primary Education: A Study of First Generation Learners of Disadvantaged Groups. *Indian Educational Review.* Vol. 50, No. 2.
- NCERT. 2017. *Learning Outcomes at the Elementary Stage.* NCERT, New Delhi.
- LEITHWOOD, K. AND D. JANTZI. 2009. A Review of Empirical Evidence About School Size Effects: A Policy Perspective. *Review of Educational Research.* Vol. 79, No. 1. pp. 464–490. <https://doi.org/10.3102/0034654308326158>
- LOCHAN, R. 2007. *A Study on the Increasing Rate of Dropout in Different Cases at Primary Level.* Shuruat, Bhopal.
- LYNOO, H.S., B. NONGBRI, S. HYNNEWTA AND A. MAJAW. 2006. *Study on the Assessment of Quality Education in Elementary Schools.* District Institute of Education and Training. Nongstoin, West Khasi Hills district, Meghalaya.
- LYNGDOH, S., N. PARITAN, W. NIKHLA AND B. DKHAR. 2006. *A Case Study of the Effectiveness of Education Guarantee Scheme under SSA in West Khasi Hills district Institute of Education and Training.* Nongstoin, West Khasi Hills district, Meghalaya.
- MACHIN, S., S. MCNALLY AND G. WYNESS. 2013. Educational Attainment across the UK Nations: Performance, Inequality and Evidence. *Educational Research.* Vol. 55, No. 2. pp. 139–164. <https://doi.org/10.1080/00131881.2013.801242>
- MAHAJAN, A., V.P. GOYAL AND R. ABHIGYAN. 2008. *A Study on Community Motivation and Mobilization Strategies with Reference to Their Bearing upon the Active Participation of the Community in Achieving the Goals of SSA.* Aide-et-Action, Jaipur.
- MAHANTA, U.J. AND P.K. BARUA. 2008. *Assessment of Teachers' Competencies and Teachers' Performance.* North East Overall Welfare Action Implementation Society Jorhat, Assam.
- MAJUMDAR, B.G. AND A. RAYCHAUDHURI. 2012. Attendance is one of the Major Factors for Academic Performance of the Students of Elementary Classes. *Indian Educational Review.* Vol. 50, No. 1.
- MALAV, L.G. 2006. *Sample Monitoring on Impact of Training of Teachers for Multigrade Teaching.* Department of Education, Gujarat University. Ahmadabad, Gujarat.
- MANDAL, P. 2007. *Contribution of Kasturba Gandhi balik Vidyalaya on SC/ST girl's Education.* Jharkhand Education Project Council. Ranchi, Jharkhand.

- MEHAR, V. AND J. KAUR. 2010. Effect of Experiential Learning Strategy on Enhancement of Environmental Awareness Among Primary School Students. *Indian Educational Review*. Vol. 47, No. 2.
- MEHROTRA, A. 2006. *Assessment of Functioning and Effectiveness of Kasturba Gandhi Balika Vidyalyas*. Global Ideas, Lucknow, Uttar Pradesh.
- MEHTA, L.M. 2008. *A Study on the Outcomes of Lalitpur Experiment Conducted in Association with UNICEF to Improve the Quality of Education*. Media Research Group, New Delhi.
- MEHTA, M. 2006. *Impact of Teachers' Training on Students' Attendance and Achievement Level*. Media Research Group, New Delhi.
- MEHTA, L.M., M.R. VERMA AND B. KISHORE. 2007. *Comparative Study of Factors Leading to Higher Learning and Achievement Levels among Students in Government and Private Schools*. Media Research Group, New Delhi.
- MERCHANT, A.M. 2006. *Impact of Sanitation Units on Enrolment and Retention of Girls in Primary Schools*. Dr. Babasaheb Ambedkar Open University, Ahmedabad.
- MISRA, A. AND B. BARAJ. 2008. *A Sample Survey of School Children in 5 Districts of Uttar Pradesh*. ORG Center for Social Research, Ltd. Lucknow, Uttar Pradesh.
- MISHRA, R. 2007. *The Impact of Incentives and Interventions Under National Programme for Education of Girls at Elementary Level for Promoting Girl's Education*. Nabakrushna Choudhury Centre for Development Studies. Bhubaneswar, Orissa.
- MOKIBELO, E. 2016. Implementation of the Language-in-education Policy and Achieving Education for all Goals in Botswana Primary Schools. *Universal Journal of Educational Research*. Vol. 4, No. 1. pp. 157–164. Retrieved from <https://eric.ed.gov/?q=Mokibelo&id=EJ1086218>
- MOMIN, J.C., D.R. MARAK, J.A. MARAK, G. GRETUS, T. SANGAMA AND D. SHIRA. 2006. *Study on the Assessment of Quality Education in Elementary Schools*. District Institute of Education and Training. Baghmara, South Garo Hills District, Meghalaya.
- MOMIN, T.G., A.B. MARAK, E.D. SANGAMA AND N.C. SANGAMA. 2006. *Study on Assessment of Quality Education in Elementary Schools*. In East Garo Hills district District Institute of Education and Training. Resubelpara, East Garo Hills, Meghalaya.
- MOHAN, S. AND K.P. PANDEY. 2004. *Study in Dropouts of Ballia*. Kushinagar, Bijnor and Etah State Council of Educational Research and Training, Lucknow, U.P.
- MURTHY, C.G.V. 2004. Investigating Differences between Degree Oriented and Non-degree-oriented Studies (DOSs-NDOSs). *Perspectives in Education*. Vol. 20, No. 3. pp. 175–185.
- . 2011A. *First Half Yearly SSA–RTE Monitoring Report of Hassan, Karnataka*. Regional Institute of Education. NCERT, Mysuru.
- . 2011B. *Second Half Yearly SSA–RTE Monitoring Report of Raichur, Karnataka*. Regional Institute of Education. NCERT, Mysuru.

- . 2012A. *Third Half Yearly SSA-RTE Monitoring Report of Kolar, Karnataka*. Regional Institute of Education. NCERT, Mysuru.
- . 2012B. *Fourth Half Yearly SSA-RTE Monitoring Report of Dharwad, Karnataka*. Regional Institute of Education. NCERT, Mysuru.
- MURTHY, C.G.V. 2015. *First Half Yearly SSA-RTE Monitoring Report of Bagalkote, Karnataka*. Regional Institute of Education. NCERT, Mysuru.
- NAGARAJU, G. 2008. *Teachers 'Absence in Primary and Upper Primary Schools in Andhra Pradesh*. Rajiv vidya mission (SSA). Hyderabad, Andhra Pradesh.
- NAIK, I. 2006. *The Impact of CRC Monthly Meetings on Teachers' Empowerment*. IASE Shikshan Mahavidyalaya Gujarat Vidhyapith, Ahmedabad.
- NASEEMA, C. 2008. *Sarva Shiksha Abhiyan Programme. Concurrent Evaluation Department of Adult, Continuing Education and Extension Services*. University of Calicut, Kerala.
- NATH, D. 2006. *Study of Convergence of Other Govt. Schemes and Programmes with the Primary Education Programme and Its Effect on Quality of Education*. Context of MDM and ICDS New Concept Information Systems Pvt. Ltd., New Delhi
- NATIONAL EDUCATION POLICY. 2020. Government of India, New Delhi.
- OPOH, F.A., F.T. OKOU AND R.A. IKANG. 2015. Universal Basic Education Programme for Global Competitiveness: A Need for Paradigm Shift. *Journal of Education and Practice*. Vol. 6, No. 34. pp. 1–6. Retrieved from <https://eric.ed.gov/?q=Universal+Basic+Education+Programme+for+Global++Competitiveness+per+cent3a+A+Need+for+Paradigm+Shift++and+id=EJ1086097>
- ORG CENTER FOR SOCIAL RESEARCH. 2006. *Terminal Assessment Survey in Six DPEP Districts of Gujarat*. (Phase-IV) ORG — Marg Pvt. Ltd., New Delhi.
- . 2006. *To Estimate and Identify Reasons for Class wise Dropout and Repetition Rate at the Elementary Level*. And Transition to Upper Primary Level ORG-MARG, New Delhi.
- . 2006. *The Impact and Effectiveness of Innovative Programmes in Girls' Education Programme in Uttarakhand*. ORG Centre for Social Research, ORG-MARG, New Delhi.
- . 2006. *Study on Achievement Level in Language and Mathematics of the Students Passing the Class I and class IV in DPEP*. ORG Centre for Social Research, ORG-MARG, New Delhi.
- . 2006. *Mid-term Assessment Survey*. DPEP Districts ORG Centre for Social Research, ORG-MARG, New Delhi.
- OXI-ZEN RESEARCH GROUP. 2008. *Teacher Absence and Student's Attendance in Primary and Upper Primary Schools of Mizoram*. Oxi-Zen Research group. Kolkata, West Bengal.
- OU, D. 2013. *Education for All: Quasi-experimental Estimates of the Impacts of Compulsory Primary Education in Hong Kong*. Asia

- Pacific Education Review*. Vol. 14, No. 3. pp. 267–283. <https://doi.org/10.1007/s12564-013-9271-z>
- OZA, D.J. 2006. *Gender Sensitization in Primary Schools of Gujarat on New Curriculum Structures Department of Education*. Faculty of Education and Psychology. The Maharaja Sayajirao University of Baroda, Vadodara.
- . 2006. *A Study on Gender Concerns in School Activities and Classroom Practices in Primary Schools Department of Education*. Faculty of Education and Psychology, the Maharaja Sayajirao University of Baroda. Vadodara, Baroda.
- PADHI, U. 2006. *A Comparative Study on Scholastic Achievement of Class IV Girl Students of Residential and Non-residential Schools*. Institute of Media Studies. Bhubaneswar, Orissa.
- PADHI, U. 2006. *Scholastic Achievement of Tribal Children at a Primary Level Whose Home Language is Different from Instructional Language*. Institute of Media Studies. Bhubaneswar, Orissa.
- PANDEY, K.P. 2005. *Classroom Observation Study*. State Council of Educational Research and Training. Lucknow, U.P.
- PANDEY S. 2008. *Evaluation Study on the Effectiveness of Meena Manches in Upper Primary Schools Gorakhpur*. Department of Education, Deen Dayal Upadhyaya Gorakhpur University. Gorakhpur, U.P.
- PANDEY, S. AND R.N. TRIPATHI. 2008. *Mid-term Assessment of Pupil Achievement*. Midterm Marketing and Research Pvt. Ltd., New Delhi.
- PATEL, H.T. AND R.R. BHATNAGAR, ET AL. 2006. *A Study to Find out Reasons of Dropouts of Children and Processes Adopted Under Alternative Schooling*. Sardar Patel Institute of Economic and Social Research. Ahmadabad, Gujarat.
- PATEL, M. AND A.P. KASWEKAR. 2006. *Study of Gender Sensitivity of Primary School Teachers*. Shikshan Mahavidyalaya, Gujarat Vidyapeeth. Ahmedabad, Gujarat.
- PATEL, M.K. AND D.M. PATEL. 2006. *Impact of District Primary Education Programme on Enrolment and Attendance of Boys and Girls*. Shikshan Mahavidyalaya Gujarat Vidyapeeth. Ahmedabad, Gujarat.
- PATEL, M.K. AND J.G. PATEL. 2006. *Classroom Observation in the Schools of SSA*. Districts Shikshan Mahavidyalaya, Gujarat Vidyapeeth. Ahmedabad, Gujarat.
- PATEL, M.K. AND H.M. PATEL. 2006. *Analysis of the Types of TLM and use of TLM by Student*. Shikshan Mahavidyalaya, Gujarat Vidyapeeth. Ahmedabad, Gujarat.
- PATEL, M.K. AND L.P. PATEL. 2006. *Impact of Teacher Training on Activity-based Participatory Teaching Learning Process in Classroom Transaction*. Shikshan Mahavidyalaya, Gujarat Vidyapith. Ahmedabad, Gujarat.
- POONAM., A. 2014. Relationship of Burnout of Upper Primary School Teachers with Locus of Control. *Journal of Indian Education*, (February).
- PREMA, P. 2009. *Instructional and Nurturant Effect of Activity-based learning—An impact study*. Alagappa University Karikudi, Tamil Nadu.

- RAJYA SHIKSHA KENDRA. 2003. *Rapid Assessment Studies*. Rajya Shiksha Kendra. Bhopal, Madhya Pradesh.
- RAJPUT, S., A.D. TEWARI AND S. KUMAR. 2003. *Development and Implementation of School*. Department of Measurement and Evaluation. NCERT, New Delhi.
- RAO, G.L. 2005. *Terminal Assessment Survey DPEP-II*. Development and Research Services (p) Ltd., Secunderabad.
- RAO, N.G.V.L., S. SINGH, M.V. KUMAR AND A. KHAN. 2008. *An In-depth Study of the Socio-economic, Academic and Other Factors Responsible for Low and High Enrolment, Retention and Achievement of Girls*. Development and Research Studies (DRS) Pvt. Ltd., New Delhi.
- RASTOGI, M. AND R. BATRA. 2008. *Impact Study of Residential Bridge Courses*. Under IED Bishop Cornard Memorial Hospital, Sitapur.
- RESU, TSG-SSA. 2008. *Teachers' Absence in Primary and Upper Primary Schools of Andhra Pradesh, Madhya Pradesh and Uttar Pradesh, Research Evaluation and studies Unit*. Technical Support Group (TSG)-SSA, EdCIL, New Delhi.
- . 2008. *Attendance of Student in Primary and Upper Primary Schools a Study Conducted in 20 Major States*. Research Evaluation and Studies Unit, Technical Support Group (TSG)-SSA, EdCIL, New Delhi.
- . 2008. *Study of Students' Time on Task Primary and Upper Primary Schools in 5 States*. Research Evaluation and Studies Unit Technical Support Group (TSG)-SSA, EdCIL, New Delhi.
- . 2008. *Scholastic Achievement and Literacy of Pupils at then End of Class IV in Karnataka*. Orissa and Uttar Pradesh, Research Evaluation and Studies Unit, Technical Support Group SSA, EdCIL, New Delhi.
- REDDY, N.U. AND K.S. RAO. 2006. *Elementary Education — Teachers' Opinions on Present Programmes and Activities*. A report SPO-SSA Office. Hyderabad, Andhra Pradesh.
- RESEARCH AND DOCUMENTATION TEAM. 2004. *Community Perception on Education in North East Karnataka*. Azim Premji Foundation, Karnataka.
- . 2005. *Factors Affecting Success in Learning Guarantee Programme*. Azim Premji Foundation, Karnataka.
- RIGHT OF CHILDREN TO FREE AND COMPULSORY EDUCATION ACT. 2009. Government of India. New Delhi.
- ROUT, S.K. 2009. A Study of the Utilization of Educational Media at Primary Stage. *Indian Educational Review*. Vol. 45, No. 1.
- SAHU, N. 2006. *Comparative Study of the Physical and Co-educational Environment in Government and Private Schools*. Navinchandra Mafatlat Sadguru Water Development Foundation. Chosala, Dahod, Gujarat.
- . 2006. *Study of Utilisation of Teacher Grant for the Preparation of Teaching-learning Materials*. Navinchandra Mafatlat Sadguru Water Development Foundation. Chosala, Dahod, Gujarat.
- . 2006. *Impact Evaluation of Free Textbooks Distribution on Enrolment and Retention of under Privileged Students*. Navinchandra

- Mafatlal Sadguru Water Development Foundation Dahod. Gujarat, Chosala, Gujarat.
- SALAM S.N. AND S. MANDAL. 2005. *Assessment Study on the Status of Madhyamik Shiksha Kendras*. (MskS- the Institution for Upper Primary Level) State Project Office, Paschim Banga Sarva Shiksha Mission, Kolkata, West Bengal.
- . 2007. *Study on School Efficiency Cohort Study' 2005 at Primary Level*. State Project Office, Paschim Banga Sarva Shiksha Mission. Kolkata, West Bengal.
- . 2008. *Study on Teacher's Absence at Primary Level*. State Project Office, Paschim Banga Sarva Shiksha Mission. Kolkata, West Bengal.
- SANGAI, S. 2004. *A Study of the Role of EGS and AIE Centers in Universalising Elementary Education and in Mainstreaming the Children to Formal Schools*. Department of Elementary Education. NCERT, New Delhi.
- . 2007. *Children Language Improvement Programme*. Department of Elementary Education. NCERT, New Delhi.
- SANGAI, S., K.K. VASHISHTHA, U. DUTTA, ET AL. 2002. *Universalisation of Elementary Education*. Search for Relevance Department of Elementary Education. NCERT, New Delhi.
- SARED. 2009. *Effectiveness of ADEPTS Phase-1 Implementation in Gujarat*. State Executive Director, Society for Applied Research in Education and Development. Noida, Uttar Pradesh.
- SARKAR, M. 2008. *Distribution of Free Textbooks and their Effect Jharkhand*. Education Project Council. Ranchi, Jharkhand.
- SARKAR, S.S. AND P. BARUAH. 2008. *Effectiveness of Education Guarantee Scheme in Covering Out-of-school Children*. Dept of Business Administration, Tezpur University Napalm, Assam.
- SAVITHRI, M. 2005. *Impact of Residential Bridge Course/Non Residential Bridge Courses in Mainstreaming the Out-of-school Children*. Research and Evaluation Coordinator, State Project Office –DPEP/SSA. Hyderabad, Andhra Pradesh.
- . 2005. *Cohort Study on Enrolment and Drop out at Primary Stage (1999–2000 to 2003–2004) within Andhra Pradesh*. RandE Coordinator, SPO, DPEP/SSA. Hyderabad, Andhra Pradesh.
- SCERT. 2005. *Comparative Study of Learning Achievement of Students in MAS*. State “L” of Educational Research and Training. Lucknow, U.P.
- SEKHAR, S., M. NAIR, K. PRABHAKAR AND P. RAO. 2008. *Study of Sarva Shiksha Abhiyan Initiatives on Universalisation of Elementary Education in Karnataka*. With Special Reference to Concerns of Quality UNICEF and Public Affairs Centre. Bangalore, Karnataka.
- SHUKLA, P. (2003). *Study of the Training Needs of the Primary School Teachers with Reference to Effective Classroom Activities*. Govt. College of Education. Raipur, Jharkhand.
- SHAH, S.G. AND R.B. CHAUDHARI. 2006. *Study on the Assessment of Actual Impact and Outcomes in Terms of Girl's Participation, Regular Attendance*

