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« [Back to Index](#)

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ICT and Economy on the Changing Dimensions of Education and Learning in India – A Double-Edged Sword?

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Introduction

The last four decades have witnessed a wide spread of modern Information Communication Technology (ICT) and the last two decades show its acceleration and overwhelming effect to all corners of the world along with a noticeable economic growth in India. With new inventions and constant innovations, the ICT has reached up to a level where it made itself available to the mass. During the last two decades, India also witnessed a rapid change, not just in the world of technology, but also in the world of economy and education. It is perhaps not an exaggeration to claim that ICT revolutionized India and became a boon for the economy, creating a new era of up surge in GDP (Gross Domestic Production) and a vision to become a knowledge society in future. It also promotes the global dimension of education and lifelong learning since it supports a fast change in the society and wants the education to become flexible, not only to be accustomed with the modernizing technologies, but also to be able to learn and contribute effectively in the economy. However, the growth on one side creates several challenges for the economically and educationally disadvantaged sides of India where the use of modern ICT for education is very limited. This perhaps poses a threat for an even more unequal ground for development. On one hand, less use of ICT can cause less development, and on the other hand, fast use of modern ICT creates the 'digital divide'. Is then ICT intertwined with economy can be treated as a double aged sword for the educational development for all? Could, ICT be accused for the unequal socio-economic development in India? Is ICT a tool for the development of only few who can afford and access it? There could be several questions like these. However, to understand the issue, we probably need to look it from several vantage points and analyze the relation between ICT, economy and the changing dimension of Indian education critically.

It is a complex issue, as the relation between ICT, economy and Indian education are not only related with the advanced technologies, but also intertwined with the world economic activities and globalization. Therefore, to discuss this issue with a specific focus, this paper analyzes policies and documents related to ICT and education, in order to find out;

**How does ICT and economy help modifying the education and learning in India in contemporary time?
and**

What are the major consequences of the changes influenced by ICT and economy on education and learning in India?

The main objectives of this paper are to find out how ICT, coupled with the recent economic activities, changes the direction and dimension of learning (formal, non-formal and informal) in India. It focuses on two main aspects. First, it tries to find out what are the elements, which are changing the direction of education to a more globally oriented one, which urges for more flexibility, use of modern ICT tools and a less state interventionist approach. Secondly, it also tries to see the other side, which is the underdeveloped side of the Indian economic and educational situation and tries to analyze why modern ICT could not make noticeable difference to change the traditional educational and learning paradigms in India and indirectly influence to follow traditional methods.

As India follows a mixed and complex method of both education and learning, the paper often mentions education and learning together to include all (formal, non-formal and informal) its aspects. To discuss the issue while keeping the focus, this paper analyzes the issue from a macro perspective and confines its analysis into the national level policies and relevant documents. It delimits from discussing the issue at regional levels acknowledging that India is a big and diverse country and micro scale analysis are also important to gain further insights.

The paper discusses the issue in two main sections, where in the first section it discusses how ICT and economy helps changing the Indian education and learning to a more globally oriented one and in the second section, it shows how the lack of several factors causing the Indian education and learning less prone to the global educational scenario. This rather opposite views are summarised in a brief discussion afterwards in the conclusion section. It is the hope that this paper would add more insights to the understanding of the relation between ICT, economy and 'education and learning' in India in the contemporary context. To analyze the issue critically, it takes the help of several scholarly works including the works of Rizvi and Lingard (2010), Bajwa (2003) and Reddi (2010) among others. It also includes the analysis of the major policies, both from national and international levels. The paper starts to set the scene for the analysis in the next section, where the global educational dimension is discussed in brief, along with a short introduction of the overall relation between ICT, economy and education.

Setting the scene

"Knowledge has become the principle force of production over the last few decades" (Lyotard:1984). 'The world is experiencing a major shift from an economy and society based on mass production to one, based on knowledge creation. This shift has significant implications for the development of human resources and for changes in all of the components of the education system, not just the use of ICT' (UNESCO 2011:4). Even beyond education and learning, ICT can represent a new source of economic growth and a powerful tool for social transformation. Hence through their economic and social effects, ICT can contribute in creating a knowledge society and economy' (Atchoarena in UNESCO 2011). It helps us to become a part of the globalized world and kindles many other changes in the society. It is helping the way people interact with the world. Interaction through social networking sites help reunite friends, raise voices against corruption and autocracy, provides networking among the groups of various interests, enabling to explore different opportunities of learning and many more. Mobile phones today, are no more just a tool for talking or texting; it provides much more interactivity, information sharing and enables the user to learn.

The 'traditional' ICT tools like radio, television etcetera are less interactive, but informative. Hence, they also play very important roles in providing learning opportunities. It can also be said that the modern ICT revolution has changed and somewhat minimized the importance of traditional learning methods. The practice of studying content, data, and so forth are fast becoming less important and quickly being replaced by a learning paradigm, which focuses on the capacity to find, access and apply knowledge for problem solving. The traditional teacher-student relation is also being replaced with a more open and flexible mentor-learner relationship where the teacher is not seen as 'guru' or content of all knowledge, rather a person who guides to the source of knowledge. As the technology changes very fast, the learners are now supposed to be proactive and lifelong learners. This approach towards education is termed as lifelong learning and it is the agenda of development in many countries worldwide.

Acknowledging the importance of ICT, the emphasis is given on ICT literacy, analytical ability and the ability to solve problems and various other skills and competencies developments. (Khan & Williams 2007:165). In short, ICT is changing the way we learn up to a great extent. These have profound consequences on the Indian education and learning scenarios. As the global discourse of education and learning is highly pro-technology in nature, it promotes the use of ICT, almost ubiquitously. It is also recognized that the use of ICT can bring progress in educational achievements. However, problem arises as India is a highly diversified place and inequality in many socio-economic aspects is already very acute. ICT can further add up to this inequality by increasing the 'digital divide'. At the same time, ICT cannot be neglected. This dilemma provides the space to discuss the issue. The following section starts by explaining how ICT is influencing the present discourse of development through promoting both modern and traditional perspectives of education in the same country. It starts with how ICT promotes the global dimension of education and learning in India.

ICT and economy as a supporting force to the global

In India, the path towards technology-induced development, especially associated with ICT, was given a vent in 1984 by the Congress Government under Rajiv Gandhi in 80s (Bajwa, 2003). In 90s' the stress on Information Technology (IT) become even higher and continued to grow and because of the National task force on Information Technology and Software Development in 1998, which aims to establish India as a information based superpower in a decade. Later the ministry of

Information Technology (1999) was set up followed by another task force on information technology as a knowledge superpower, which aims to upgrade Indian economy and society based on the educational development of all (primary, secondary and tertiary; formal and non-formal) sectors. In the mean time, the economic liberalization tied with the growing development of the tertiary sector helped India to become one of the top ten fastest growing economic in the world (Bajwa, 2003). These provide a stronger base for India to focus on educational changes to attain a competitive worldwide position.

However studies on the Indian economy show that the changes in different economic sectors were not gradual. That means it did not follow a linear path of moving from an agricultural economy to a manufacturing economy and then to a service based one. Largely Indian economy, in its pre liberalization era was dominated by agriculture and that too with very rudimentary machineries. However, the liberalizations of economy in 90s, as stated earlier, also brought major changes in the world of ICT in later stages. Before that period, importing and exporting of goods were difficult and sluggish. In the fast changing world of technologies, India was lagging behind. But in the post reform period, businesses surged up. Bangalore (now Bengaluru) became the 'Silicon Valley' of India. Now there are ICT clusters in many major cities in India. It portrays a developed India inside a developing country framework.

The total growth of this sector over the years is mind boggling. 'The Estimated GDP generated in the ICT sector has increased from Rs. 656 billion in 2000-01 to Rs. 2530 billion in 2007-08, which amounts to a compound annual growth rate of 21.3 per cent. The CSO estimates that the share of the ICT sector in total GDP has risen from 3.4 per cent in 2000-01 to 5.9 per cent in 2007-08. ICT services dominate the ICT industry and over time the share of ICT services in total GDP has increased from 3.1 per cent in 2000-01 to 5.5 per cent in 2007-08 (Chandrasekhar 2010). The Indian software and service an export including ITES-BPO is estimated US \$ 49.7 billion in 2009-10 at an increase rate of 5.5 percent. This is coupled with the growth of telecommunication market. In recent years it is one of the fastest growing telecommunication markets in the world (UNSTATS). Recently, the share of internet has increased dramatically and now it contributes nearly 5% of GDP growth (nominal local currency) and its growing at a rate of more than 20 percent (OECD national accounts, McKinsey analysis). India, here is leading the growth component followed by China (McKinsey 2011). All the major companies like HP, IBM, Dell, Microsoft, Intel and many others are investing more on ICT sectors in India. All of these trends predicts that Indian ICT market will continue to grow and this has made this sector an important player in the service lead development trajectory and help India to rank 11th among the top service exporting countries. Not only that, the ICT market in India is growing at a rate of 33 percent during the last the past five years and also accounted for 5.2 per cent of India's National GDP during 2003-04 (Jain and Agrawal 2007: 41).

Although India enjoys the fruits of ICT, it is increasingly facing competitions at an international level. In the 'Knowledge Economy Index' (KEI) 2009 India ranks 109 with a score of 3.09 out of 10 which is 9 rank below its previous rank of 100 in 2008 (World Bank, 2009). However, it is not only the individual ranking that matters. China, the neighbouring giant ranks far ahead than that of India (18 and 23 individually and jointly with Taiwan and Hong Kong respectively, in 2009). Countries like Brazil (KEI Rank 54 in 2009), South Africa (KEI rank 65 in 2009) and other developing countries are coming up as potential competitors. In another report by the World Economic Forum (WEF), India ranks 48th in the Network Readiness Index (NRI 2010-11), which is five ranks below from its previous rank. China, on the other hand ranks 36 and made significant progress. In fact, china has leapfrogged 23 positions and features among 10 most dynamic countries worldwide. In terms of improvement in Asian countries; Indonesia, Sri Lanka and Vietnams have been the fastest improving economies along with China since 2006. (WEF 2011:24). As a result, in spite of the progress in the number of mobile phone users or increased business in tertiary sector, India's rank has not improved over the past half decade. This shows that it is not enough to be just good; rather India should be globally competitive as a nation to keep the sustainability of the growth it is enjoying now. These senses of competition, which can be considered as a by-product of globalization, influence India to follow a global path of liberalizing market, improving physical infrastructure etc.

employable. It in fact, questions the entire education system, not just because the graduates are not sufficiently skilled to be hired, but to the system which aims mainly at passing exams, which in most cases overlooks the actual learning, skills and competencies development of the pupils. This rather triggers another question of how to change the mind-set of the students, teachers and educational authorities that a degree does not necessarily mean knowledge. However, in spite of the negative impact of the education, the demand of (and for) ICT is still on the rise. Still now, from both international and national standpoints, India is a cheaper and quality place for ICT based economy. It is a growing market as well. However, to exploit this opportunity, it needs a constant supply of a large number of highly capable human resources, who can execute the ICT based works for the global and local market and be sufficiently innovative to take this into the next level to lead India from a service supplying economy to a service consuming and producing one. Therefore, the demand here creates an urge to promote educational and learning opportunities for the national economic development.

This also demands a flexible education system and learning environment, which secures a constant and sufficient supply of human resource to the ICT arena starting from the very basic level of primary education and all the way to the top, including the non-formal and informal areas of learning. It also urges for an ICT ready country for the expansion of the economy. The International organizations promote this vision as well. World Bank clearly puts forward the idea that the 'opportunities for countries in the developing world to become successful knowledge based economies are plentiful, and leapfrogging is a real possibility' (World Bank 2007:167). Based on the pillars of Knowledge Economy (education, innovation and ICTs), it prescribes that 'India should continue to leverage its strengths to become a leader in knowledge creation and use. To get the greatest benefits from the knowledge revolution, the country needs to press on with the economic and education reform agenda that it put into motion more than a decade ago and continue to implement the various policy and institutional changes needed to accelerate growth. The

necessary reforms include a reform in the educational system which does not only should include a development plan for ICT skills, but also include other soft skills development, such as problem solving, analytical skills, group learning, working in a team-based environment, and effective communications. Once required only of managers, these skills are now important for all.

Fostering such skills requires a learning system that is flexible; basic education should provide the foundation for learning, and secondary and tertiary education should develop core skills that encourage creative and critical thinking. Non-formal and informal learning should accompany as well. According to the World Bank, it is therefore necessary to develop an effective lifelong learning system to provide continuing education and skill upgrading to persons after they have left formal education in order to provide the changing skills necessary to be competitive in the new global economy (Dahlman & Utz 2005).