- and Learning Levels*. Gujarat Education Department, Veer Narmad South Gujarat University. Udhna-Magdalla Road, Surat, Gujarat.
- SHAH, V.K., I. SHAH AND A. RAWAL, ET AL. 2006. *Causes of Low Enrolment and Drop out of SC and ST Girls in Primary Schools*. Sardar Patel Institute of Economic and Social Research. Ahmedabad, Gujarat.
- SHAH, B.M., G. SINGH AND K. DABHI. 2006. *A Comparative Study of Birth Rate and Enrolment Rate of Children in Gujarat*. ORG Centre for Social Research (A division of AC Nielsen ORG MARG). Vadodara, Gujarat.
- SHAH, V.K., A.J. RAVAL AND L.K. SHAH. 2006. *Impact of the Intervention of DPEP on Enrolment, Retention and Quality of Education at Primary Level*. Sardar Patel Institute of Economic and Social Research. Ahmadabad, Gujarat.
- SHAH, V.K. 2003. *Impact of Teachers' Training*. Sardar Patel Institute of Economic and Social Research. Ahmadabad, Gujarat.
- SHASTRI M.C. 2006. *Comparative Study of the Perception of Primary School Teachers in Government and Private Schools Towards Different Attributes of SSA Programme*. Department of Education, Gujarat University. Ahmadabad, Gujarat.
- SHARMA. C. AND M. PHULL. 2009. *Study on Teachers' Absence in Primary and Upper Primary Schools in Jharkhand*. Datamation Research Analyst, Delhi.
- SHARMA, M. 2007. *A Study of Teaching Learning Material Society*. Fin-Development of Humanity, Jabalpur.
- SHARMA, S.K. 2004. *Study on the Role of Village Education Committee*. In Sarva Shiksha Abhiyan SIEMAT. Bhiwani, Haryana.
- SHARMA, V.K. AND B.K. YADAV. 2008. *Study of the Impact of Providing Cycles to Girl's Education*. In Upper Primary Schools SIEMAT. Bhiwani, Haryana.
- SHARMA, V.K. 2004. *To Study the Utilisation of School Improvement Grant in Primary and Upper Primary Schools*. SIEMAT, Bhiwani, Haryana.
- SHUKLA, A. AND R. SANYAL. 2008. *A Comparative Study of Achievement Levels of Girls of Kasturba Gandhi Balika Vidyalayas and Girls of Parishadiya Upper Primary Schools*. Dept of Education (IASE), University of Lucknow, Uttar Pradesh.
- SIERT. 2006. *Rapid Achievement Survey*. With reference to BAS and MAS under DPEP Phase-II SIERT, Udaipur.
- SIEMAT AND STATE PROJECT OFFICE. 2009. *Cohort Study State Project Office*. Shimla, Himachal Pradesh.
- SINGAL, N. 2006. Inclusive Education in India: International Concept, National Interpretation. *International Journal of Disability, Development and Education*. Vol. 53, No. 3. pp. 351-369. <https://doi.org/10.1080/10349120600847797>
- SINHA, S. 2005. *Quality Improvement Programme, District Primary Education Programme (DPEP), Andhra Pradesh*. A Case Study Department of Elementary Education. NCERT, New Delhi.
- SINGH, K.U., R. GUPTA, S. SHARMA, R. SHARMA AND J. VIJAY. 2007. *Exploratory Study of Functioning of DPCs, BRCs and CRCs Management of*

- Sarva Shiksha Abhiyan in Rajasthan*. Centre for Development, Communication, and Studies, Jaipur.
- . 2008. *Terminal Assessment Survey for DPEP Phase H Districts of Rajasthan*. Centre for Development, Communication, and Studies, Jaipur.
- SINGH, M. 2009. *A Study of Classroom Transactions in Elementary Schools of Punjab*. Punjabi University. Patiala, Punjab.
- . 2009. *Teachers' and Students' Absence in Primary and Upper Primary Schools*. Department of Social Work, Hiwain University. Patiala, Punjab.
- SINGH, P.N. 2008. *Impact Study of the Implementation of Radio Programme in Jharkhand*. Asian Development Research Institute. Ranchi, Jharkhand.
- . 2008. *Impact Study of the Implementation of Yoga-Vipassana Education in Schools in Jharkhand*. Asian Development Research Institute. Ranchi, Jharkhand.
- SINGH, R.S. AND N. PANDEY. 2007. *Utilisation of Grants Bihar*. Education Project Council. Patna, Bihar.
- . 2007. *Studies on the Drop-out, Repetition and Completion Through Cohort Child Tracking Method*. Bihar Education Project Council. Patna, Bihar.
- . 2006. *Terminal Assessment Survey Bihar*. Education Project Council. Patna, Bihar.
- SINGH, V. 2009. *Teachers' and Students' Absence Under Sarva Shiksha Abhiyan in Bihar*. Jagjivan Ram Institute of Parliamentary Studies and Political Research. Patna, Bihar.
- SINGH, V.P. 2008. *Effectiveness of Hands-on Activities in Science in Enhancing the Teaching Skills of Elementary School Teachers*. Office of the UEE Mission, Delhi.
- SINGH, U.K. 2005. *Study of the Quality and Impact of the Training Modules and the Training Programme under DPEP*. Phase-I for Resource Persons/trainers Rajasthan and Council of Elementary Education. Jaipur, Rajasthan.
- SMITH, W.C. AND D.K. JOSHI. 2016. Public vs. Private Schooling as a Route to Universal Basic Education: A Comparison of China and India. *International Journal of Educational Development*. Vol. 46, pp. 153–165.
- SOCIAL AND RURAL RESEARCH INSTITUTE – IMRB INTERNATIONAL AND RESU. 2009. *National Sample Survey of Households for an Estimate of Out-of-school Children*. Social and Rural Research Institute and Research Institute (SRI-IMRB) and Research, Evaluation and Studies Unit Technical Support Group – SSA, EdCIL, New Delhi.
- SOMASHEKAR, T.V. 2011. *Second Half Yearly SSA-RTE Monitoring Report of Bidar, Karnataka*. Regional Institute of Education, NCERT, Mysuru.
- . 2012A. *Third Half Yearly SSA-RTE Monitoring Report of Gadag, Karnataka*. Mysuru: Regional Institute of Education (NCERT).

- . 2012B. *Fourth Half Yearly SSA-RTE Monitoring Report of Chikkodi, Karnataka*. Regional Institute of Education, NCERT, Mysuru.
- . 2014A. *First Half Yearly SSA-RTE Monitoring Report of Ramanagara, Karnataka*. Regional Institute of Education, NCERT, Mysuru.
- . 2014B. *Second Half Yearly SSA-RTE Monitoring Report of Havery, Karnataka*. Regional Institute of Education, NCERT, Mysuru.
- . 2014A. *First Half Yearly SSA-RTE Monitoring Report of Bangaluru Rural, Karnataka*. Regional Institute of Education, NCERT, Mysuru.
- . 2014B. *Second Half Yearly SSA-RTE Monitoring Report of Ballari, Karnataka*. Regional Institute of Education, NCERT, Mysuru.
- . 2015A. *First Half Yearly SSA-RTE Monitoring Report of Dakshina Kannada, Karnataka*. Regional Institute of Education, NCERT, Mysuru.
- . 2015B. *Second Half Yearly SSA-RTE Monitoring Report of Yadagiri, Karnataka*. Regional Institute of Education, NCERT, Mysuru.
- . 2015A. *First Half Yearly SSA-RTE Monitoring Report of UttaraKannada, Karnataka*. Regional Institute of Education, NCERT, Mysuru.
- . 2015B. *Second Half Yearly SSA-RTE Monitoring Report of Vijayapura, Karnataka*. Regional Institute of Education, NCERT, Mysuru.
- SONI, R.B.L. 2005. *The Problem of Retention of Learners as Perceived by Teachers and Community with Reference to Classroom Processes in Northeastern States*. Department of Elementary Education, NCERT, New Delhi.
- . 2005. *Interventions for the Education of Children with Disabilities*. Department of Elementary Education, NCERT, New Delhi.
- . 2008. *Special Provisions for the Education of SC children*. Under SSA Department of Elementary Education, NCERT, New Delhi.
- . 2003. *Perceptions of Parents, Teachers and Students about the Education of Disabled Children*. Department of Elementary Education, NCERT, New Delhi.
- SRIVASTAVA, R., A. PANDEY AND D. SRIVASTAVA. 2008. *Assessment of Interventions Made to Meet the Educational Needs of SC/ ST Children in SSA*. Pratham UP Education Initiative, Allahabad, Uttar Pradesh.
- SSA RAJYA MISSION. 2008. *Cohort Analysis State Project Office SSA*. Rajya Mission Agartala, Tripura.
- STATE PROJECT DIRECTORATE. 2006. *A Study on Students' Achievement at the End of Primary Level*. SSA, Tamil Nadu, Chennai.
- SUDHIR, M.A. 2003. *Intervention Strategies for Out-of-school Children Mobilising Community Resources*. Department of Applied Research, Gandhigram Rural Institute, Chennai.
- SUBRAMANYAM, U. 2009. *Case Studies for Capturing the Impact of Sarva Shiksha Abhiyan in Andhra Pradesh*. The Indian Institute of Economics. Hyderabad, Andhra Pradesh.

- TONDEUR, J., L.H. KERSHAW, R. VANDERLINDE AND J. VAN BRAAK. 2013. Getting Inside the Black Box of Technology Integration in Education: Teachers' stimulated Recall of Classroom Observations. *Australasian Journal of Educational Technology*. Vol. 29, No. 3. <https://doi.org/10.14742/ajet.16>
- UMA, L., C.R. PRABHA. K. KRANTHISREE. S. SUNEELA AND PRANEETHA. 2006. *Levels of Scholastic Achievement of Rural Elementary School Children the Role of Classroom Teaching Practices*. Dept of Human Development and Family Studies. Acharya N.G. Ranga Agricultural University, Saifabad, Hyderabad.
- UNESCO. 2005. *Guidelines for Inclusion: Ensuring Access to Education for All*. Paris: UNESCO.
- UPADHYAY, G.C. 2003. *A Study of Processes and Effectiveness of Linkages Between ECCE and Primary Education*. Department of Elementary Education, NCERT, New Delhi.
- VERMA, J. 2005. *Innovative Teaching Strategies for Promoting Inclusive Education*. Department of Education of Groups with Special Needs, NCERT, New Delhi.
- . 2004. *Role of Parent Teacher Association for Promoting Inclusive Education*. Department of Education of Groups with Special Needs, NCERT, New Delhi.
- . 2002. *An Evaluation Study of Integrated Education for Disabled Children*. Department of Education of Groups with Special Needs, NCERT, New Delhi.
- VENKATESH, M.N. 2006. *An Evaluation of the Schemes and Programmes of Inclusive Education of the Disabled Children in Karnataka*. Department of Folklore and Tribal Studies, Dravidian University Kuppam, Chittoor District, Andhra Pradesh.
- VERMA, V. 2007. *Study on the Teaching of Mathematics and English with Reference to Class VI and VII*. Vimarsh, Bhopal.
- VINAVAK, S. 2004. *Evaluation of the ECCE Programme in DPEP*. Districts of Uttaranchal Society. action. Vision and Enterprise, Lucknow, Uttar Pradesh.
- WYSE, D. AND H. TORRANCE. 2009. The Development and Consequences of National Curriculum Assessment for Primary Education in England. *Educational Research*. Vol. 51, No. 2. pp. 213–228. <https://doi.org/10.1080/00131880902891479>.
- YADAV, B.K. 2004. *To Assess Utilisation of Teacher Grant and Its Impact on Elementary Education*. SIEMAT, Bhiwani.
- ZIMLICH, S.L. 2015. Using Technology in Gifted and Talented Education Classrooms: The Teachers' Perspective. *Journal of Information Technology Education: Innovations in Practice*. Vol. 14, pp. 101–124.

Enhancing Teaching-Learning of Mathematics among Grade II Children Using Storytelling Strategy

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ABSTRACT

This study is an action research aimed at enhancing mathematics learning of a low-participating class of Grade II learners to be more participating and getting engaged in doing mathematics. Storytelling proved to be an appropriate strategy for this involvement. Story-based on a popular animated series was adapted and concepts related to skip-counting were embedded into story situations. Anecdotes from the field included students' verbal and written responses and pre-service teachers notes in their reflective journals. It was derived that the enhanced participation of Grade II children could be a result of the strong agency that the story fostered in the young learners, making them realise that their mathematical expertise was valuable and had serious implications for someone (the story characters).

Keywords: *Storytelling, Action Research, Skip-counting, Participation, Communication, Primary School Mathematics*

सार

यह एक क्रियात्मक अनुसंधान है जिसका उद्देश्य कक्षा 2 के गणित विषय की कक्षा में कम प्रतिभागिता करने वाले बच्चों की प्रतिभागिता को बढ़ाना है। इस भागीदारी के लिए कहानी सुनाना एक उपयुक्त रणनीति साबित हुई है। इस अध्ययन में एक लोकप्रिय सजीव श्रृंखला के आधार पर कहानी का चयन किया गया तथा स्किप काउंटिंग से संबंधित अवधारणाओं को कहानी की स्थितियों में लागू किया गया। अध्ययन में वास्तविक स्थिति से उपख्यानों को एकत्रित किया गया जिसमें छात्रों के मौखिक और लिखित प्रतिक्रियाएं एवं पूर्व-सेवा शिक्षकों

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द्वारा उनके चिंतनशील पत्रिकाओं में उल्लिखित नोट्स को शामिल किया गया। इस विधि के प्रयोग द्वारा बच्चों में भागीदारी में वृद्धि पाई गयी। यह विधि संभवतः बच्चों में यह समझदारी विकसित करने में सहायक हुई कि उनकी गणितीय विशेषज्ञता तथा बच्चों दूसरों (कहानी के पात्रों) को प्रभावित कर सकते हैं।

Introduction

The policy document of The National Council of Teachers of Mathematics, *Curriculum and Evaluation Standards for School Mathematics* advocated, “the use of children’s books as a vehicle for communicating mathematical ideas” (NCTM, 1989, p.5). Following this recommendation, a lot of work has been done in this area. Studies recommended the use of literature, storybooks, epic stories and museum as means for discussing mathematical ideas (Forbringer, 2004; Gerretson and Cruz, 2011; McDuffie and Young, 2003; Schiro, 2004). They saw immense potential in using children’s literature for teaching mathematics and asserted that an effective teacher may use these resources to locate mathematical ideas within the stories. Researchers (for example, Casey, Kersh, and Young, 2004; Egan, 1986; O’Neill, Pearce, and Pick, 2004; Zazkis and Liljedahl, 2009) have promoted storytelling and narratives as potential ways for creating a context for learning mathematics. They claimed that these resources help in improving students’ thinking, communication and problem-solving abilities.

Vygotsky’s socio-cultural theory stresses at the fundamental role of social interaction in the development of cognition. Stories, viewed from a socio-cultural perspective, when told within a culture, teach its members the culture’s interpretation of who’s who and the implications of their roles, “...what is right and wrong, good and bad, aims and obstacles, collaboration and conflict, power and prohibition, causes and consequences... cultures teach us the stories within which we live” (Smith, 1990). Hence, stories provide opportunities for individual learning as well as social interaction.

Stories being a multi-modal system are important from the individual and socio-cultural perspective. While constructivism asserts that knowledge is actively built up by the cognising the subject where the function of cognition is adaptive, it implies that people build knowledge by integrating new experiences with prior knowledge. Storytelling provides many avenues for generating new experiences to create multiple learning opportunities.

The use of storytelling in the mathematics classroom is a relatively new aspect, with lines of scholarship coming from

only a handful of countries, such as North America, Europe and Australia, a lot remains unknown about the use of stories in teaching mathematics. Flevares and Schiff (2014) while reviewing the literature pointed out many missing links in the understanding of this pedagogic strategy. They suggested more work should be done through multiple methods of investigation, like, large-scale experiment-control studies and fine-grained studies of individual students. Also, significant gaps exist in understanding student's cognitive engagement, classroom practices and individual differences. They have highlighted the absence of many required research studies that can help build an understanding of the positive impact of using children's literature in teaching mathematics on students and their teachers. The present study was a step in that direction.

The study an action research conducted in the primary classroom that had many persistent issues. Despite all best efforts students didn't showed interest in participatory in interacting and communicating mathematics. The teaching-learning of mathematics, storytelling was used as a pedagogic strategy in the classroom.

The Site

The purpose of the action research study was to explore the role of storytelling in enhancing teaching-learning of mathematics in primary classes. The research question it addressed was, Can storytelling, as a teaching strategy, help in addressing the problems of low participation, low communication and fear for mathematics with primary children?

The class understudy was Grade II of a government school of Delhi. The class comprised of 22 students (8 boys and 14 girls). The students were in the age group of 7 to 8 years.

The action work was done with a pre-service primary grade teacher, who was the fourth and final year student of an elementary teacher's training course (Bachelor in Elementary Education, University of Delhi).

Field observations, students' written and verbal responses, classroom-conversations between the intern-teacher and the students, and Reflective Journals (RJ) written by the intern-teacher were used as indicators of knowing students' participation. The reflective journals of the intern served as an extremely useful source as in it there was description about the things that happened

during teaching, about students' learning, and most importantly, self-analysis of the teacher's pedagogies. The anecdotal writing in the reflective journals helped to understand the change in students' participation and learning.

Backdrop of a Low-Participating Mathematics Classroom: A Dissatisfaction

Before formally teaching the class, the intern observed a couple of mathematics classes being taken by the regular teacher. It was observed that during the regular mathematics class, children followed the procedures chalked on the blackboard by the teacher. Paper-pencil tasks were dominant and the children hardly communicated with either the teacher or with their peers. Many of the students were observed to have developed a fear for the subject. It was gathered that the children could state numbers from 1 to 100 in a sequence, like a routine exercise, but lacked the understanding of the number patterns and number-sense. From the limited communication that took place in the class, it was deduced that owing to the one-sided communication by the teacher, there was a feeling of low participation on behalf of the children. Considering the children were just about 7–8 years old, one would expect the class to be a vibrant space loaded with fun and participation. Contrarily, an atmosphere of silence prevailed in the mathematics class, which indicated that the children either feared the teacher or the subject.

The pre-service teacher started to take initiatives by following participatory approach to make mathematics interesting. By teaching skip-counting using a manipulative, i.e., *ganit-mala* (a rope with hundred beads having groups of ten beads in alternate colours) the class was involved. It was hung in the front of the room and students were called to work on it. A starting number and a number to be used as a counter to skip were given to the children. It was assumed that working with a manipulative will increase the participation of the class as they would invent their strategies and construct ways of doing skip-counting. However, soon it was realised that none of the intended goals could be accomplished by using the manipulative. Most of the students were only doing one-by-one counting with little enthusiasm. They were seen losing interest as well. Many of them asked, "Why are we doing this?" which indicated a lack of interest, participation and not liking the subject as well.

In the next attempt to make mathematics interesting, the manipulative was replaced with a game. This time, a number board was given with numbers 1 to 100 printed in squares and 4-colored counters and a usual dice to play with. The students were placed in a group of 4. The game involved throwing the dice and making three skips of the number on the dice from their present positions. The one who first reached the mark of 100 would be the winner. When the game was given to the students they took interest in it but after playing it for two rounds, they started losing their interest. This game too could not hold students' attention for long. Soon they were seen throwing the dice at each other and not doing mathematics.

It was found that the use of manipulative and games was not doing any good to the class. It looked rhetorical as the children had replaced paper-pencil with manipulative. The children were still not engaging with mathematics. Based on the outcomes another pedagogic strategy was tried and storytelling was chosen as a pedagogic tool to make mathematics interesting and her classes more participatory.

The story sessions were planned and embedded mathematics into the story situations. The details of the story sessions and engagement with learners were:

Planning and Implementing the Intervention: The Storytelling Sessions

The format used for storytelling was that of an epic story (Schiro, 2004). An epic story lasts for many days, like a long story, and was narrated in small chunks over many sessions. In every session, at least one mathematical task was embedded in the story situation. A popular animated series was chosen as plot and concepts related to number patterns were embedded in the story.

A total of eight sessions were taken to cover the entire story for teaching number patterns. During each session, students were narrated a part of the story and had to solve one task leading to the elementary understanding of number patterns. In the first session the children were told to observe repeating patterns in the world around them. In Session 2, children had to do exercises on continuing and completing repeating patterns in worksheets, Session 3 and 4 were dedicated to discussing skip-counting. Session 5 and 6 were based on growing patterns.

In Session 7 and 8, children had to create coded messages using the idea of number patterns.

Every session included story narration, concept introduction, discussions and worksheets containing problems on the chosen concept. Mostly, the tasks were based on the exercises given in the NCERT Grade II textbook, *Math Magic* (2006).

Mathematical Task Embedded in Story Situation and its Description

In this paper, the data obtained during the Session 3 in which skip-counting was planned was reported.

The mathematical task on skip-counting was embedded into the story situation where the students had to help the protagonist cross a lake (Details of the story narrated to the students was given in the Appendix. Here, the mathematical task was being described). As per the situation of the story, the protagonist had to cross a lake in order to find his lost friends. The lake could be crossed by stepping on the stones floating on it. These stones were numbered from 1 to 50. A starting number was announced along with the skipping-counter. For example, if 13 was announced as the starting number and 4 as the counter, the children had to start from the 13th position and find strategies to move to 17, 21, 24 stones and so on. The role of students was to help the protagonist cross the lake so they had to listen to the numbers, (both starting number and the skipping-counter) very carefully. They were told that any mistake in their working would lead to consequences for the protagonist, like slipping in the water. To make the story interesting and to help remove the fear of one right answer, the children were given the freedom to do trial and error without fearing the drowning of the protagonist. Three lives were assigned for the protagonist which meant they could make a maximum of three mistakes.

A rope was placed in the class and equally spaced placards of numbers 1 to 50 were posted on it (if the children wished to use this manipulative as a reference of number line). This manipulative could help children count forward and backward while performing skip-counting. Further, to give the students a feel of the story, one student was selected from the class to act as the protagonist and rest of the class was asked to guide him in the jumps. The moves had to be made collaboratively.

Since, the children were doing skip-counting for the first time, so it was started with small numbers as skipping-counters, gradually increasing the complexity of the task, giving bigger numbers to jump subsequently. The children were given skip counters to move forward as well as for making backward moves. After doing enough engagement with the story, worksheets were handed out to the children. The worksheet had a picture of a rope with numbers 1 to 50 written on it. Blanks were provided beneath the picture for children to write the skip-count sequence of numbers. The starting position, skipping-counter and direction of the moves were announced. The skipping-counters were changed from time to time and the children had to calculate accordingly. Also, were given questions on counting forward and backward, the class moved back and forth between numbers 1 to 50 many a times. In the worksheets, children had to fill in the sequence of numbers that they would obtain after doing the skip-counting. For example, 5, 7, 9, 11, 13, 15 had to be written after the skip count of 2 from the starting position of 5. They also had to speak out the numbers after finding the final result.

The anecdotes shared provided glimpses of how the subject of mathematics was made interesting and ensuring active participation of the learners during the class.

Evaluation and Reflections

In the study, storytelling has been used a conduit of mathematics learning by embedding mathematics content into the story situations. Students attempted mathematics tasks while they listened to a story. Engagement with story and mathematics took place simultaneously as student's mathematics expertise was crucial for helping the story characters in solving their problems. The evidences of students' engagement with mathematics and story characters were interspersed with each other.

It was observed that the children listened intently to the skipping-counter that was provided to them. The students invented their own methods to find their answers. For example, many students used the image of the rope as an aid to mark their skip count (this could be because the image resembled the manipulative displayed in the front of the class). Students' scribbling on the picture of the rope provided in the worksheets gave evidences of their unique thinking styles. Reva, a student, skipped the counts

and marked circles to present the landing stepping stones. So, she started from 14 and moved forward 3 steps in her mind and circled the landing tones 14, 17, 20, 23 on the rope-image provided in the worksheet. Shubam, another student was seen doing the counting-on process. He started from 14, marked 15, 16, 17 with circles, making sure he had made three circles and then wrote 17 in the space below. To get the next number, he again made three circles from 18 onwards to reach 20. Saina and Anuj did same as Shubam but underlined the count of skipping-counters instead of making circles. Amit, on the other hand, wrote 1-2-3 as counters to make a note of the skipping counts. He started from 14, wrote 1-2-3 on numbers 15, 16, 17 and announced the last number, i.e., 17. The number on which the counter digit 3 landed became the answer. So, the counter digit 3 landed on 17, giving it as the answer. Moving ahead, he again wrote 1-2-3 beneath 18, 19, 20. Some students, on the other hand, didn't used the rope image at all. They were seen to be counting numbers on their fingers. For instance, Gita showed three fingers and counted-on from the starting number.

While the task was going on, all children were busy in doing individual calculations. It was observed that the whole class worked for one single goal of helping the story characters. Each child was enthusiastic of doing the task, and if they could not, they were open to ask for help from their peers. This level of participation from the class was quite different from the ones observed earlier. A non-participatory class had started to exchange ideas in order to save their story characters.

After a few minutes of working with the first mathematical task which was about making forward skips of 3 starting from 14, the level of difficulty was increased. Different starting numbers, were given such as 27, which were not easily identifiable of the rope. Many more sophisticated strategies emerged. For instance, a student, Ganesh was seen doing adding-on strategy orally, without doing any interim marking in his worksheet. Ganesh was observed saying, "from 27, 3 steps will be 30... because $27+3$ is 30. Then it will be 33...and 3 more...so 36". He was adding the counter of 3 mentally. This explanation revealed that Ganesh had made a connection between the skipping-counter and adding the counter as an operation. Simultaneously, many more students were seen making connections between skip-counting and addition.

Rishabh, for example, was seen making connections between the operation of addition and the skipping-counter 6. He explained, "I add like 36 on top and 6 below it". He used the vertical algorithm of addition to find the answer.

Another episode of independent discovery that was noticed when the class was asked to begin from 15, moving forward using the skipping-count of 4. At this instance, Garima wanted to share her method, "If I do two jumps of two stones, it will be a jump of 4, isn't it?" It was noticed that Garima was decomposing the skipping-counter, and hence this opportunity to introduce how numbers can be decomposed. Garima was asked to demonstrate her method by taking another starting number, keeping the same skipping-counter 4. Garima explained her method confidently and immediately gave the correct answer. In order to extend children's thinking about number sense, the class was asked to consider Garima's method and use it for their forthcoming skips such as for 7 and 8. Many children got the idea of decomposing the skips and now the Grade II children could be seen decomposing the skip of 7 as skips of 4 and then 3 or vice-versa. Some decomposed them in three parts, doing skips of 2, 3 and 2.

Another revelation emerged when a student Saurav decomposed the number by compensation mechanism. A compensation mechanism was rounding off the number to its earliest base 10 and then compensating for the extras. Saurav was seen using decomposing-compensation strategy with the skip count of 8. He said, "I first found 10 steps forward and then I went two back.... like 33 and then 32, 31. So 31 is the answer". The corresponding number sentence were written on the blackboard, " $+10-2 = +8$ " and the meaning of the symbols were explained that were introduced. then another task was given to strengthen the idea. This time the starting stone number was 31 and the counter was 9.

By sharing different methods, the class was introduced to many ways of working with skip-counting. The inter-changeability of the methods were demonstrated which emerged from the students themselves. The aim of students' work was to ensure so that all the students participated in the discussions. Students were seen to imbibe and follow the different methods shared by their classmates. Henceforth, they selected their own methods to find the sequence of numbers for skip-counting. Moreover, their oral and written expressions reflected their thought processes while spelling out the answers. Students' work showed high accuracy and fluency in calculations.

Students' engagement with their tasks was evident in another anecdote. It was reported that while the session was going on, the students were so engrossed in calculating and helping the story characters that they didn't noticed the presence of the teacher in-charge. On the usual day, students would have stopped their work and wished the teacher-in-charge whenever she entered the class, but on that day, the children were so engrossed in the work that they didn't realised her presence. In fact, the level of engagement was so high that they were focused to finish the task before going home. Teachers and children from the adjoining classes visited the class on an account of curiosity. Such was the involvement with the task that the students continued to 'help Dee without getting disturbed by anyone's presence' (RJ, p. 27, Session 3). No child expressed a desire to leave the task in between and go home even when urged by their parents. It was only when the teacher announced that the protagonist had finally crossed the last stone and had safely entered the castle, the students felt a sigh of relief and stopped their work. They applauded themselves and were happy about accomplishing their task, which was to lead the protagonist to a safe place. The enthusiasm related to the story and doing mathematics didn't ceased at that point. The children yearned for an extension of the story as they were inquisitive about the protagonist's further journey. It was ensured that was not the end and story would be continued the next day.

Concluding Comments

The communication and participation of the stated session was a glimpse of all sessions in which storytelling was used as pedagogy to involve students in doing mathematics. Storytelling helped the intern-teacher in solving the problem of low participation in the mathematics classroom. It was reported that the story, besides providing a meaningful context to the children, helped to break the teacher-student barrier.

Students were highly interested in solving the problems faced by story characters. They persisted on the tasks well beyond the classroom timings, thus showing increased participation. The class discussions also demonstrated the use of multiple methods and procedural fluency. The children explained their methods to everyone, learnt new ways from others, and also made connections between mental computations and addition. Their oral expressions and written responses gave enough evidence for their increased level of communication while exchanging their working procedures.

No content area could be mastered by learners unless they were engaged with it. In the discipline of mathematics, this phenomenon were highly pronounced (Dhankar, 1993; Boaler, 2008). Engagement with the content was dependent on the interest that one had in the content being transacted. Fredrickson (2001) has defined interest as 'a momentary thought-action tendency that involved an impulse to explore'. Thus, considering 'interest' as a cognitive activity. Further, taking interest in a task involves feelings of being animated and enlivened which implied that evoking interest activated a system that generated positive emotions in an individual. Feelings of interest involved affect, attention, motivation and cognition. The study aptly demonstrated a situation that was instrumental in arising interest in the students at their engagement level. The increase in engagement was sensed at the affective as well as cognitive levels.

In addition, students felt that their mathematics expertise was valuable and had serious implications for someone (the story characters stuck in a situation). This fostered a strong agency in the learners which was evident in their engagement with the task of helping the story characters. "They were highly focussed on the task at hand and were not taking any chances with their calculations" (RJ, p.27, Session 3). Each student felt like a 'hero' as they assumed they had the power to drive the outcome of the story. The story context, hence, allowed students to indulge in mathematical initiations that were personally relevant to them. As Schiro (2004) termed it, storytelling pedagogic strategy helps to 'bridge the gap between the subjective and objective realities'. Students' emotional and personal connection with the story characters (subjective reality) led to their self-initiation in doing skip-counting (objective reality). The children were doing mathematical tasks which mattered to them, showcasing an amalgamation of their emotional and cognitive selves. The pedagogic strategy of storytelling helped in making the uninteresting class interesting; and on a general note offered many unexplored possibilities in the teaching of mathematics.