Since the aim of India is to become a knowledge society based on building a knowledge economy, the World Bank recognizes that, 'Education is the fundamental enabler of the knowledge economy [and] with ICT use becoming all-pervasive and its impacts transformational. It has become an essential backbone of the knowledge economy' (Dahlman & Utz, 2005), there is a high preference of promoting the global dimension of lifelong learning as the attributes supports the core component of modernizing India based on ICT. In fact, all the major international organizations (e.g. World Bank, OECD, UNESCO etc.) recommend educational restructuring focusing on the changes the ICT brings to the society. Here it can be seen that the focus is on the 'perceived labour market needs of the global economy and a process of developing education to take advantage of the knowledge economy' (Rizvi and Lingard 2010:82-117).

In addition to the changes in the formal education sector, ICT provokes new ways of learning through informal and non-formal ways. For example, the combined approach of affordability and regionalization help ICT to grow and become an enabler of lifelong learning in India. For instance, although the dominating language in ICT world is still English, but the trend is to provide ICT services in regional languages (WEF 2011). The reasons are to tap the non-English speaking market and to outreach many more people. This increasing dominance of regional approach helps ICT in India to grow in a much faster speed. More and more people, who could not use the services before, are now getting benefited. Farmers and fishermen are using the technology to get weather forecasts; market conditions (demands and selling price etc.). Recently the service is being provided through mobile phones, a more secure and accessible mode of communication in India where internet connection and speed is still not satisfactory and many places suffer with power cuts. It is effective, since in India, on average, there are 44 mobile subscriptions per 100 populations and one third of that is rural population (WEF 2011). A growing number of mobile stores and reappearing centres also help to earn and learn new technologies and helps enabling users about the ICTs. This informal and non-formal ways of learning is contributing in the changes of learning in contemporary India.

The policy response regarding the advancement of ICT, changing global economic interactivity and influence of international organizations are quite interesting to look at. In the same line with the previously set up task forces, the recent national five year plans (10th and 11th) started to recognize the 'competitive advantages of brain power, assimilate and adopt spectacular developments in system integration and technology. It wants to harness them for the national growth in today's knowledge-based world economy soon after, it realized that technology and knowledge could be a tool to give India a competitive advantage (Bajwa, 2003). Rizvi and Lingard (2010: 80) demonstrate this urge for change as a result of an 'enormous pressure on educational systems' to not only to develop the formal educational system, but also to align all other educational systems capable of handling the requirements of the global economy. The 11th planning commission largely supports this claim by saying that;

Science, technology, and innovation are even more relevant today. Scientific knowledge and expertise, innovation, high technology, industrial infrastructure and skilled workforce are the currencies of this new era (Planning Commission Govt. of India 2011:165).

The planning commission also recognizes that more and intense improvements are necessary in the science and technology sector to support the national economy. It recognizes the international competition and challenges, and seeks to develop an innovation eco-system with;

- an education system which nurtures creativity;
- an R&D culture and value system which supports both basic and applied research and technology development;
- an industry culture which is keen to interact with the academia;
- a bureaucracy which is supportive;
- a policy framework which encourages young people to enter into scientific careers and
- an ability to scan scientific developments in the world and use technology
- foresight to select critical technologies in a national perspective.(Planning Commission- Government of India, 2011:165)

As a step towards progress in the digital development, India has set up a National Mission on Education through ICT to provide better internet connectivity in the higher educational institutes. Efforts are being made to translate the ICT related books from English to regional languages. Radio reached almost all over the country, the cable television network is broadcasting 24X7 in various regional and international languages, telephone access reaches almost everywhere through the 'public' telephone booths and now spreading rapidly with the public and private mobile telephone services. In the major documents, the government recognizes that the importance of ICT literacy as a first step towards the knowledge society. In the formal and non-formal educational sectors, use of computers is being promoted. To promote the access even further, Indian government has introduced the cheapest tablet computer named 'Aakash' (meaning 'sky') for students at a subsidized price of just \$35.

The government also promotes public private partnerships in developing ICT based and market oriented training modules, promotes private institutions in ICT based learning. The vocational institutes are encouraged to become ICT equipped wherever possible. Libraries are facilitated to be electronically accessible and encouraged to work with the government to create, store, disseminate knowledge based on ICT platform, and promote information literacy initiative by collaborating with different entities (e.g. teachers) and so on. To promote literacy initiatives, the government mainly takes the help of television and radio as major tools. Several pilot projects (e.g. PREAL, Khilti Kaliyan, Chauraha) are executed in different regions using ICT.

To use the existing infrastructure in public schools to promote ICT learning for out-of-school youth, 'Bridge to the Future Initiative' (BFI) program has been undertaken in South India. Some major projects are running or completed with foreign funding. The Commonwealth of Learning (COL), a pilot project with the 'technology based community learning centre' model, was sponsored by the British Department of International Development. 'The ICT Application for Non-Formal Education' project aims at enabling learners to expand their livelihood opportunities and assist them in improving their quality of life. The development of dedicated software for literacy development can be seen in the 'Tata Computer Based Literacy Program (CBFL). Intel's initiative to develop teacher-professional development by the 'Intel-Tech' programs spreads in many countries including India, with the mission to 'accelerate 21st century education for the knowledge economy as a trusted partner to governments and educators' (Intel 2007). National Knowledge Commission (NKC) recommended several measures to make Indian higher education more ICT enabled, more autonomous and competitive. The University Grants Commission (UGC) has devised an action plan for academic and administrative reforms, ICT skills development is being promoted via vocational education and trainings. Overall, the government put much more effort to promote the ICT education and development keeping in mind the competitive global labour markets (extracts from the major documents including the 11th five year plan, Govt. of India 2011).

Overall, it can be noticed that, on policy, the government recognizes the fact that ICT is a necessity of the modern world and therefore educational reforms are must. It also recognizes that the education has moved out from its traditional shell and entered into a more open learning paradigm which is also, in many extends, ICT dependent. The changes ICT brings to the Indian education sectors to foster the global dimension of lifelong learning is in turn also a matter of national interest. It is related with national economic development and individual success in twenty first century. It is a benchmark tool for Indian dream to become a knowledge superpower. Here ICT is changing the dimension of education through liberalization; privatization and globalization constitute the current social, economic, technological and political space (Reddi 2008). Following Jarvis's theory (Jarvis 2007 and 2008) it can be said that the global superpowers (multinational firms, powerful government etc.) are, in many ways controlling the world market of ICT and as India is a big contributor in the supply of services, it has to cope with the changing learning paradigms to sustain and keep growing. The positive forces are coming from the international organizations supporting the global paradigm of learning. According to Reddi, "We no longer have a choice. It is no longer an 'if' but 'how' to deploy the technologies optimally (Reddi 2008). In a similar way, ICT gets a ubiquitous 'yes' from all stakeholders. These overwhelming influences and potentiality of ICT were understood by India in 80s and from there, the technological advancement has helped India to leapfrog a long way towards the economic maturity. These positive results also work as a supporting force to change the other not so technology dependent sectors and work as a catalyst of educational development in India. Here, the relation between ICT and global dimension of learning are rather complementary and it has improved the standards of lives to a great extend. Therefore, to consider it only as an influence of the multinational firms and global capitalism would limit its scope. 'Education' here seems embracing the global lifelong learning paradigm, which is already linked with the ICT revolution and aims to be global in standard wherever feasible.