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REFERENCES

- BOALER, J. 2008. *Elephant in the Classroom: Helping Children Learn and Love Maths*. Souvenir Press, London.
- CASEY, B., J.E. KERSH AND J.M. YOUNG. 2004. Storytelling Saga: An Effective Medium for Teaching Early Childhood Mathematics. *Early Childhood Research Quarterly*. Vol. 19, No. 1. pp. 167–172. Doi: 10.1016/j.ecresq.2004.01.011
- DHANKAR, R. 1993. *Teaching and Learning of Mathematics*. Retrieved from <http://azimpremjiuniversity.edu.in/SitePages/pdf/The-Teaching-and-Learning-of-Mathematics.pdf>
- EGAN, K. 1986. *Teaching as Storytelling: An Alternative Approach to Teaching and Curriculum in the Elementary School*. University of Chicago Press, Chicago.
- FLEVARES, L.M. J.R. SCHIFF. 2014. Learning Mathematics in two Dimensions: a Review and Look Ahead at Teaching and Learning Early Childhood Mathematics with Children's Literature. *Frontiers in Psychology*. Vol. 5, p. 459.
- FORBRINGER, L.L. 2004. The Thirteen Days of Halloween: Using Children's Literature to Differentiate Instruction in the Mathematics Classroom. *Teaching Children Mathematics*. NCTM. Vol. 11, No. 2. pp. 82–90.
- FREDRICKSON, B.L. 2001. The Role of Positive Emotions in Positive Psychology: The Broaden-and-build Theory of Positive Emotions. *American Psychologist*. Vol. 56, pp. 218–226.
- GERRETSON, H. AND C.B. CRUZ. 2011. Museum, Mysteries and Math. *Teaching Children Mathematics*. NCTM. Vol. 17, No. 7. pp. 405–409.
- MCDUFFIE, R.M.A. AND A.T. YOUNG. 2003. Promoting Mathematical Discourse through Children's Literature. *Teaching Children Mathematics*. NCTM. Vol. 9, No. 7. pp. 385–389.
- NATIONAL COUNCIL OF EDUCATIONAL RESEARCH AND TRAINING. 2006. *Mathmagic: Textbook for Class II*. NCERT, New Delhi.
- NATIONAL COUNCIL OF TEACHERS OF MATHEMATICS. 1989. *Curriculum and Evaluation Standards for School Mathematics*. NCTM, Reston, VA.
- O'NEILL, D.K., M.J. PEARCE AND J.L. PICK. 2004. Preschool Children's Narrative and Performance on the Peabody Individualised Achievement Test Revised: Evidence of a Relation between Early Narrative and Later Mathematical Ability. *First Language*. Vol. 24, pp. 149–183. Doi: 10.1177/0142723704043529
- SCHIRO, S.M. 2004. *Oral Storytelling and Teaching Mathematics: Pedagogical and Multicultural Perspectives*. Sage Publications, California.
- SMITH, F. 1990. *To Think*. Teachers College Press, New York.
- ZAZKIS, R. AND P. LILJEDAHL. 2009. *Teaching Mathematics as Storytelling*. Sense Publishers, Rotterdam, NL.

A Glimpse of the Story

Dee and Nee were fast friends. Dee was a friendly robot who lived with Nee. Dee had an endless supply of fantastic gadget that helped Nee in his adventures. Our story began on a Sunday morning which was a holiday for all. Dee, Nee, Shina, Jane and Suni were going to the park for playing. When they reached the park they saw that it was already full of children and there were no swings available for them. They felt sad and sat quietly in a corner thinking how their Sunday was going to be a waste.

Nee whispered something to Dee as if he was trying to say something more than his words, “What shall we do now Dee?”. Shina was also upset and she complained, “It seems like we will be stuck like this the whole day...Dee please do something.” Others also started pleading to him. Dee looked at his friends and he said, “Let me see...”

Dee closed his eyes for some time and then took out a big ball from his gadget bag. He said, “Here is a magical sphere and this will help us.” Everyone was puzzled and they asked, “Dee, how will a sphere help us in playing?” Dee placed the sphere on the floor and gave it the following command,

*“Oh dear ball, please go and see,
Show us a place happy and glee,
Where swings make us gay
and we can play all day”*

The magical ball followed the instructions and after searching, it showed them a beautiful place with big parks and lots of swings. Everyone was happy to see this place and they started shouting, “Wow! Let’s go to this park”. Dee took out a gadget ‘small beam’ from his bag and flashed it on all his friends. They all shrunk in size and they entered the ball to go into the new magical place. The moment they entered this magical land a strong wind blew. The wind was so strong that before they could realise what was happening they were flying in the air. They all got separated and did not know where they had landed in this new land. They were all shocked and scared and did not know what to do next.

Dee and his friends were unaware that they had entered a magic land that was under a spell of an evil magician. Dee, while

wandering about, met an old magician who told him about the spell and agreed to help him to reach the evil magician. But before he could reach the evil magician, Dee had to cross many obstacles.

(The story till here was narrated on the first day. During the first two sessions Dee was confronted with challenges that were actually worksheets on repeating patterns. Students solved the worksheets and helped Dee in finding two of his friends. He had also moved closer to the castle of the evil magician. In the third session, the story narrated was as follows.)

Dee and Nee were very happy to find Shina. They were getting closer to the evil magician. The evil magician was losing his temper, his powers and his youth. He was shocked to see that Dee had succeeded in entering the castle, a task no one had ever accomplished till that day. He was sure that someone was definitely helping Dee in this misadventure. He now decided that it was time to confront Dee and defeat him.

The magician worked out another plan. He built a deep lake of water around the centre of the castle so that Dee and his friends could not reach him. Dee and his friends were surprised to see the sudden emergence of this lake and immediately guessed that this was another evil move by their enemy. Dee also noticed a broken bridge across the lake and some pieces of stones floating around in the water. The peculiar thing about the bridge and the pieces was that there were numbers written on them. Suddenly there was a celestial announcement. The voice was so loud and scary that Dee and his friends were shivering with fear. It was the evil magician. He said,

“Dee, you think you are smart?

Let me see how smart!

I will give you one chance,

I want to see you dance.

The floating stones are no ordinary stones.

If you step on the wrong one,

You shall never leave this town.

If you select the right one,

You may be the one!

I will tell you how to start,

Hope you have a strong heart.”

Dee shouted back, “I want my friends and I want to go home. Why don’t you try me? You are inviting trouble for yourself”. Only the evil magician knew which stones were steady and could be used to cross the lake to enter the castle. He said, “Listen to the skip counter carefully and skip that many numbers from the current number. To cross this lake, you have to step on the correct numbered stone”.

(At this point, the mathematical task of skip-counting was introduced.)

Changing School Education Amidst COVID-19 Pandemic Perspectives from Rajasthan

TASHA AGARWAL*, DEEPINDER KAUR**, JYOTI ARORA***

ABSTRACT

The sudden emergence of the Covid-19 pandemic has created a crisis situation which, apart from health, has impacted the education sector the most. The online schooling system has created a new form of classroom supported by digital technology. This new classroom setup has changed the entire course of the teaching and learning process. Where the teachers are facing additional challenges of coping up with technology leading to increased workload, the issues of access and efficiency of technology remains a central problem for both students as well as teachers. Along with that, never before had the involvement of parents been so central in the daily learning experiences. This paper analysed how the new school education was perceived by different stakeholders in the Rajasthan state of India. Through surveys and interviews, the paper examined the paradigm shift from the physical classroom to the online classroom through the lens of teachers, students and parents.

Keywords: Technology, Teachers, Students, Online Education, COVID-19, School Education

सार

कोविड-19 महामारी के अचानक उभरने से एक नए संकट की स्थिति पैदा हो गई है, जिसने स्वास्थ्य के अलावा शिक्षा के क्षेत्र को सबसे अधिक प्रभावित किया है। ऑनलाइन स्कूली शिक्षा प्रणाली ने डिजिटल तकनीक द्वारा पारंपरिक कक्षा को एक नया रूप दिया है। इस नवीन कक्षा के सेटअप ने शिक्षण और सीखने की प्रक्रिया को पूरी तरह बदल दिया है। एक तरफ शिक्षकों को प्रौद्योगिकी के साथ काम करने की अतिरिक्त चुनौतियों का सामना करना पड़ रहा है, जिससे कारण काम का बोझ बढ़ता जा रहा है। साथ ही प्रौद्योगिकी के उपयोग एवं दक्षता

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दोनों छात्रों के साथ-साथ शिक्षकों के लिए भी एक केंद्रीय समस्या बनी हुई है। इसके साथ ही, पहले कभी भी सीखने की प्रक्रिया में माता-पिता की भागीदारी इतनी केंद्रीय नहीं थी। यह शोध पत्र विश्लेषण करता है कि भारत के राजस्थान राज्य में विभिन्न हितधारकों द्वारा नए स्कूली शिक्षा को कैसे देखा जा रहा है। यह शोध पत्र सर्वेक्षण और साक्षात्कार के माध्यम से शिक्षकों, छात्रों और माता-पिता की दृष्टि से भौतिक कक्षा से ऑनलाइन कक्षा में प्रतिमान विस्थापन की जाँच करता है।

Introduction

The opening lines of Kothari Commission Report (1964–66, p.2), “The destiny of India is now being shaped in her classrooms” emphasised the importance of education for national growth and development. This marked the beginning of initiating significant reforms and innovations in school education in India in areas of access, retention and completion. In addition, the global transformations in the 21st century have led to a rise in new expectations from the school system which has resulted in changes in the basic structure of education. The symbiotic relationship between stakeholders like teachers, learners, parents and among learners themselves has now become an even more essential factor for effective education.

The classrooms have also evolved and got reshaped over time. Though, in its positive sense, the physical structure of a classroom comprises of walls made of bricks and mortar with basic infrastructural facilities as charted by the Right to Education Act 2010. But the vision of 21st century classrooms, with learners as its centre, the idea of classroom and aim of education has transcended the physical and geographical boundaries. Now, envisioning the learner as a global citizen with both cognitive and non-cognitive skills, the neoliberal dimensions in education got strengthened by way of performance-based education and the introduction of technology in education. This led to a paradigm shift in the way we perceive education and the role of its stakeholders.

The classroom is considered a place where teachers and learners co-create knowledge and collaborate for learning. The inclusive and diverse classroom was considered important to make learning more effective, context-specific and joyful where they interact and learn through innovative pedagogical practices. The aim behind this was to develop a learner into a productive, critical, empathetic, responsible being who grows to be an asset for the society. This change is still progressive and evolutionary with

newer developments and challenges. One of the most important challenge is to impart quality education and achieve educational outcomes vis-a-vis more access to school education. There is a huge gap in learning outcomes creating a cumulative deficit also called 'learning crisis' or 'schooling crisis'. This concern for quality education and learning outcomes has unfolded at a greater intensity with disruption due to pandemic since March 2020 in India.

The unexpected period of lockdown due to the COVID-19 pandemic was a shock and crisis for the education system initially. The need for quick solutions or alternatives brought in many innovative practices in the system, even though it could cater to some students if not all. One of the innovations which got introduced was conducting classes through online mode, for which neither the system was fully prepared nor its recipients. Somehow it also unfolded or pushed the neoliberal idea of education rather quickly as this could be the best possible solution at times of crisis to avoid a complete collapse of the system across the globe. However, for any innovation to be part of the mainstream and sustain through, it is important to understand the perceptions of the stakeholders (Kumar, 2015) to bring in meaningful and effective transitions.

Against this as background, the present study aimed to understand the transitions in the idea of classroom and related aspects of teaching-learning along with the challenges faced by the three key stakeholders — teachers, students and parents concerning this 'new normal' of online classes. The study was conducted in one of the states of India, Rajasthan, and dealing primarily with private sector schools.

The main objectives of the study were to understand:

1. the nature of the new classroom set up
2. the process of remote learning through technology
3. the process of learning in a crisis situation, and
4. the modality of assessment, evaluation and feedback followed.

Method

The study was descriptive in nature. It involved a mix of qualitative and quantitative data. The study was conducted in two phases — (i) Situational assessment involving reviewing existing reports and social media news, analysis of documents related to existing initiatives of the government and carrying out secondary data analysis, and (ii) Field-based study via an online survey (using Google Forms) during May-June 2020 and telephonic interviews.

Sample

Data were collected from three different categories of stakeholders: teachers, parents and students, the composition of which was given in Table 1 below.

Table 1: Research Sample

Students	Parents	Teacher	Total
220	90	46	336

The study was conducted in the state of Rajasthan in India and the students in the study belonged to five districts, namely, Sikar, Jaipur, Jhunjhunu, Nagaur, and Udaipur. The convenience sampling method was used for this study. A large number of students in the sample were from secondary to higher secondary level of education, i.e., Classes IX–XII. In the sample, there were more male students than female students. Among the sampled parents, most of the parents had two children and these children were predominantly from primary and upper primary classes. The majority of the sample teacher population belonged to the age group of 30–39 years. There was more representation of younger teachers than older teachers. As far as gender representation was concerned, about 61 per cent of the teachers who responded to the survey were females. The study also provided information about the educational qualification of teachers. The majority of teachers possessed a postgraduate degree or higher degree, while there were also few teachers who have become teachers without a Bachelor of Education (B.Ed.). The teaching experience of a large number of teachers fell within the range of 5–9 years. Moreover, almost an equal number of teachers had permanent and contractual status with respect to their employment. The proportion of English teachers were higher than other subject teachers (refer to Appendix I).

Tools and Procedure

For the purpose of the survey, questionnaires were prepared each for teachers, parents and students including both close-ended and open-ended questions, out of which 80–90 per cent of the questions were close ended (for more information refer to Appendix II). A pilot study was conducted with 10 per cent of the sample. Furthermore, data collected through the questionnaire and semi-structured interviews were coded, tabulated, and analysed thematically. Some narratives were included with pseudonyms. The quantitative data

were analysed using descriptive statistics. The frequency and percentages were calculated to arrive at inferences.

Results

The New Classroom Set up or Structure

The normative idea of the classroom constitutes a well-defined structure of schooling where every day consisted of several elements bounded by time. These elements collectively guided the rules and norms of daily conduct for the students as well as teachers. Such elements consisted of timetable, attendance, number of classes, breaks, etc. With the onset of lockdown owing to the pandemic situation, the education system had to shift to the online mode, which redefined and restructured some of the elements that existed earlier. While some elements had undergone minor changes to accommodate the new situation, there were other few which were completely dismantled because of the constraint of online education. Some of the major elements of the new system are as follows:

Timetable

A school time-table is a well-defined plan to align school resources with school schedules in the most efficient and effective manner. It encompasses a plan of school activities tabulated on a periodic basis. Currently, in a pandemic situation, the school set-up has undergone immense changes and several new adjustments have been introduced. In the study, it was found that the schools had to prepare a separate time-table for online classes, except for 6 schools where they still followed the same time-table which was followed during the pre-lockdown period.

Timings

The online classes in Rajasthan started as early as 8.00 am (morning shift) and as late as 1.05 pm (evening shift) and lasted till 12.00–12.30 pm in most cases except one which lasted for 5.00 pm (in case of evening shift). The duration of most of these classes ranged between 30–40 minutes and 24 per cent students reported it to last for 1 hour. In none of the reported cases, class exceeded 1 hour duration. Similarly, teachers also reported that the duration of class usually didn't stretched beyond 30 minutes to 1 hour. However, there were two instances where the respondents reported that sometimes class timings were not decided and classes

didn't happen as per the time-table, which created confusion for both parents and students.

Number of Classes

Virtual learning might have removed the physical presence of teachers but at the same time has also led to the emergence of new intricacies of teaching-learning. Teachers were charged with the responsibility to undertake teaching-learning processes through online sources. Most of the teachers talked in length about their responsibility of taking several classes a day. About 21 per cent of teachers took 5 classes a day while 30 per cent of teachers took 2 classes a day.

Attendance

It is imperative on the part of teachers to be available for teaching during online classes. But the question that remains ignored is what about the student's presence in the online curriculum transaction. There were few instances when the attendance was reported to be more than the total strength of the class as sometimes more than one section attended the online class session at a given point of time. However, the average attendance during online class as reported by students was as low as 5 to as high as 150 students; although in most cases, the strength of the class ranged between 40–50 students. As per teachers, the average number of students varied between 10 and 80 in a class. Moreover, 78 per cent of teachers talked about the change in the attendance of students in the online classroom as compared to the physical classroom. A significant percentage of teachers also stated about decrease in attendance in online classes. This absenteeism of students during online teaching-learning processes can create a learning gap. The need of the hour is to make some strategic planning to resolve and address the factors to maintain a higher attendance rate. A well-planned approach and steps need to be undertaken through a collaborative network with other stakeholders and consider positive efforts to engage students.

Break

A regular break can help students to focus, increase their productivity and reduce their stress (Terada, 2018). Such breaks are important for both students as well as teachers, especially in online classes, because online classes restrict the mobility of an

individual, generating a sedentary lifestyle. About 39 per cent of teachers got only a single break and 30 per cent of teachers had no break and worked continuously for long hours. The voice is the primary tool of work and the lack of breaks has a negative impact on their health. Researches have indicated that teachers are at risk of experiencing short and long-term problems in their voice (Kostyk, 1998). The data being a tip of an iceberg needs to be further explored with the focus on the impact of teaching-learning on teachers'. As for students, just like offline classes, got breaks during online mode ranging from 10–30 minutes, but there were also several instances where students didn't get any break in between online classes. This made it difficult for the children to concentrate and retain for long hours.

Dress Code

Dress code has been considered as one of the non-negotiable aspects of the schooling system. Research indicated a strong linkage between dress code and behavioural aspects of students (Kees, 2017). A casual dress code in schools inculcated materialistic orientation among students which further permeated down to their family. Therefore, in order to avoid any form of segregation among the students based on race, religion, class, culture and many more, strong implementation of a dress code is strongly recommended. In the survey, it was found that not many schools followed a dress code for online classes and allowed casual dresses for students whereas only few schools strictly followed school uniform and in a small number of cases, it varied with days.

Remote Teaching-Learning through Technology

In this new idea of the classroom, technology is the only medium connecting the learners with the teachers and is largely instrumental in facilitating learning. In order to assist face-to-face interactions, several group meeting platforms evolved in a short span of time and took a center stage in the virtual learning processes. In the current wave of online teaching-learning, many schools also adopted some online face-to-face interaction platforms.