However, ICT, in spite of influencing many changes in the economic direction, technological orientation and communication revolution also helps creating several pitfalls and negative situation where the global lifelong learning can be questioned. Along with this, there are several other issues related to ICT in India, which limits the scope of the global dimension of education and learning in India. The next section elaborates on this issue in detail.

Limitations of ICT and economy to support the global dimension of education and learning in India

Paradoxically, ICT is both the problem and the solution to lifelong learning. It is an immense problem in the kinds of dis-benefits it brings. [...]. However, the fact is that ICT is producing a major change in both the content and the processes of learning, such that we do not have the option of ignoring it" (Mason 2004).

This above comment may refer to the point that the limitations of ICT are not similar to the drawbacks of different economic ideologies or social-economic-educational

reform strategies. In addition, the resistance to ICT, in this case, is not prominent in the form of a total 'no-no'. Rather it highlights the problem ICT brings coupled with the neo-liberal economy. Overall, it could be summed up in two alluring terms of 'digital divide' and 'knowledge divide'. ICT, with its up-to-date and sophisticated inventions and innovation accelerated the Indian economy and some, who are not directly linked with ICT industries, have also got benefited. Nonetheless, overall, ICT holds limited potential to spread the wealth to the poorer section of the society (Dreze & Sen 2002). Unlike the heavy manufacturing industries, in ICT based industries it generates few opportunities for the unqualified and hence it initially contributed effectively in establishing a wider 'digital divide' (Konana & Balasubramanian 2001). Further studies show that when the ICT boom started in the states of Karnataka and Maharashtra there were no ICT policies and the industries were mostly driven by private sectors. That resulted in an unequal distribution of wealth and knowledge where the section with more knowledge suddenly became rich and other half without necessary education stayed poor or became poorer in comparison. As ICT industries, unlike other industries, are more flexible in welcoming resources (here human resource) from all over the world, it bothers less of reforming the local resources into effective resource. Moreover, as India produces a huge number of graduates each year and people are more flexible to travel for jobs, it is easier for the industry to select the best among many without concerning about the overall development of the actual learning of the nation. However, to understand the issue, it is necessary to dig deeper, where it reveals that in India, the problems are many and appear from different directions. It can be broadly and roughly classified in the following segments;

- Mode of ICT tools– Old vs. New
- Affordability
- Unequal access
- Lack of infrastructure
- Lack of understanding
- Other barriers – political, social, religious, gender related etc.

Starting with a theoretical argument, which shows that, by definition, ICTs are basically information-handling tools- a varied set of goods, applications and services that are used to produce, store, process, distribute and exchange information (UNDP 2001). Therefore, by definition, it covers every information and communication tools. However, in practice, it is broadly synonymous with computer and related modern electronic communication technologies. In fact, the UNDP document classifies them into two broad categories, namely the 'old' and 'new'. The old includes radio, television and telephone and the 'new' includes computer, satellite, wireless technology and internet (UNDP 2001). However, 'what is old and what is new'; Livingstone argued (Livingstone 1999). According to Livingstone, it is 'time' and 'space' relative and hence subjective. Reddi (2008) also supports the argument that what is new in the west (developed West) is not necessarily so for the rest of the world (Livingstone 1999 in Reddi 2008). In case of the ICT movement in India, it has been mainly depended on the so-called 'old' ICT tools and has recently been started experimenting with the 'new' once. In fact, many new programs India are based on 'old' ICT tools. According to UNESCO, both 'old' and 'new' ICT tools are useful in learning (UNESCO). However, new technologies are more interactive and hence offer more self-learning opportunities compared to radio and television, which are mostly non-interactive. Internet alone makes a huge difference. The use of mobile phones can be mentioned in this regard, but the efforts by this mode are still on an experimental level in India. Therefore, in theory, people who can afford and/or get access to modern ICT tools, learn more and faster compared to others. They are likely to become more creative and not just become passive listeners. The possible consequences include that the users of old technologies will be far behind than the users of newer technologies. The gap will increase further. Secondly, the users of new ICT tools have better learning and employability opportunities in future, since the world is moving towards a knowledge society based on modern technologies. However, at present, the statistics shows a limited scope for this, for India. It shows that there are only 5.1 internet users per 100 people and broadband subscribers are less than one (0.6) per 100 people (2009-10) in India. The internet access in schools are not adequate and the speed is often slow. As a consequence, India ranks 118 with a score of 5.1 (out of 10) and countries like Zambia, Botswana and Libya are ahead than that of in India. China is far ahead with a rank of 75. Apart from the internet, the number of household with a personal computer is also low and India ranks lower than that of Ghana, Kenya, Sri Lanka and Pakistan (data 2008, source – World Economic Forum, 2011). However, the problem does not stand alone. It is coupled with other factors like affordability, unequal access etc.

Affordability is certainly another crucial factor in India to promote ICT. Even though, globally ICT is becoming cheaper, it is not so for many Indians. Having a personal computer is unthinkable for many who cannot even afford electricity connection due to their poor economic condition. For some, it can cost a month's salary or more (Dighe 2008). In these circumstances, the government need to step in and support with different mechanisms. The good news is, it is happening in some states (e.g. Karnataka with the private partnership of NIIT). The effort to provide tablet computers at a subsidized price can be mentioned here. Mr. Kapil Sibal, said that it will enhance learning in India as it will be able to reach to the masses. In his words; "The rich have access to the digital world, the poor and ordinary have been excluded. Aakash will end that digital divide" (Sibal in BBC 2011). The future will provide the answer; however, the efforts are far less than sufficient for the whole nation of more than a billion people. The future of ICT based learning is, thus, not very promising for many.