In the survey, as reported by the students, most of the schools followed Zoom, Google meet and Microsoft team as the platform to conduct online classes. It was interesting to observe that zoom still retained its popularity in terms of customer usage despite negative feedback and advisories issued regarding cyber-security.

The teacher's response on the usage of online platforms, along with Zoom, also focused on YouTube. Approximately 17 per cent of the teachers mentioned YouTube as another platform that was used by them for conducting classes.

With the advancement of digital technology, a myriad of devices were used by students and teachers for online classes. The kind of devices used by the students also has a certain bearing on the concentration and attention which one can render towards studies. Using a desktop or laptop provided better concentration and engagement with the lesson plan as the student was not required to hold the device in hand. Also, it provided a bigger screen area, hence is less stressful to the eyes. In the survey, it was found that the majority of students (56 per cent) relied only on mobile phones for their online classes. About 18 per cent of the students switched between using mobile phones and laptop or desktop. Similarly, about 70 per cent of teachers used mobile phones for conducting online classes. A meager number of sample teachers extensively used laptops or desktops for conducting classes.

In the current context of online education, an uninterrupted internet service is one of the prerequisites for online classes, where classes continue for several hours a day. However, it was found that 65 per cent of the students relied on mobile data for their online classes, the service of which was contingent on the service provider's network connection at that point of time. As a result of which, many students, as well as parents, complained about the issue of erratic connection leading to disruptions in classes. These technological glitches disrupted the learning of the child during the class.

It's not at all good in interaction with the online classes as sometimes the phone or laptop shut down and the server also goes down. It needs 5 min to get back to the server. Our teachers said that they will not accept our request of joining classes after 5 min.

— Pradanya, Class VI

Another respondent, Megha added,

I am not satisfied because the videos are not clear sometimes and sometimes the teacher gives home assignments that we are unable to understand. I am happy in my school classes regularly before lockdown

As for teachers, 70 per cent of the teachers relied on mobile data for conducting classes. As mentioned above, on an average these teachers undertook three classes in a day for 30–40 minutes. Along with that, about 70 per cent teachers used audio video sources to transact the lesson. The most used multimedia sources that emerged from the study were YouTube video clips, quizzes, etc. Given the excessive use of mobile data, 30 per cent of the teachers reported to have incurred additional out-of-pocket expenses on mobile data, in order to ensure the continuity of classes. The out-of-pocket expenses incurred on possessing the technology were not just limited to mobile data recharge. About 33 per cent of the sampled teachers also incurred additional expenses to purchase their own laptop, and 17 per cent of sampled teachers reported to have incurred expenses on arranging plug points or electric sockets near their work area in order to ensure the uninterrupted services.

Table 2: Out of Pocket Expenses for Teachers

Items of Expenses	Percentage of Teachers
Mobile Data	30%
Purchase of Laptops	33%
Electricity	17%
Electric Socket/Plug points	17%

The challenges associated with possession of technological resources was one of the important factors hampering effective classroom environment in the new setup. Here, school management can play a very important role in addressing the financial and technological constraints faced by the teachers so as to motivate and prepare them for the online classes.

Learning in Crisis Situation

“As schools and colleges are shut across India, every house is a school and every parent is a teacher. The playtime and me time get merged with school time and there is no boundary between bedroom and classroom for millions of children in the country.”

— Nanda and Khanna (2020)

The concept of online education has increased access to education, but being in school isn't the same thing as learning (World Bank, 2019).

It was important to understand the different dimensions of the learning crisis along with how institutions, teachers, parents and students were coping with this new normal.

It is a well-known fact that parental involvement is vital for a child's success in the class. With the shift of children from school to home, the sense of responsibility had increased multiple times among parents. One of the important concerns raised by parents was related to teaching-learning of different subjects. About 77 per cent of the parents who were actively involved in the online education of their children reported that online education was not suitable for all the subjects. The parents who were rarely involved in their child's education also had similar claims. This seemed to be stemming from either the pre-conceived notion of the inadequacy of online classes or was based upon their and their wards experiences.

As far as student's experience was concerned, students found it difficult to understand mathematics (36 per cent) and science (22 per cent) through online mode. In addition, some students expressed difficulty in understanding English (22 per cent), social science (16 per cent) as well. For disciplines or subjects like sciences, where the practical component was equally important, about 67 per cent of students reported that practical sessions were not happening. In very few cases, practical subjects were explained using videos but about 67 per cent of students found it boring or difficult to understand. Given the responses from the students, it can be said that a shift towards online education didn't brought uniformity of experiences for all the subjects. The experience of online education was contingent upon the subject under consideration.

The online classroom experience has missed out many core aspects which contribute towards holistic education. One of the important neglected aspects of online learning was extracurricular activities which help in developing soft skills and leads to holistic development of the child. It was reported by students that extracurricular activities like music, sports, and theatre were conducted in schools but it was largely missing from online class structure. Only 24 per cent of the students reported having music classes, 9 per cent students had sports classes and 9 per cent students had theatre classes. In addition, another important aspect that has vanished from this structure was the library service, which constituted an important element of school education. Only 3 per

cent of students conveyed that they had a library class. With the prime objective to inculcate reading habit among the students, the temporary cessation of library services has also devoid the students of diverse reading sources.

Table 3: Co-curricular Educational Activities through Online Mode

Subjects	Percentage of Students
Library	3%
Music	24%
Sports/PT	9%
Art/Drawing/Painting	32%
Multimedia (Movies/Plays/Shows)	23%
Dance	19%
Yoga	27%
Theatre	9%

The digital space cannot replicate, or at least has not replicated so far, the experiences that a child gets in a school and classroom. About 75 per cent of students felt that the classroom environment of a school cannot be replicated in the online mode. A student also shared, “*Online classes are not good at all, it’s like we are just having classes and nothing is going in our minds!*”. In addition, many students felt that classroom fun (71 per cent), moving around the corridor (36 per cent), lunch break (49 per cent), free or substitute period (40 per cent) and the way festivals or competitions and other events were conducted in the school were some experiences that cannot be substituted in an online set up. For children, that was the part and parcel of their school life and these were some experiences that were specific to the ‘being’ of the school.

It made it more pertinent to understand how teachers conceptualise teaching-learning in the context of online education. One of the positive findings was that the majority of teachers (61 per cent) enjoyed teaching online and more than half (57 per cent) reported that they were fully confident in teaching online.

It is definitely one of the challenging phases especially for a teacher to manage the online classroom as about 78 per cent of teachers mentioned that it was not easier to focus on each student in online mode. The issue was not only the management but also of the teaching-learning process that has become complicated with

the online process. Apart from this, the online classroom set up also opened pathways for distraction. A student also shared during the interview “*It feels like watching a video on YouTube and feel very much lazy and bored... teacher does not give attention to any one and apart from studies the chances of diverting mind are the most*”. About 52 per cent of teachers did not agree that they can teach more effectively during online teaching and quite close to that, i.e., 57 per cent teachers did not think that adequate learning was taking place in online mode.

Along with teachers, the concern of parents has also increased about their children’s education. The current situation has made parents more aware and conscious of the academic progress of children. A common concern was about lack of adequate teaching learning which has implications on education quality in the long run. About 66 per cent of the parents were of the opinion that the teachers had no idea if the students were learning. Among parents, there was a strong polarised opinion regarding the efficiency of teachers in the online classes. Approximately 38 per cent of the parents felt that the teachers were not well-equipped to handle online classes whereas other 38 per cent were of the view that the teachers were well equipped with these online classes. In addition, parents of primary class students expressed the concern and challenge of making their child sit during the class session. Given their tender age, they roamed around the house and could not concentrate during the class. The parents were forced to sit with them for the entire duration and made notes for them. This became challenging if both parents were working or there was more than one child in the household.

More than half (56 per cent) of the students mentioned that they were not comfortable taking classes online. There were many reasons behind the dissatisfaction emerging from the online classes for the students. A large number of students (81 per cent) conveyed that there was a difference in clearing doubt in the physical classroom and online classes.

The learners struggled to concentrate as they found it difficult to keep them awake (42 per cent stated yes and 24 per cent sometimes) and 65 per cent students didn’t felt active in their online classes. In contrast, only 20 per cent students felt more active in online classes and 12 per cent felt it sometimes. More than half did not feel confident about preparedness from online classes. Other major challenges, as reported by many students, were that

they faced difficulty in taking online classes due to noises from other children's screens and many other factors like background voices at home, power cuts, laziness, etc., due to which it became difficult to concentrate for long hours. Also, they faced difficulty in submitting their homework or assignments online. Except for two students, all other students expressed the need to repeat some concepts when schools will reopen after the lockdown period. It thus emerged from the study that though online education can assist in the learning process, it cannot completely replace the classroom experience.

Assessment, Evaluation and Feedback

Assessment is one of the important pillars for ensuring the quality of education. Since the lockdown, i.e., March 2020, in addition to challenges of ensuring students' attendance, attention and engagement, challenges have emerged with regard to the assessment pattern also. According to the study, most of the students did not have any form of tests, which were otherwise scheduled before their summer vacations. It was also observed that in most cases, the tests were taken for the secondary and higher secondary classes (IX to XII). Among those who appeared for any form of test, 40 per cent of the students were from Classes IX to XII. These classes (i.e. X and XII) were crucial from the perspective of board examinations. Owing to the high stakes of these students, there was a possibility that most of the schools were trying to ensure that assessment of students of these classes in particular was done in a timely manner.

Table 4: Percentage of Students who Appeared in any Form of Online Examination

Appeared for Online Exam	Percentage
Yes	36%
No	64%

Owing to a sudden shift and change in the ways of conducting classes and assessment, anxiety and confusion were reported by most of the students. There was confusion on how a test can be conducted online. Among those who appeared for any form of online assessment, most of them had a negative experience to report. About 63 per cent of the students reported that they faced some or the other form of difficulties in online tests and since this was

the first time that they were appearing for an online exam, they were quite anxious as well. The internet disruptions also added to their anxiety and stress. A great deal of experience with online assessment was also linked with confidence with respect to the preparedness for any form of assessment. Only 18 per cent of the surveyed students felt confident with respect to their preparedness based on online the classes. The fact that many of these students, because of their better socio-economic placement in the society, might be having additional resources at home which provided them with learning assistance can not be discounted. An interesting aspect revealed from the survey was that approximately 99 per cent of the students were of the opinion that some of the concepts needed to be revisited once the school opens after lockdown.

The present assessment scenario calls for the urgent need to change the assessment criteria and adapt them in coherence with the new challenges faced by both students as well as teachers. Most of the teachers reported that it was not easy for them to conduct an assessment for students learning in online classes. The assessment in online classes has brought in additional challenges and has also made some of the existing practices redundant. For example, the assessment of classroom notebook, homework notebook, quizzes, etc., has become redundant. Also, because of the constraint of, invigilation brought forth by increased reliance on technology, there were several examination malpractices adopted by the children, as reported by some of the parents. About 78 per cent of the teachers also believed that it was not possible to keep a check on students during their examinations. The present scenario has also added certain new dimensions into assessment, such as punctuality in joining class, engagement in classroom discussion, attention in classwork, etc.

Teachers and school administrators in Rajasthan were trying to ensure to have regular conversation with the parents, providing them with the feedback and also be available for the parents, in the scheduled time, to be contacted for any queries, clarification or feedback with regards to their ward's homework, classwork or any other aspect of their learning. Though 31 per cent parents reported that they did not received timely feedback from the teachers, they did mentioned that most of these teachers were present on call, message or email to respond to their concerns. Each subject teacher from different classes have been provided a time slot where they should be available for the parents.

These time slots were conveyed to the parents to have smooth communication and flow of information.

Some Additional Concerns

A sudden flip in the idea of the classroom is bound to create disequilibrium and bring forth several concerns and challenges for all the stakeholders. Right from challenges associated with technology, health, indistinct time, finance, etc., parents, teachers and students were together trying to adapt to the new home-schooling system. One of the major challenges faced by the parents was with regards to limiting the screen time for the children. In the guise of online classes, many children had extended the usage of screens which were difficult for the parents to control. Approximately 65 per cent of the parents believed that it was difficult for them to ascertain whether the child was accessing computers or laptops or phones for their studies or otherwise. Hence, 74 per cent of the parents felt that it was getting difficult for them to limit the usage of screens for their children. Taking it as a serious issue, the Ministry of Education issued an advisory to limit the screen time under *Pragyata guidelines* for digital education limiting it to 1.5 hours per day for Classes I–VIII and three hours per day for Classes IX–XII (*The Hindu*, 2020). However, the guidelines were hardly being implemented in many of the private schools. About 80 per cent of the students complained about the strain in the eyes due to increased screen time.

“I feel that it’s not going good for me to use my mother’s phone for so long. As I am having 0.05 on both my eyes, using headphones for so long brings pain in my head. I am not able to understand anything.”

— Sarthak, a student of Class VIII

The students also experienced a range of negative emotions associated with online classes. About 60 per cent of the students felt that the online classes were boring and about 18 per cent expressed that online classes were useless. Anxiety, stress, nervousness, tiredness, awkwardness and anger were some of the emotions experienced by many students in the survey.

Teachers also reported similar experiences, such as eye strain (65 per cent), back pain (26 per cent), headache (56 per cent), stiffness due to lack of physical activities (74 per cent) etc. The teachers were also under tremendous pressure, both from the

management as well as parents, leading to severe physiological impact. Many of the teachers reported to experience nervousness (22 per cent), anxiety (35 per cent) and frustration (22 per cent) from the existing scenario. The physical and mental health issues experienced by these teachers as well as students class have important bearing on the teaching learning practices of the class.

Table 5: Issues Faced by Teachers due to Online Education

Issues/Concerns	Percentage
Back Pain	26%
Eye Strain	65%
Headache	56%
Stiffness due to Lack of Physical Activity	74%
Social Isolation	17%
Harassment by Parents	15%
Harassment by School management	23%
Other Psychological/mental health concerns	62%
None	8%

Another prerequisite for an efficient teaching learning environment was the availability of separate sitting space to engage in online classes. Though the sample under study were students from private schools with better socio-economic positioning in the society as compared to the students from government schools, yet 27 per cent of the students didn't have a separate space available to them for their online classes whereas 7 per cent students reported to have a separate space only sometimes.

Table 6: Availability of Separate Sitting Space for Online Classes

Separate sitting space	Percentage of Students	Percentage of Teachers
Yes	66%	46%
No	27%	57%
Sometimes	7%	11%

Despite the availability of adequate facilities and technology, the students also reported concerns regarding handling the technology. It may be too simple to assume that all the students are well equipped to handle different aspects of technology so much

so that no training was required. Only 44 per cent of the sampled students reported being comfortable with handling the technology. Some schools did make some arrangements to provide preliminary training to the students so that they can handle the technology effectively. About 35 per cent of the students reported having received some kind of training from their schools to use the online platform while 65 per cent of them were left to manage on their own with the new intervention.

All these aspects surrounding the experiences with online education, moulds the preference of an individual with respect to comfort in undertaking their classes online. Despite the fact that 44 per cent of the students reported having sufficient digital knowledge to handle online classes, only 27 per cent of the students reported that they were comfortable with online classes. The rest 73 per cent were discontent with taking classes online.

Discussion and Conclusion

The pandemic has surfaced many challenges. The current situation brings many lessons to reflect on the 'new normal' in the education sector. The online mode of classes has evolved the new idea of classroom and identity of the learner. The classroom is now confined to an electronic gadget and bandwidth of the internet where learners are mainly passive recipients of knowledge. They were now a homogenous category in the way they appear on the black screen with their microphones and videos off. The rationale behind keeping it off was not just to avoid unnecessary disturbances and distractions during the class but also to avoid bringing in limelight on a child's household condition. But it hampered the students' engagement and overall learning experience, as reported by students, in addition to keep their context out of sight. That brought in a divergence of the way the online class setup appears — a divergence between how teachers and administration take vis-a-vis the learners. As Kumar (2015, p.154) points out—

Pedagogic modernisation demands that we recognise the richness of experience associated with the diversity of social backgrounds in the classroom. What is learnt is just as important as the ethos in which it is learnt. Homogeneity in the classroom implies a limited pool of the common resources of learning, such as language, culture, and personality.

There was also an assumption of a supportive household environment which appeared to be more important than ever before. Given this time of crisis, where there was a rise in cases of domestic violence and abuse and many households may be suffering from pay-cuts or job-loss, one may not imagine the impact of this on the overall child psyche. Addition to this was their physical health. That was an unusual phenomenon where children were forced to remain inside their home 24 hours now for several months. It became difficult to channelise their energy constructively and promote outdoor activities.

It has been recognised worldwide that the teacher is a positive force that significantly influences the student learning outcomes. Taking into consideration the central role of teachers in school, NCF (2005) rightly pointed out that the teacher functions within the broader framework of the school education system, i.e., goals, material, methods, expectations from teachers. In the present school context, with the emergence of online classrooms, with the increase in the needs and demands from teachers, their responsibility had increased multiple times. It is high time to address their concerns and revisit teacher education to make them feel empowered than crippled. The school management can extend support with resources and other facilities and maintain trust in them to keep them motivated.