Reddi shows his concern saying that there are likely to be four levels of learners. The first level of learners are those who can afford the high cost of education. They will get best educational facilities and infrastructure. The second level will consist of intelligent and competent students, who are initially unable to afford the cost of education but will be able to get it through the public institution on the basis of their outstanding merit. This group will soon catch the first level of learners. The third level will consist of academically and financially poor students who have to get education from lower quality institutions and hence more backward in future. The last group will consist of the illiterate and poor and they are less likely to be able to improve their learning conditions and standards up to any satisfactory level needed for 21st century (Reddi 2008). Furthermore, it can be already seen that economically advanced regions tend to pay more for ICTs. For example, urban areas are better ICTs equipped than that of rural regions. The World Economic Forum shows that 22 percent of urban population spends 51 percent of the total ICT spending in India and the rest of 49 percent spending is done by the 78 percent of rural population (World Economic Forum 2011:49). "The real challenge is [therefore] to promote the effective application and use of ICTs throughout the economy to raise productivity and growth, not just in a few pockets. Ensuring that the benefits of ICTs are shared by all requires an enabling environment for ICTs" (Dahlman & Utz, 2005). Hence, affordability of ICTs, although alarming, but not the only main problem.

There are many places in India without a broadband network or electricity connection. Many rural and semi-urban areas are suffering with severe power cuts, the versatile FM radio networks are mainly limited to cities and its peripheries, Internet uses via mobile phone is increasing in the urban areas but not so much in the rural areas. There are more apart from these rather technical drawbacks of accessibility issue. There are faults in planning as well. The content is often not relevant, local and timely and hence although available, is often not accessed. Furthermore, preparing the multimedia contents in local languages is a great challenge and it has not yet been overcome fully. The learners are not often consulted while preparation of materials and contents. The contents often come as a result of the top-down mechanism India follows and hence it is not rooted in ground realities. These discriminations makes ICTs practically less useful (Reddi 2008). However, discrimination can also happen at household levels. In India, girls in many places are prevented from using ICTs freely and women users of internet represents a much smaller number (Indian Telecommunication Union 2002 in Dighe 2008). Rural, illiterate and rural women are often not given the ownership of control of the means of communication with the perception that they cannot handle the technology (Reddi 2008). These are serious problems of access which prevents India to stick to its traditional method of classroom education and less spontaneous learning. Coupled with these, there are other problems too. In a sub-tropical country like India, the installation and maintenance cost of a computer is much higher. It needs an air condition and machines should be prevented from dust and other natural hazardous objects. Most of the money is therefore spent on establishing the hardware, that often there is less money left for the actual training or planning. The result are either rejecting the modern ICT methods or stick to its minimal use which results in a less satisfactory output. In addition to these, there are problems of caste discriminations, poverty and many more; some of which are discussed earlier and also related with the drawbacks of the educational progress of the nation.

There is another very serious problem related to 'perception'. There is little recognition that ICT can be used to truly enhance lifelong learning. Many think that it is merely another educational tool and hence do not utilize the full potential of it. There is lack in teacher training to use ICT properly. In many places, the practice is to use computers as a tool to make power point presentation, which is barely any significant up-gradation from the old overhead projections. There is lack of understanding that the style of teaching has to be changed. As Mr. Sam Pitroda (advisor to the Prime Minister, India) clearly points out; Teacher today spends most of his or her time in delivering content and creating content. Content is already created on internet, there is no need for teacher to deliver content. Role of a teacher will have to change to that of a mentor. All of these models will change the way we used to look at education (Pitroda 2010).

It is seen that; in many cases teachers do not feel comfortable to change their teaching style and also resist inclusion of ICT in the everyday education system. They often feel threatened and further challenged when told that they have to use ICTs. They feel scared that they might lose their job and will be replaced by the ICTs (Reddi 2008). This lack of understanding, sometimes coupled with negative political will and poor planning and regulation work negatively for the promotion of ICT induced learning in India.

Conclusion

From the above discussion, it is perhaps understood that ICT is an important, dynamic and inevitable learning tool in the present world. ICT helps not just in the formal learning, but also in the informal and non-formal learning sectors. Hence the proper planning and successful use of ICT can lead to individual and national development. It may help to achieve better educational attainments and better utilization of the human resources and in result, could provide possibilities for economic developments. However, on the other hand, there are several problems, directly or indirectly related to the progress of ICT, which gives ICT a rather negative perception in the society. This negative perception can sometimes convey a negative impression that ICT is causing the divide. Here, it is perhaps important to mention that;

Technology is a double-edged sword. In the 20th century, rapid technological advances led to rising standards of living, literacy, health and life expectancy. They also made possible a century of more deadly warfare, the industrialization of mass murder, global warming and ecocide. The promise of ICTs for the 21st century likewise presents both opportunities and challenges. ICTs, like all technologies, are tools. How they are used depends on the user and the context (UNDP 2001).

UNESCO recognizes that under the right conditions, it is believed that ICT can have a monumental impact on the expansion of learning opportunities for greater and more diverse populations, beyond cultural barriers, and outside the confines of teaching institutions or geographical boundaries (Haddad & Draxler, 2002 in UNESCO

2002:11). However, the situation in India in relation to the use of ICT is by far close from 'right'. On the one hand, the government initiatives are inadequate and unevenly placed. In remote and economically disadvantageous areas there is no or poor infrastructure for internet, computer, or even electricity lines. On the other hand, gender, economic and educational discriminations against the use of ICT is still present. Moreover, teachers, who are educated, sometimes resist ICT enabled learning methods or use it minimally.

Although the situation has improved a lot, but from the governments to the teachers, taboos and limitations related to modern ICT could not be overcome yet. In the form of a traditional teacher-student relation, use of traditional tools and teaching styles, use of backdated and outdated study materials and finally the inability to understand, implement and act according to the changing globalized society has reduced the scope of ICT in India. Rather it indirectly continues to support the traditional perspective of education in the developing section of India. On the contrary, flood of ICT keeps bringing new opportunities for some who are either able to afford, understand and use it.

In the midst of this rather diversified, somewhat contradictory and overall confusing situation, one thing is clear; theoretically, ICT can provide endless learning opportunities. However, in practice, the possible consequence is a future towards more 'digital and knowledge divide' as the developed section will continue to grow at a rapid pace and the gap is tend to grow even larger, unless further initiatives are taken. The initiatives to spread the benefits of ICTs to all and prevent it to become a double aged sword, planning should be based on scientific facts, practical situations and statistical evidences, and not on common naive perceptions. In this regard, the planners may look at other countries with similar conditions, where they have effectively implemented some methods. Here, one thing to note is that there cannot be any ubiquitous solution for the whole nation.

It also seems important to get rid of some over-simplified perceptions regarding ICT, economy, education and development for all. Instead of carrying a naive believe that the goodness of ICT and the economic benefits of the developed service sector will trickle down to all, it seems important to plan early to prevent the increasing digital divide. The analysis of Rizvi and Lingard also shows that in a developing economy (like India), success depends on people's knowledge stock, skills level, learning capabilities and cultural adaptability. Therefore, policies are encouraged to go beyond deregulating the market and actively promote reforms of education and training so that it can better contribute in the national development (Rizvi & Lingard, 2010). How to use the potential of ICT as an immensely effective learning and developmental tool for all is a challenge, and proper planning needs further micro level studies to find out specific micro-scale solutions. Nonetheless, following the UNDP's view, it could be said that, in present economic situation, ICTs can be a 'double aged sword' or a 'highway for learning and development' depends on the users and how they use it in the present globalizing Indian context.

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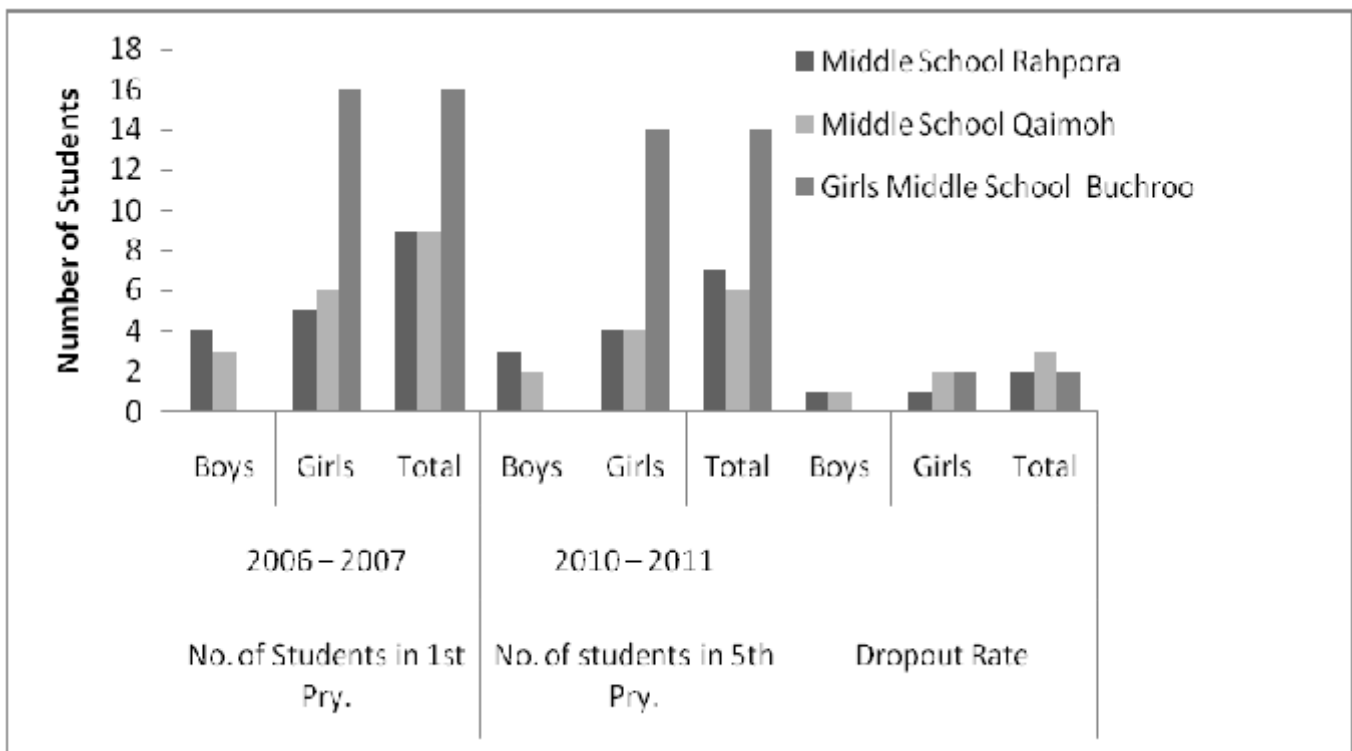
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Table 4: Dropout rate of cluster Khudwani

Name of Middle School	No. of Students in 1st Pry. 2006 - 2007			No. of Students in 5th Pry. 2010 - 2011			Dropout Rate		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
Rahpora	04	05	09	02	04	07	01	01	02
Kudwani	03	06	09	02	04	06	01	02	03
Girls Buchroo	----	16	16	----	14	14	----	02	02