Access to digital technology assumed significance. The digital luxury was unequally divided among students. This digital exclusion has taken many forms, with wide ranging from lack of devices to Internet affordability. Moreover, not everyone has a laptop or desktop as in recent times as even the teacher as parents and students were involved in work from home. The above stated data was a clear reflection of the use of more than one device for the teaching process. The management as well as division of technical instruments needed to be addressed. Kerala has launched a laptop scheme to provide laptops to students.

There was need to evolve with quality parameters and frameworks for this new normal as this will eventually become pedagogical practice into the mainstream system. There was also a need to evolve with better assessment and evaluation practices to assess the learning outcomes and bridge the learning gaps. Also, there was a concern for those who were somehow left out

of the system. Alternative practices have been experimented but there was still a large section of students who were left behind and there was a greater risk of even widening of the learning gaps resulting in inequalities.

The current situation was certainly a boon for pushing EdTech into the system, a system which have evolved even faster than what could have been otherwise but understanding the strengths and limitations would transform it into much better and inclusive one. Certainly, many have supported even in these unprecedented times yet many are pushed out of the system without alternatives. One of the ways was to learn from the innovative practices across the world to cater such sections of students. However, it was also a turning point where education systems across the world needed to reflect and evolve the policies with this newer perspective calling for collaboration at different levels and including all stakeholders.

REFERENCES

- CBSE. 2011. *Formative Assessment: Manual for Teachers*. Central Board of Secondary Education, New Delhi.
- KOSTYK, B.E. AND A.P. ROCHET. 1998. Laryngeal Airway Resistance in Teachers with Vocal Fatigue: A Preliminary Study. *Journal of voice*. Vol. 12, No. 3. pp. 287–299.
- KEES, A.G. 2017. *The Impact of School Dress Codes on the Quality of Student Life at a Selected High School*. Doctoral dissertation. Milligan College.
- KUMAR, K. 2008. *A Pedagogue's Romance: Reflections on Schooling*. Oxford University Press, New Delhi.
- . 2015. Lotus Syndrome. *The Pedagogue's Romance Reflections on Schooling*. Second ed., pp. 151–154. Oxford University Press.
- NANDA, P. AND P. KHANNA. 2020. Every House a School, Every Parent a Teacher as Covid-19 Impacts Education of 300mn Students. Live Mint (26 March). Retrieved <https://www.livemint.com/news/india/every-house-a-school-every-parent-a-teacher-as-covid-19-impacts-education-11585140662556.html>
- NCERT. 1970. Education and National Objective. *Education and National Development Report of the Kothari Commission. 1964–66*. NCERT, New Delhi.
- . 2005. *National Curriculum Framework*. NCERT, New Delhi.
- SHARMA, S. 2020 (MAY 15). Roles of Parents, Teachers have Merged, Education must be founded on Compassion. Indian Express. Retrieved from <https://indianexpress.com/article/opinion/columns/schooling-in-times-of-coronavirus-online-education-e-learning-6410258/>

- SPECIAL CORRESPONDENT. 2020. Online Classes I Centre's norms limit Classroom Screen Time. *The Hindu*. New Delhi. Retrieved <https://www.thehindu.com/education/schools/online-classes-centres-norms-limit-classrom-screen-time/article32083031.ece>
- TERADA, Y. 2018. Research Tested benefits of Breaks: Edutopia. Retrieved <https://www.edutopia.org/article/research-tested-benefits-breaks>
- WORLD BANK. 2019. Education Crisis: Being in School Is Not the Same as Learning. Retrieved <https://www.worldbank.org/en/news/immersive-story/2019/01/22/pass-or-fail-how-can-the-world-do-its-homework>

Appendix I

Table 1: Class-wise Distribution of Students (in %)

Class	% out of total
KG	5%
I-V	33%
VI-VIII	20%
IX-XII	40%
Unknown class	2%
Total	100%

Table 2: Distribution of Teachers

Variables	Percentage of Teachers
Age	
20-29	39%
30-39	43%
40-49	13%
50 and above	4%
Gender	
Male	39 %
Female	61%
Educational qualification	
Having Bachelor's degree	13 %
Having Master's degree or higher degree	86%
Received B.Ed. training	48%
Employment status	
Permanent	43%
Contractual/Private	39%
Part-time	9%
Uncertain	9%
Years of teaching experience	
1-4	26%
5-9	35%
10-14	26%
15-19	4%
20-24	9%
Teaching subject	
Computer Science	4%
English	22%
English and SST	4%

Geography	13%
Hindi	13%
Hindi and Sanskrit	4%
Maths	9%
Math Environment	4%
Science/Chemistry	17%
Science and Maths	4%
Social Science	4%

Appendix II

About the Questionnaire

Teacher questionnaire: It included general information related to age, gender, state, educational qualification, employment status, teaching experience, teaching subjects, teaching class, etc. The focus was specifically on the variation in students' attendance, class duration, average number of classes, breaks, etc. It included mode of online classes, Internet sources used, technological devices, audio-video sources, provision of computers, Internet, etc. Teacher interaction with management, parents and peers; experience with online teaching and issues faced during conducting online class was important to study. The implications of online classes on mental and physical health were an important part of the questionnaire.

Student Questionnaire: It included information related to class, gender, school, district, state, number of siblings, students' presence in online class, class commencement, breaks, change in time-table, etc. It included further information on software, internet sources, devices used for online classes. The experience of students in terms of academic subjects, practicals, and evaluation was also captured through questionnaires. The emotional aspects of students were also addressed. It was further followed by open ended questions based on individual experience with online classes.

Parents Questionnaire: It included information on the number of family members, number of school going children, availability of smart phone, laptops, desktop, etc. The questionnaire tried to capture information on engagement of individuals with child studies. The challenges faced due to school closure were also included. The parents were asked to choose multiple options related to the positive and negative aspects of online education. Further parents' suggestions were taken based on open ended questions about the reopening of schools.

Demographic Variables and Psychological Well-being of Teachers

PAPIA SARAF* AND C.G. VENKATESH MURTHY**

ABSTRACT

A teacher's psychological well-being impacts not only their teaching effectiveness but has far reaching effects on both the psychological well-being and achievement of the students. Even though teaching is now recognised as a stressful job causing burnout, understanding and promoting teacher psychological well-being remains a neglected area. Recognising that psychological well-being is a human characteristic not necessarily induced by the work context, this paper intended to understand the demographic variables that may have an impact on the psychological well-being of a teacher. These demographic variables included gender, marital status, years of work experience and college affiliations. To this end the psychological well-being of undergraduate degree college and higher secondary teachers were assessed using the psychological well-being PWB 20 scale (Mehrotra, Tripathi, and Ban, 2013). The sample consisted of 945 teachers (622 professional degree college teachers, 198 academic degree college teachers and 125 higher secondary teachers). The results indicated that the professional degree college teachers had significantly better psychological well-being levels than both academic degree college and higher secondary teachers. Demographic variables, such as gender and marital status did not impacted psychological well-being. However, years of experience did have a differential impact on psychological well-being. The implications of the study are discussed in the paper.

Keywords: *Teacher stress, Psychological Well-being, Demographic Variables*

सार

एक शिक्षक की मनोवैज्ञानिक खुशहाली/कल्याण न केवल उसके शिक्षण को प्रभावित करती है, बल्कि उससे छात्रों के मनोवैज्ञानिक कल्याण और उपलब्धि दोनों प्रभावित होते हैं। यद्यपि

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शिक्षण को अब एक तनावपूर्ण व्यवसाय की मान्यता दी जाती है, शिक्षक के मनोवैज्ञानिक हितों पर अपेक्षाकृत कम ध्यान दिया गया है। मनोवैज्ञानिक खुशहाली एक मानवीय विशेषता है जो जरूरी नहीं कि उसके कार्य से ही संबंधित हो। यह शोध पत्र उन जनसांख्यिकीय विशेषताओं पर प्रकाश डालता है जो एक शिक्षक के मनोवैज्ञानिक कल्याण/हितों पर प्रभाव डाल सकता है। इन जनसांख्यिकीय भिन्नताओं में लिंग, वैवाहिक स्थिति, कार्य अनुभव के वर्ष और कॉलेज संबद्धता शामिल हैं। इस अध्ययन में स्नातक महाविद्यालयों और उच्चतर माध्यमिक विद्यालयों के शिक्षकों के मनोवैज्ञानिक खुशहाली का आकलन एक परिक्षण (*Psychological Well-being 20 Scale* by मेहरोत्रा, त्रिपाठी एवं बन., 2013) द्वारा किया गया। अध्ययन में 945 शिक्षक (622 पेशेवर डिग्री कॉलेज शिक्षक, 198 शैक्षणिक डिग्री कॉलेज शिक्षक और 125 उच्चतर माध्यमिक शिक्षक) शामिल थे। अध्ययन से पता चलता है कि पेशेवर डिग्री कॉलेज के शिक्षकों में शैक्षणिक डिग्री कॉलेज और उच्चतर माध्यमिक शिक्षकों दोनों की तुलना में बेहतर मनोवैज्ञानिक खुशहाली थी। लिंग और वैवाहिक स्थिति जैसे जनसांख्यिकीय भिन्नता का मनोवैज्ञानिक कल्याण/हित पर प्रभाव नहीं पाया गया। शैक्षिक अनुभव का मनोवैज्ञानिक कल्याण/हित पर प्रभाव पाया गया।

Introduction

Psychological well-being (PWB), defines well-being in terms of self identity realisation and the degree to which an individual is fully functioning. PWB is concerned with an individual's judgement regarding their continual happiness, satisfaction with their physical and mental health and it relates to various psycho-social factors including life or work satisfaction (Huppert, 2009). The concept is related to self-actualisation and meaning rather than happiness and hedonism (Ryan and Deci, 2001) and involves life goals, actualisation of one's potential, quality of relationships, responsibility and autonomy (Ryff and Keyes, 1995). While psychological well-being is an important factor for all professions, its impact is felt more in professions where individuals are constantly interacting with various social systems within an organisation, such as in education.

Traditionally, teaching was considered a noble profession and teachers were held in high esteem in society. However, over the last couple of years, the realities of classroom management, the elevated expectation from both parents and management have made teaching a stressful job. Teachers need to not only revamp their teaching and student handling skills but also introduce more value added activities continually to stay relevant. Maslach et al., (2001) reported that teachers have the highest level of emotional exhaustion. Given this scenario, a teacher's psychological

well-being is a crucial factor in effectively coping with these work related stress factors.

Teachers have such a powerful influence on students, often surpassing that of parents, that their basic personalities and attitudes can either spark positivity or negativity in students. As Ginott (1975) in his book—*Teacher and Child* rightly observed that a teacher “possesses a tremendous power to make a child’s life miserable or joyous” and “can be a tool of torture or an instrument of inspiration”. Keeping in mind the immense impact a teacher’s psychological well-being has on students’ psychological well-being, the study aimed to assess the demographic correlates of psychological well-being in teachers.

Review of Literature

Previous research has conclusively established the stressful nature of a teacher’s job and the imperativeness to focus on the psychological well-being of teachers. There is a spurt of Indian studies on teacher burnout which reflect the growing concern for teacher psychological well-being (Dave and Majumdar, 2020; Rana and Soodan, 2019; Rajak and Chandra, 2017; Nath and Soni, 2017; Seth, 2016; Shukla and Trivedi 2008; Sahni and Deswal 2015; Bansal, 2014; Sharma, P 2014; Rahman, 2009; Dagar, 2016).

Teachers employed in various countries experience high levels of work-related stress (Akpochofo, 2012) and it was estimated that about 30 per cent of teachers left teaching profession due to stress. Teaching had the second highest work related stress outcome effecting physical health and psychological well-being among the 26 occupations studied (Johnson et al., 2005). A growing number of studies on mental health among teachers have stressed on non-functionality, stress levels, exhaustion, and fatigue (Fleming, Mackrain, and LeBuffe, 2013; Maslach and Leiter, 2008). High stress levels and burnout jeopardize not only the physical health of the teachers but also their notion of self-sufficiency and self-respect (Eatough, Way, and Chang, 2012). Moreover, high stress levels and exhaustion among teachers lead to feelings of dissatisfaction with their work resulting in decreased professional performance (Burke, Greenglass, and Schwarzer, 1996). This in turn leads to poor teacher–student relationship leading to lowered academic achievement of students (Fleming et al., 2013; Spilt, Koomen, and Thijs, 2011), and the general well-being of both students and teachers suffer (McGrath and Huntington, 2007). The high stress

level among teachers and the failure to cope negatively affected their levels of psychological well-being (Roffey, 2012; Vesely, Saklofske, and Nordstokke, 2014). Burned out educators were unable to deal effectively with the overpowering emotional stress of teaching (Brouwers and Tomic, 2000). Teachers, who despite relatively high level of stress and burnout persisted to teach, can have a negative influence on their students (Hock, 1988). These negative influences translated into poor quality teaching, unwillingness to accept and adjust to student needs and poor teacher-student interactions (Capel, 1991), low achievements of the students (Dworkin, 1985), high teacher absenteeism, turnover, career change, mental health, deteriorating performance and early retirement (Burke, Greenglass, and Schwarzer, 1996), low self-esteem and depressive symptoms (Schonfeld, 2001), resentment, anger and helplessness (Blasé, 1982), headache, frequent colds, flu, and cardiovascular symptoms (Hock, 1988, Schonfeld, 2001), were some of the harmful consequences of the chronically burned out teachers. Poor teacher well-being was found to be positively related with dissatisfaction and stress at work (Kidger et al. 2016).

On the other hand, studies on teacher functionality and mental health emphasised the need for positive affect and pro-social relationships for student-teacher, teacher-teacher, and teacher-administrator relationships (Gozzoli et al. 2015; Pas, Bradshaw and Hershfeldt, 2012; Van Horn, Taris, Schaufeli, and Schreurs, 2004). Teachers who have a positive cultural impression of their work environments and of their own profession have fewer mental health concerns (Bentea, 2015; Wong and Zhang, 2014).

Indian studies on psychological well-being of teachers are a recent phenomenon. Srimathi and Kumar (2010), in their study on *Psychological well-being of employed women across different organisation (such as industries, hospitals, banks, educational institutions and calling centers)* concluded that female teachers had the highest level of psychological well-being. A positive and significant correlation between occupational self-efficacy and psychological well-being has been found (Salimirad and Srimathi, 2016). Zahoor (2015) found significant difference in the psychological well-being and job satisfaction among government and private school teachers. While Mansuri (2017) studied the psychological profile of student-teachers in aided and non aided colleges of education. The results showed a flat profile across various sub scale measures and no significant difference in PWB levels between aided and non aided college's student teachers.

It was found that the PWB of teachers needed to be supported and nurtured in the educational setting. Research suggested that there was an important relationship between the PWB of teachers and the psycho-social work environment of a given school (Tang, Leka, and MacLennan, 2013). Some of the variables effecting the well-being of teachers were being highly motivated, having social needs met in the school environment, having sufficient didactic or technical skills and having positive relationships with students, colleagues, and administrators (Bentea, 2015; Gozzoli et al., 2015; Roffey, 2012). Also, a teacher's perception of sufficiency, level of satisfaction with their job, and whether or not students like the subject taught had a direct impact on teacher's well-being (Morgan, 2012). Self-concordant motivation for special work was another important factor in reducing the effects of high work demands on happiness at work for secondary school teachers (Tadic, Bakker and Oerlemans, 2013). Supervisor support for psychological need satisfaction had a large effect on autonomy satisfaction, a moderate effect on relatedness satisfaction, and a small effect on competence satisfaction (Fouche, 2015), effective teamwork was associated with lower levels of emotional exhaustion and higher levels of work satisfaction (Jacobsson, et al., 2016), level of support among colleagues and teachers' self-confidence enhanced psychological well-being levels (Wong and Zhang, 2014), teacher resilience was enhanced by specific actions that promoted positive feelings of belonging, respect, value and trust. (Roffey, 2012).

The above studies pointed to the findings establishing the stressful nature of a teaching job and ways to improve the psychological well-being of teachers. Given the scarcity of Indian studies on psychological well-being of teachers, this study explored the differential impact of various demographic variables such type of college, gender, marital status and years of experience to understand the possible contributing factors that impact psychological well-being.

Objectives

1. To assess the effect of demographic differences in gender, marital status and years of experience on psychological well-being of teachers.
2. To test whether Pre-University, Academic Degree College and Professional degree college teachers differ significantly on psychological well-being.

Hypotheses

To meet the above objectives the following hypotheses were formulated:

- H₀1: There is no significant difference among teachers with varying years of experience on their psychological well-being.
- H₀2: There is no significant difference among teachers of higher secondary, academic degree college and professional degree college on their psychological well-being.
- H₀3: There is no association between the levels of PWB and gender of the teacher.
- H₀4: There is no association between the levels of PWB and marital status of the teacher.

Method

Design of the study

The study used survey method for data collection to assess the psychological well-being of teachers.

Sample

The above stated hypotheses were tested. The sample of the study comprised 945 teachers (125 higher secondary, 198 Academic and 622 Professional teachers) drawn from the available population of teachers in Mysuru using proportionate stratified random sampling method. Higher secondary teachers were equivalent to XI and XII standard teachers. The other two categories referred to under graduation college teachers, while academic teachers refer to teachers of Arts, Science and Commerce; and Professional teachers taught subjects like Engineering, Medicine, Law, Education, Physical Education and Music.

Tools

The tool used for the research was psychological well-being (PWB) — 20 (Mehrotra, Tripathi, and Banu 2013), a modified Indian version of the Ryff Scale (Ryff and Kyes, 1995), that conceptualised psychological well-being as comprising — (i) self acceptance, (ii) mastery and competence, (iii) positive relations, and (iv) engagement and growth, was used.

Results and Discussion

The tool was administered on 945 teachers and on the basis of the results the above hypotheses were tested. Each of the demographic variables was discussed as:

Impact of Years of Experience

Table 1 shows that the teachers with 20 and above years of service have the highest mean PWB score (96.57), followed by those with 10–20 years of experience (95.33) and lastly by teachers with 0–10 years of service (92.08). So apparently, it seemed that the PWB levels improved as experience increases. The standard deviation of all the three groups were similar (ranging from 13.49–13.89) showing that the variance in the 3 groups was similar, while the SEM scores ranging from 0.53–1.36 showed that the sample means were very close to the population means. The difference between the mean performance of three groups was significant ($F=7.74$; $df=2, 942$; $p < 0.01$). It means, the number of years of experience has a differential impact on PWB.

Table 1: Descriptive Statistics for Years of Experience and PWB Level

Years of experience	N	Mean	SD	SEm
0–10	650	92.08	13.49	0.53
10–20	190	95.33	13.81	1.00
20 and ABOVE	105	96.57	13.89	1.36
Total	945	93.24	13.70	0.45

Table 2 shows that the difference was significant between 0–10 years and 10–20 years ($p < 0.05$) in favour of the latter, and 0–10 years and 20 and above ($p < 0.05$) in favour of the latter, while, the difference was not significant between 10–20 years and 20 and above years ($p > 0.05$). Therefore, it implies that perhaps PWB appears to increase with years of experience in the initial and middle years of work and then stabilises towards end of one’s career. Though it must be admitted that psychological well-being was not only influenced by the number of years of service, but life in general. Teachers with over 20 years work experience may have a crystallised view of overall well-being with life. Other studies too have found psychological well-being to increase with work experience or age (Van Petegem, Creemers, Rossel, and Aelterman, 2005; Bezuidenhout and Cilliers, 2011; Fong and Ng, 2012; and Mahboubi et al., 2015).

It appeared that the older or more experienced people experience more meaning in work, as they became more conscious of their purpose in life (Chalofsky and Krishna, 2009). With increase in work experience comes a maturity for handling stress and adaptation to the work environment resulting in higher psychological well-being. Erik Erikson’s psychosocial stages of development also focused on this trend.

Table 2: Significance of Difference among Varying Years of Experience and Psychological Well-being using Tukey’s Post Hoc Test

(I) Years of Experience	(J) Years of Experience	Mean Difference (I-J)	Standard Error	Sig.
0-10	10-20	-3.247*	1.122	0.01
	20 and above	-4.487*	1.431	0.01
10-20	0-10	3.247*	1.122	0.01
	20 and above	-1.240	1.654	0.74
20 and above	0-10	4.487*	1.431	0.01
	10-20	1.240	1.654	0.74

Impact of College Affiliation on PWB

Table 3 indicated that the professional degree college teachers scored highest (Mean = 94.35) on PWB, followed by academic degree college teachers (91.41) and higher secondary teachers (90.60). Both, the overall mean PWB of the group (93.24) and the individual PWB score of each group of teachers was in the average PWB category. The standard deviation depicting the variance in the sample was almost similar for all the 3 group with the least for higher secondary teachers (11.85), followed by professional degree college teachers (13.61) and lastly by academic degree college teachers (14.67). The SEM ranges from 0.55-1.06, which showed that the sample mean was representative of the population mean. The difference in the mean performance of three groups was significant ($F=6.17$; $df=2, 942$, $p<.01$).

Table 3: Descriptive Statistics of Higher Secondary School, Academic Degree and Professional Degree College Teachers on Psychological Well-being

College Type	Number	Mean	SD	SEm
Higher Secondary	125	90.60	11.85	1.06
Academic Degree	198	91.41	14.67	1.04

Professional Degree	622	94.35	13.61	0.55
Total	945	93.24	13.70	0.45

Tukey’s post hoc test (Table 4) indicated that the professional degree college teachers have significantly higher PWB levels than both higher secondary teachers ($p < 0.05$) and academic college teachers ($p < 0.05$). However, there was no significant difference in the PWB levels between academic and higher secondary teachers. There could be a number of reasons to account for the higher PWB among professional teachers such as a more satisfying job experience owing to greater practical component in teaching, generally better working conditions and salary. There is a dearth of studies on measuring the level of psychological well-being among different categories of colleges. A related concept to workplace psychological well-being is job satisfaction. Some studies on job satisfaction showed that there was no significant difference in the job satisfaction between private and government colleges (Panda, 2001; Khan, 2012) while others have shown that private college teachers to have higher job satisfaction (Ghafoor, 2012).

Table 4: Significance of Difference among Higher Secondary School, Academic Degree and Professional Degree College Teachers on PWB Using Tukey’s Post Hoc Test

(I) College Type	(J) College Type	Mean Difference (I-J)	Std. Error	Sig.
Academic	Professional	-2.93*	1.11	0.02
	Higher secondary	0.81	1.56	0.86
Professional	Academic	2.93*	1.11	-0.02
	Higher secondary	3.75*	1.37	-0.01
Higher secondary	Academic	-0.81	1.56	-0.86
	Professional	-3.75*	1.37	-0.01

Impact of Gender on PWB

The total sample consisted of 497 male teachers and 448 female teachers, taking the total to 945 teachers (Table 5). The numbers have been converted into percentages for easy comparison. On high psychological well-being level both male and female teachers

were alike with female teachers having an edge (19 per cent female vs 17 per cent male). The trend was similar for average level of PWB (64 per cent female vs 62 per cent male), but on low level of PWB, there were slightly more percentage of male teachers compared to female teachers. Apparently, the female teachers have an edge over male teachers on the PWB.

Table 5: Descriptive Statistics of Levels of PWB and Gender of Teachers

PWB	Female	Male	Total
High	93 (19%)	77 (17%)	170 (18%)
Average	321 (64%)	279 (62%)	600 (64%)
Low	83 (17%)	92 (21%)	175 (18%)
Total	497 (100%)	448 (100%)	945 (100%)

The chi-square analysis in Table 6 showed that there was no significant association between the levels of PWB and gender. Therefore, the null hypothesis was accepted and hence it stated that gender has no significant impact on the level of PWB experienced by the teacher. There were mixed results regarding PWB levels among the two genders. Some studies reported that the psychological well-being, or correlated constructs, such as job satisfaction, were higher among women (Sailendren, 1998; Arassammal, 2006; Ahmed, Raheem and Jamal 2003; Katoch, 2012; Rani, and Choudhary, 2012; Dheva Krishnan, 2012). Srimathi and Kumar (2010) founded that women teachers had highest total psychological well-being scores. Studies have shown higher scores for women on some sub-scales, such as those assessing social functioning (for example, Huppert, Walters, Day, and Elliott, 1989; Ryff and Singer, 1998). While other studies reported in favour of male teachers (Pabla, 2012; Maharajan and Kaur, 2012; Stephens, Dulberg and Joubert, 1999). Some of the reasons given by these studies included greater control over work experienced by men (Bryce, et al., 2003), and higher anxiety levels among women due to the multiple roles they played (Dongare, 2018). Other studies have found no gender difference in PWB levels (Salimrad and Srimathi, 2016; Lal and Shergil, 2012; Khan, I 2012; Sharma, G., 2014; Donovan and Halpern, 2002; Helliwell, 2003).

Table 6: Association between Levels of PWB and Gender of Teachers using Chi-Square

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.374a	2	0.305
Likelihood Ratio	2.372	2	0.305
No. of Valid Cases	945		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 80.59. Note: $\chi^2 (1, N=945) = 2.37, p > 0.05$.

Impact of Marital Status on PWB

Table 7 shows that the largest number of teachers whether married (63 per cent) or single (63 per cent) had average PWB, with more married teachers having High PWB level (20 per cent) than single teachers (16 per cent). With regard to low PWB levels there were more single teachers (21 per cent) than married teachers (17 per cent).

Table 7: Descriptive Statistics of Levels of PWB and Marital Status of Teachers

PWB	Married	Single	Total
High	125 (20%)	45 (16%)	170 (18%)
Average	420 (63%)	180 (63%)	600 (64%)
Low	115 (17%)	60 (21%)	175 (18%)
Total	660 (100%)	285 (100%)	945 (100%)

However, as depicted in Table 8, there was no significant association between PWB level and marital status. Therefore, the null hypothesis was accepted. It means, the marital status was not associated with PWB level significantly. Contrary to this finding, there were studies which have shown positive relationship between marriage and well-being and related concepts, such as life satisfaction (Gledenhuys and Henn, 2017; Takawira, 2014; Stack and Eshleman, 1998; Ngoo et al., 2015; Lee and Lee 2013; and Filiz, 2014).

Table 8: Significance of Association between Levels of PWB and Marital Status using Chi-square

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.520a	2	0.284

Likelihood Ratio	2.514	2	0.284
No. of Valid Cases	945		

- a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 51.27. Note: $\chi^2(1, N=945) = 2.52$ $p > 0.05$

Implications of the Study

The results indicated that the professional degree college teachers have better levels of psychological well-being compared to academic degree college and higher secondary teachers. This needed an in depth study to explore the causes for the varying levels of PWB among teachers. All educational setups need to recognise the necessity to create conducive working environment that promotes psychological well-being of teachers. This could range from ensuring availability of required resources (physical, human, infrastructure, money and time), providing autonomy, allocating adequate work load, mechanisms to recognise teacher efforts and achievements, in place.

With regard to years of experience and PWB, psychological well-being was seen to improve with experience. This would imply that extra efforts need to be made in the early years to improve teacher psychological well-being and continue to support it over the middle years, especially when work-life balance was severely challenged. Further, in a well meaning working environment, experienced teachers who have a stable sense of psychological well-being, can perhaps act as mentors intrinsically to younger teachers and guide them through the process, thereby working towards the organisational mental health. Thus, the whole system becomes healthy and vibrant. Such systemic reforms indeed can facilitate quality teaching-learning in schools and colleges.

Further, since the study results indicated that gender and marital status didn't have any significant association with PWB, it may be assumed that psychological well-being is a requirement for all categories of teachers. Though traditionally it was assumed that only working married women experience work related stress, the findings of this study suggested that all categories of employees whether male or female, married or unmarried were alike in their experience of psychological well-being and need equal amount of support and attention to improve their psychological well-being levels.

Too long has the psychological well-being of teachers been neglected, too long have teachers been put on a pedestal assumed to have all positive attributes, it is time we realise that teachers like any other profession require supportive management interventions to ensure their psychological well-being, thereby assuring quality for themselves and for all stakeholders of the system.

REFERENCES

- AHMAD, N., A. RAHEEM AND S. JAMAL. 2003. Job Satisfaction Among School Teachers. *The Educational Review*. Vol. 46, No. 7. pp. 123–126.
- AKPOCHAFO, G.O. 2012. Perceived Sources of Occupational Stress Among Primary School Teachers in Delta State of Nigeria. *Education*. 132, pp. 826–833. Retrieved <http://eric.ed.gov/?id=EJ994246>
- ARASSAMMAL M. 2006. *Role Stress and Job Satisfaction of the College Teachers*. (M.Phil Thesis). Retrieved https://shodhganga.inflibnet.ac.in/bitstream/10603/153597/9/09_chapter2.pdf
- BANSAL, S.K. 2014. *A Study of the Level of Burnout Among University Teachers with Some Demographic Variables*. (Doctoral Dissertation). Retrieved <http://hdl.handle.net/10603/141807>
- BENTEA, C.C. 2015. Relationships Between Personality Characteristics and Attitude Towards Work in School Teachers. *Procedia – Social and Behavioral Sciences*. Vol. 180, pp. 1562–1568.
- BEZUIDENHOUT, A. AND F. CILLIERS. 2011. Age, Burnout, Work Engagement and Sense of Coherence in Female Academics at Two South African Universities. *South African Journal of Labour Relations*. Vol. 35, No. 1. pp. 61–80.
- BLASÉ, J.J. 1982. A Social-psychological Grounded Theory of Teacher Stress and Burnout. *Educational, Administration Quarterly*. Vol. 18, No. 4. pp. 93–113.
- BROUWERS, A. AND W. TOMIC. 2000. A Longitudinal Study of Teacher Burnout and Perceived Self-efficacy in Classroom Management. *Teaching and Teacher Education*. Vol. 16, No. 2. pp. 239–253.
- BRYCE, J. AND J.T. HAWORTH. 2003. Psychological well-being in a Sample of Male and Female Office Workers. *Journal of Applied Social Psychology*. Vol. 33, No. 3. pp. 565–585.
- BURKE, R.J., E.R. GREENGLASS AND R. SCHWARZER. 1996. Predicting Teacher Burnout Over Time: Effects of Work Stress, Social Support, and Self-doubts on Burnout and its Consequences. *Anxiety, Stress, and Coping*. Vol. 9, No. 3. pp. 261–275.
- CAPEL, S.A. 1991. The Incidence of and Influences on Stress and Burnout in Secondary School Teachers. *British Journal of Educational Psychology*. Vol. 57, No. 3. pp. 279–288.

- CHALOFSKY, N. AND V. KRISHNA. 2009. Meaningfulness, Commitment and Engagement: The Intersection of a Deeper Level of Intrinsic Motivation. *Advances in Developing Human Resources*. Vol. 11. pp. 189–204.
- DAGAR, N. 2016. *Burnout Among Teachers with Reference to Their Mental Health Occupational Stress and Socio Economic Status*. (Doctoral dissertation). Retrieved <http://hdl.handle.net/10603/195616>
- DAVE, C.O. AND J.P. MAJMUDAR. 2020. Challenges and Issues of Special Education Teachers in India. *Studies in Indian Place Names*. Vol. 40, No. 8. pp. 629–634.
- DHEVA KRISHNAN, R. 2012. A Study on Job Satisfaction Among Secondary School Teachers in Namakkal District. *International Educational E-Journal*. Vol. 1, No. 4. pp. 9–13.
- DONGARE, N.S. 2018. A Study of Anxiety Among CHB and Permanent Teachers in Shirpur Tahasil. *The International Journal of Indian Psychology*. Vol. 6, No. 2. pp. 31–36.
- DONOVAN, N. AND D. HALPERN. 2002. *Life Satisfaction: The State of Knowledge and the Implications for Government*. Prime Minister's Strategy Unit. London.
- DWORKIN, A.G. 1985. Perspectives on Teacher Burnout and School Reform. *International Education Journal*. Vol. 2, No. 2. pp. 69–78.
- EATOUGH, E., J. WAY AND C. CHANG. 2012. Understanding the Link Between Psychosocial Work Stressors and Work-related Musculoskeletal Complaints. *Applied Ergonomics*. Vol. 43, No. 3. pp. 554–563.
- FILIZ, Z. 2014. An Analysis of the Levels of Job Satisfaction and Life Satisfaction of Academic Staff. *Social Indicators Research*. Vol. 116, No. 3. pp. 793–808.
- FLEMING, J.L., M. MACKRAIN AND P.A. LEBUFFE. 2013. Caring for the Caregiver: Promoting the Resilience of Teachers. In S. Goldstein & R. B. Brooks (Eds.), *Handbook of Resilience in Children*. pp. 387–397. Springer, New York.
- FONG, T.C. AND S. NG. 2012. Measuring Engagement at Work: Validation of the Chinese Version of the Utrecht Work Engagement Scale. *International Journal of Behavioral Medicine*. Vol. 19, No. 3. pp. 391–397.
- FOUCHE, E. 2015. *Psychological well-being of Teachers in Secondary School Teachers*. (Doctoral dissertation). Retrieved <http://dspace.nwu.ac.za/bitstream/handle/10394/17015>
- GHAFOOR, M.M. 2012. A Study on Role of Demographic Characteristics on Job Satisfaction. *Far East Research Centre*. Vol. 6, No. 1. pp. 30–45.
- GINOTT, H.G. 1975. *Teacher and Child: A Book for Parents and Teachers*. Macmillan, New York.
- GELDENHUYS, M. AND C.M. HENN. 2017. The Relationship between Demographic Variables and Well-Being of Women in South African Workplaces. *SA Journal of Human Resource Management*. Vol. 15, No. 1. pp. 1–15.