Fig 4: Drop out rate of cluster Khudwani



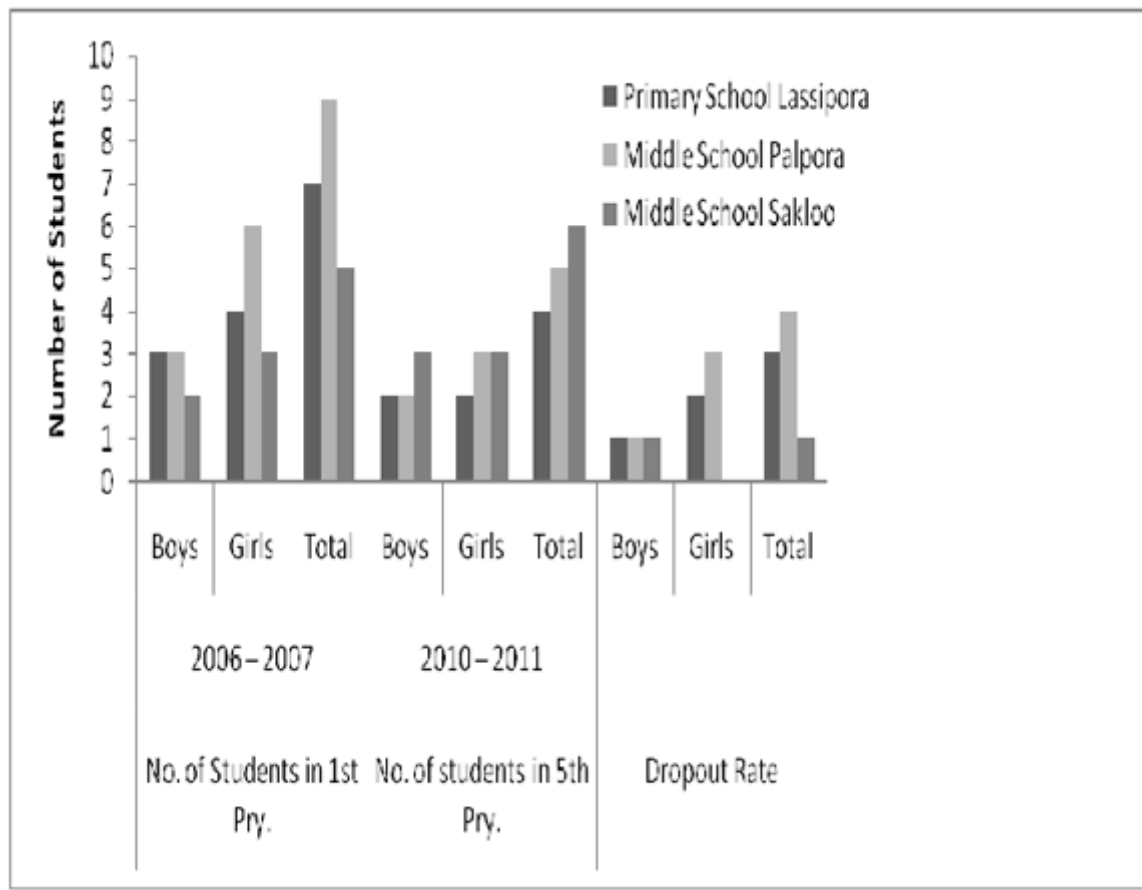
5. Cluster Khrewan: The dropout rate of cluster Khrewan is given in Table 5 and graphically represented in Fig. 5. In Primary school Lassipora in 2006-07, the total number of students enrolled in 1st primary was 7, out of which 3 were boys and 4 were girls. In 2010 - 11, the enrolment in 5th primary was 4, out of which 2 were boys and 2 were girls. So 3 students dropped out during these years in which 01 was boy and 2 were girls. Hence dropout percentage of this school was 42.85%. In Middle School Palpora in 2006 - 07, there were only 9 students enrolled in class 1st primary, out of which 3 were boys and 6 were girls. In 2010 - 11, the enrolment in 5th primary was 5, out of which 02 were boys and 03 were girls. So 4 students dropped out during these years out of which 1 was boy and 3 were girls. Hence dropout percentage of this school was 44.44%. In Middle School, Sakloo in 2006 - 07, there were 6 students enrolled in Class 1st Primary, out of which 3 were boys and 3

were girls. In 2010–11, the enrollment in 5th primary was 5 in which 2 were boys and 3 were girls. So 01 student dropped out during these years. Hence dropout percentage of this school was 16.66%.

Table 5: Dropout rate of cluster Khrewan.

Name of Primary / Middle School	No. of Students in Ist Pry. 2006 - 2007			No. of Students in 5th Pry. 2010 - 2011			Dropout Rate		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
Primary Lassipora	03	04	07	02	02	04	01	02	03
Palpora	03	06	09	02	03	05	01	03	04
Sakloo	02	03	05	03	03	06	01	-----	01

Fig 5: Drop out rate of cluster Khrewen



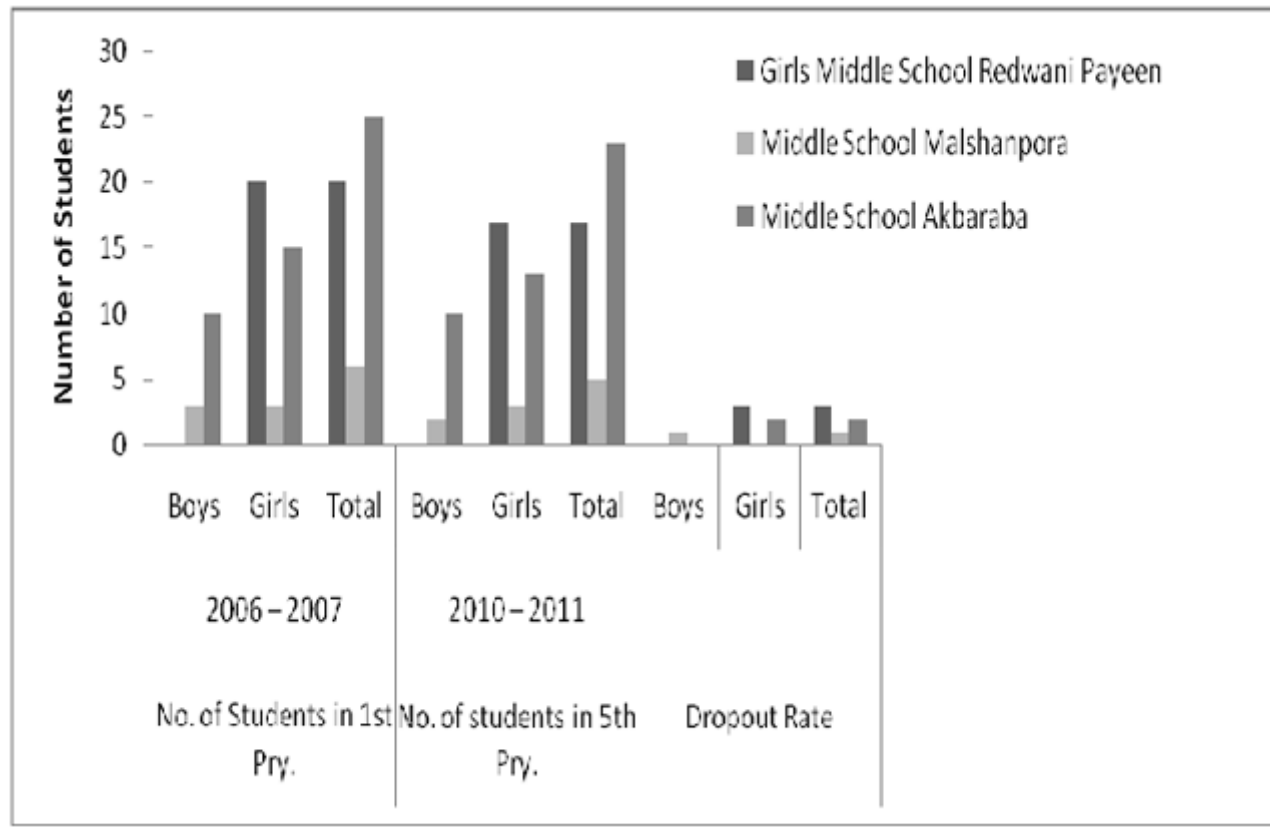
6. Cluster Redwani: The dropout rate of 3 different schools of this cluster is given in Table 6 and graphically presented in figure 6. In Girls Middle School Redwani Payeen in 2006 – 07, the total number of students enrolled in 1st primary was 20, all of which were girls. In 2010 – 11, the enrolment in 5th primary was 17. Thus 3 students dropped out during these years. Hence dropout percentage of this school was 15%. In Middle School Malshanpora in 2006 – 07, the total number of students enrolled in 1st primary was 6, out of which 3 were boys and 3 were girls. In 2010 – 11, the enrolment in 5th primary was 5, out of which 2 were boys and 3 were girls. So 1 student dropped out during these years. Hence dropout percentage of this school was 16.66%. In Middle School Akbarabad in 2006 – 07, the total number of students enrolled in 1st primary was 25, out of which 10 were boys and 15 were girls. In 2010 – 11, the enrolment in 5th primary was 23, out of which 10 were boys and 13 were girls. So 2 students dropped out during these years and both of them were girls. Hence dropout percentage of this school it is 8%.