- GOZZOLI, C., D. FRASCAROLI AND C. D'ANGELO. 2015. Teachers' well-being/ Malaise: Which Resources and Efforts at Individual, Group and Organisational Levels? *Procedia – Social and Behavioral Sciences*. 191, pp. 2241–2245.
- HELLIWELL, J.F. 2003. How's Life? Combining Individual and National Variations to Explain Subjective Well-being. *Economic Modelling*. Vol. 20, No. 2. pp. 331–360.
- HOCK, R.R. 1988. Professional Burnout Among Public School Teachers. *Public Personnel Management*. Vol. 17, No. 2. pp. 167–189.
- HUPPERT, F.A., D.E. WALTERS, N. DAY AND B.J. ELLIOTT. 1989. The Factor Structure of the General Health Questionnaire (GHQ-30): A Reliability Study on 6317 Community Residents. *British Journal of Psychiatry*. 155, pp. 178–185.
- HUPPERT, F.A. 2009. Psychological well-being: Evidence Regarding its Causes and Consequences. *Applied Psychology: Health and Well-being*. Vol. 1, No. 2. pp. 137–164.
- JACOBSSON, C., M. AKERLUND, G. ELISABET, E. CEDSTRAND AND T. ARCHER. 2016. Teacher Team Effectiveness and Teachers Well-being. *Clinical and Experimental Psychology*. Vol. 2, pp. 1–5.
- JOHNSON, S., C. COOPER, S. CARTWRIGHT, I. DONALD, P. TAYLOR AND C. MILLET. 2005. The Experience of Work-related Stress Across Occupations. *Journal of Managerial Psychology*. Vol. 20, pp. 178–187.
- KATOCH, O.M. 2012. Job Satisfaction Among College Teachers: A study on Government Colleges in Jammu and Kashmir. *Asian Journal of Research in Social Science Humanities*. Vol. 2, No. 4. pp. 1–17.
- KHAN, I. 2012. Job Satisfaction Among College Teachers. *VSRD International Journal of Business Management Research*. Vol. 2, No. 12. pp. 585–87.
- KIDGER, J., R. BROCKMAN, K. TILLING, R. CAMPBELL, T. FORD, R. ARAYA AND D. GUNNELL. 2016. Teachers' Well-being and Depressive Symptoms, and Associated Risk Factors: A Large Cross Sectional Study in English Secondary Schools. *Journal of Affective Disorders*. Vol. 192, pp. 76–82.
- LEE, E.K.O. AND J. LEE. 2013. Education, Functional Limitations and Life Satisfaction Among Older Adults in South Korea, *Educational Gerontology*. Vol. 39, No. 7. pp. 514–526.
- MAHARAJAN, N. AND J.D. KAUR. 2012. Relationship Between Locus of Control of College Teachers and Their Job Satisfaction. *International Journal of Applied Psychology*. Vol. 2, No. 5. pp. 98–103.
- MAHBOUBI, M., F. GHAHRAMANI, M. MOHAMMADI, N. AMANI, S.H. MOUSAVI, F. MORADI, M. KAZEMI. 2015. Evaluation of Work Engagement and its Determinants in Kermanshah Hospitals Staff in 2013. *Global Journal of Health Science*. Vol. 7, No. 2. pp. 170–176.
- MANSURI, L.J. 2017. A Profile of Psychological Well-being of Student-teachers of Colleges of Education. *Educational Quest: An International Journal of Education and Applied Social Science*. 8 (Special Issue), pp. 309–314.

- MASLACH, C. AND M.P. LEITER. 2008. Early Predictors of Job Burnout and Engagement. *Journal of Applied Psychology*. Vol. 93, pp. 498–512.
- MASLACH, C., W.B. SCHAUFELI AND M.P. LEITER. 2001. Job Burnout. *Annual Review of Psychology*. Vol. 52, pp. 397–422.
- MCGRATH, B. AND A. HUNTINGTON. 2007. The Health and well-being of Adults Working in Early Childhood Education. *Australian Journal of Early Childhood*. Vol. 32, pp. 33–38. Retrieved <https://espace.library.uq.edu.au/view/UQ:138090/SBE10UQ138090.pdf>
- MEHROTRA, S., R. TRIPATHI AND H. BANU. 2013. Psychological well-being: Reflections on an Elusive Construct and its Assessment. *The Journal of Indian Academy of Applied Psychology*. Vol. 39, No. 2. pp. 189–195.
- MORGAN, A. 2012. Teaching Science in the Primary School: Surveying Teacher well-being and Planning for Survival. *Journal of the Australian Science Teachers Association*. Vol. 58, pp. 14–21. Retrieved <http://epublications.une.edu.au/1959.11/13132>
- NATH, A. AND T. SONI. 2017. Effect of Burnout on Job Satisfaction and Organizational Commitment—A Study Done Among the Faculty Members of Various Management Colleges in the Rohilkhand Region (Western Uttar Pradesh, India). *International Journal of Entrepreneurship and Development Studies*. Vol. 4, No. 2. pp. 157–173.
- NGOO, Y.T., N.P. TEY AND E.C. TAN. 2015. Determinants of Life Satisfaction in Asia. *Social Indicators Research*. Vol. 124, No. 1. pp. 141–156.
- PABLA, M.S. 2012. A Study of Job Satisfaction Among Teachers of Professional Colleges in Punjab. *Indian Journal of Research*. Vol. 1, No. 10. pp. 111–113.
- PANDA, B.B. 2001. *Comparative Study of Attitude Towards Teaching Profession and Job Satisfaction of College Teachers of Assam and Orissa*. (M.Phil. dissertation) Retrieved https://shodhganga.inflibnet.ac.in/bitstream/10603/67080/1/01_
- PAS, E.T., C.P. BRADSHAW AND P.A. HERSHFELDT. 2012. Teacher- and School-level Predictors of Teacher Efficacy and Burnout: Identifying Potential Areas for Support. *Journal of School Psychology*. Vol. 50, pp. 129–145.
- RAJAK, R. AND B. CHANDRA. 2017. Exploring Predictors of Burnout and Work Engagement Among Teachers—A Review on Higher Educational Institutions of India. *Journal of the Indian Academy of Applied Psychology*. Vol. 43, No. 1. p. 145.
- RANA, A. AND V. SOODAN. 2019. Effect of Occupational and Personal Stress on Job Satisfaction, Burnout, and Health: A Cross-sectional Analysis of College Teachers in Punjab, India. *Indian Journal of Occupational and Environmental Medicine*. Vol. 23, No. 3. pp. 133.
- RANI, P. AND K. CHOUDHERY. 2012. A Comparative Study of Male and Female School Teachers in Their Job Satisfaction. *Asian Journal of Multidisciplinary and Research*. Vol. 1, No. 3. pp. 203–210.
- RAHMAN, M. 2009. *A Study of Burnout Tendency Among Teachers of Different Professional Courses in Relation to Their Role Conflict Organisational*

- Climate and Attitude*. (Doctoral Dissertation). Retrieved <http://hdl.handle.net/10603/177235>
- ROFFEY, S. 2012. Pupil well-being-teacher well-being: Two Sides of the Same Coin?. *Educational and Child Psychology*. Vol. 29, pp. 8–15. Retrieved from <https://www.academia.edu/2404110/>
- LAL, R. AND S.S. SHERGILL. 2012. A Comparative Study of Job Satisfaction and Attitude towards Education Among Male and Female Teachers of Degree Colleges, *International Journal of Marketing Financial Services and Management Research*. Vol. 1, No. 1. pp. 57–64.
- RYAN, R.M. AND E.L. DECI. 2001. On Happiness and Human Potentials: A Review of Research on Hedonic and Eudaimonic well-being. *Annual Review of Psychology*. Vol. 52, pp. 141–166.
- RYFF, C. D. AND C.L.M. KEYES. 1995. The Structure of Psychological well-being Revisited. *Journal of Personality and Social Psychology*. Vol. 69, pp. 719–727.
- RYFF, C.D. AND B. SINGER. 1998. The Contours of Positive Human Health. *Psychological Inquiry*. Vol. 9, 1–28.
- SAILENDREN, V. 1998. *An Investigation in to the Organisational Climate, Decision Making Styles and Job Satisfaction of High School Teachers in Thiruvananthapuram District*. (M.Phil Thesis). Retrieved shodhganga.inflibnet.ac.in/bitstream/10603/67080/1/01_
- SAHNI, M. AND A. DESWAL. 2015. Burnout Among Teacher-educators with Respect to Biographical, Psychological and Organisational Variables. *International Journal of Management and Social Science Research*. Vol. 4, No. 1. pp. 1–11.
- SALIMIRAD, F. AND N.L. SRIMATHI. 2016. The Relationship Between, Psychological well-being and Occupational Self-efficacy Among Teachers in the City of Mysure, India. *The International Journal of Indian Psychology*. Vol. 3, No. 3. pp. 15–21.
- SCHONFELD, I.S. 2001. *Stress and well-being at Work: Assessment and Interventions for Occupational Mental Health*. pp. 270–285. American Psychological Association. Washington, DC.
- SETH, A. 2016. Study of Mental Health and Burnout in Relation to Teacher Effectiveness Among Secondary School Teachers. *Indian Journal of Health and Well-being*. Vol. 7, No. 7. pp. 769.
- SHARMA, P. 2014. *A Study of Occupational Stress, Burnout and Personality Traits of Physical Education Teachers*. (Doctoral Dissertation). Retrieved <http://hdl.handle.net/10603/203890>
- SHARMA, G. 2014. Effect of Demographic Variables on Psychological Well-Being and Quality of Life. *International Journal of Social Science and Humanities Research*. Vol. 2, No. 3. pp. 290–298.
- SHUKLA, A. AND T. TRIVEDI. 2008. Burnout in Indian Teachers. *Asia Pacific Education Review*. Vol. 9, No, 3. pp. 320–334.
- SPILT, J.L., H.M.Y. KOOMEN AND J.T. THIJES. 2011. Teacher well-being: The Importance of Teacher–student Relationships. *Educational Psychology Review*. Vol. 23, pp.457–477.

- SRIMATHI, N.L. AND S.K. KIRAN KUMAR. 2010. *Psychological well-being of Employed Women Across Different Organisations. Journal of the Indian Academy of Applied Psychology*. Vol. 36, No. 1. pp. 89–95
- STACK, S. AND J.R. ESHLEMAN. 1998. Marital Status and Happiness: A 17-nation Study. *Journal of Marriage and the Family*. Vol. 60, No. 2. pp. 527–536.
- STEPHENS, T., C. DULBERG AND N. JOUBERT. 1999. Mental Health of the Canadian Population: A Comprehensive Analysis. *Chronic Diseases in Canada*. Vol. 20, pp. 118–126.
- TADIC, M., A.B. BAKKER AND W.G.M. OERLEMANS. 2013. Work Happiness Among Teachers: A Day Reconstruction Study on the Role of Self-concordance. *Journal of School Psychology*. Vol. 51, No. 6. pp. 735–750.
- TAKAWIRA, N., M. COETZEE AND D. SCHREUDER. 2014. Job Embeddedness, Work Engagement and Turnover Intention of Staff in a Higher Education Institution: An Exploratory Study. *SA Journal of Human Resource Management*. Vol. 12, No. 1. pp. 1–10.
- TANG, J., S. LEKA AND S. MACLENNAN. 2013. The Psycho-social Work Environment and Mental Health of Teachers: A Comparative Study Between the United Kingdom and Hong Kong. *International Archives of Occupational and Environmental Health*. Vol. 86, No. 6. pp. 657–666.
- WONG, Y.H. AND L.F. ZHANG. 2014. Perceived School Culture, Personality Types and well-being Among Kindergarten Teachers in Hong Kong. *Australasian Journal of Early Childhood*. Vol. 39, pp. 100–108.
- VAN HORN, J.E., T.W. TARIS, W.B. SCHAUFELI AND P.J. SCHREURS. 2004. The Structure of Occupational well-being: A Study Among Dutch Teachers. *Journal of Occupational and Organisational Psychology*. Vol. 77, No. 3. pp. 365–375.
- VAN PETEGEM, K., B.P.M. CREEMERS, Y. ROSSEL AND A. AELTERMAN. 2005. Relationships Between Teacher Characteristics, Interpersonal Teacher Behavior and Teacher well-being. *The Journal of Classroom Interaction*. Vol. 40, No. 2. pp. 34–43. Retrieved <http://files.eric.ed.gov/fulltext/EJ768688.pdf>
- VESELY, A. K., D.H. SAKLOFSKE AND D.W. NORDSTOKKE. 2014. EI Training and Pre-service Teacher well-being. *Personality and Individual Differences*. Vol. 65, pp. 81–85. doi:10.1016/j.paid.2014.01.052
- ZAHOR, Z. 2015. A Comparative Study of Psychological well-being and Job Satisfaction Among Teachers. *Indian Journal of Health and Well-being*. Vol. 6, No. 2. pp. 181–184.

Summary of ERIC Project

Developing Multimedia Package of Local Folktales and Its Impact on Functional English of Rural Children

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S.SHANTHI****

Introduction

Functional language is a language that is needed in different day-to-day situations like greeting, introducing oneself, asking for or giving advice, explaining rules, apologising, or agreeing and disagreeing. Hence, functional English equips students with the necessary knowledge, skills and understanding to use and apply English in everyday life. Gaining these skills ensures that students can get the most out of their future work and education. The multimedia packages are basically a combination of text, video, sound and graphics with animations. This study investigated the importance of functional English required at all levels for error-free writing of English due to correct grammar aspects from the beginning.

Objectives

The study aimed to enhance the functional English of Class VIII students by using the multimedia package of local folktales. Specifically it purported to

1. collect the folktales of the locale and convert them into written script;
2. construct a pre-test to assess the entry-level knowledge of functional English of Class VIII students;
3. prepare a multimedia package of local folktales;
4. implement the multimedia package for the experimental group;

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5. construct a post-test to evaluate the final level knowledge of functional English of Class VIII students; and
6. evaluate the impact of the multimedia package of Class VIII students in learning different aspects of functional English in terms of variables like gender, educational level, occupation of fathers and mothers, birth order of the pupils, age, qualification of the siblings of the students.

Method

The research used the quasi-experimental design of pre- and post-tests. The intervention program used for the study covered the multimedia package of local folktales of Pannimadi and Vadavalli villages situated in the outskirts of Coimbatore city, Tamil Nadu. The package consisted of twenty-six folktales which were selected from the local people, books and the library, for functional English learning.

Two rural schools, Government Higher Secondary School, Pannimadai, and Marudhamalai Subramaniya Swami Devasthanam High School, Vadavalli were selected for the study. The convenience sampling technique was used for selecting the sample. Twenty-six pupils (girls and boys) from Government Higher Secondary School, Pannimadai were treated as an experimental group, and 25 pupils (girls and boys) Marudhamalai Subramaniya Swami Devasthanam High School, Vadavalli were treated as a control group.

Ten aspects of functional English (i.e., articles, preposition, prefix-suffix, clipped words, sentence pattern, concord, tenses and voices, question tags, modals and auxiliaries) were selected for the study.

An achievement test was used as a tool in the study. A multimedia package to impart functional English through stories, skits, dialogues, storyboards, pictures, and videos for the selected twenty-six stories to the experimental group was prepared. A pre-test was conducted for both the control and the experimental groups to find out the previous knowledge of the students.

The control group pupils were taught with the lecture method. The multimedia package was implemented in the experimental group for two months. After that, a post-test was conducted for both control and experimental group pupils. From the pretest and post-test scores obtained by the pupils, the relative merits of influencing variables, and the significance of the impact of the

Multimedia package for functional English were evaluated. The personal data obtained from the pupils were analysed by descriptive analysis. Differential Analysis was carried out for finding out the efficacy of the multimedia package.

Results

The results of the study revealed that the folktales were effective in helping students to improve in terms of functional English. Learning and practicing functional English through a multimedia package of local folktales proved to be quite effective. It was found that the home maker mothers of Class VIII students exhibited significant influence on the achievement levels of the students in terms of performance of different aspects of functional English learning through multimedia package of local folktales as compared to mothers pursuing self-business and labour jobs. Similarly, the fathers working as *coolis* exhibited better influence on the performance of Class VIII students in terms of different aspects of functional English as compared to the fathers having their own business.

The findings also highlighted that the higher secondary level qualified siblings influenced significantly the achievement levels of Class VIII students performance in functional English. The students belonging to the families with an annual income above two lakhs showed better achievement levels in performance of different aspects of functional English.

Policy Implications

The implication of the study is that the functional English must be practised beyond the time table hours while playing in the open areas and literary clubs. Multimedia packages for specific purposes can be prepared for improving functional English learning. Teachers must understand and accept the need for developing the functional English usage competencies of their students. Along with the syllabus framing committee the teachers can first prepare a need-based analysis of their students and accordingly plan a frame-work for the classroom activities with maximum flexibility. Nodal agencies like SCERT, DIET, and BRCs can take up the task of designing functional English learning through multimedia packages and can provide hands-on training to pre and in-service programmes to both teachers and student teachers.

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