Table 6: Dropout rate of cluster Redwani

Name of the School	No. of Students in 1st Pry. 2006 - 2007			No. of Students in 5th Pry. 2010 - 2011			Dropout Rate		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total

Girls Middle School Redwani Payeen	-----	20	20	-----	17	17	-----	03	03
Middle School Malshanpora	03	03	06	02	03	05	01	-----	01
Middle School Akbarabad	10	15	25	10	13	23	-----	02	02

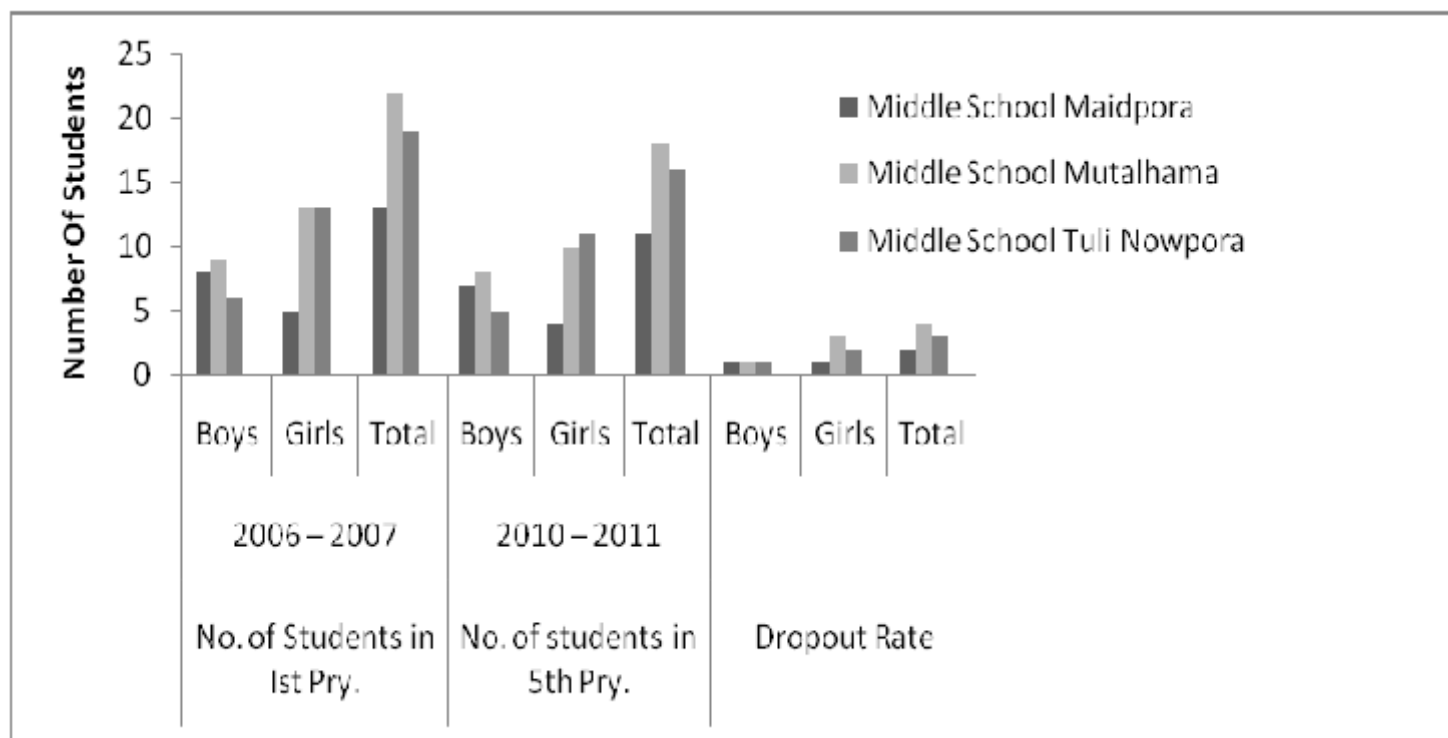
Fig 6: Drop out rate of cluster Redwani



7. Cluster Chadder: The dropout rate of 3 different schools of this cluster is given in Table 7 and graphically presented in figure 7. In Middle school Naidpora in 2006 07, the total enrollment in 1st primary was 13, out of which 8 were boys and 5 were girls. In 2010 – 11, the enrollment in 5th primary was 11, out of which 7 were boys and 4 were girls. Thus 02 students dropped out during these years, out of which 1 was boy and 1 was girl student. Hence the dropout percentage of this school was 15.38%. In Middle school Mutalhama in 2006 – 07, the total enrollment of 1st primary was 22, out of which 9 were boys and 13 were girls. In 2010 – 11, the total enrollment in 5th primary was 18, out of which 8 were boys and 10 were girls. So 4 students dropped out during these years out of which one was boy and 3 were girls. Hence the dropout percentage of this school was 18.18%. In Middle school Tulinowpora in 2006 – 07, the total number of students enrolled in 1st primary was 19, out of which 6 were boys and 13 were girls. In 2010 – 11, the total number of students in 5th primary was 16 in which 5 were boys and 11 were girls. So 3 students dropped out during these years in which 01 was boy and 2 were girls. Hence the dropout percentage of this school was 15.78%.

Table 7: Dropout rate of cluster Chadder

Name of the School	No. of Students in 1st Pry. 2006 - 2007			No. of Students in 5th Pry. 2010 - 2011			Dropout Rate		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
Middle School Naidpora	08	05	13	07	04	11	01	01	02
Middle School Mutalhama	09	13	22	08	10	18	01	03	04
Middle School Tuli Nowpora	06	13	19	05	11	16	01	02	03

Fig7 : Drop out rate of cluster Chadder

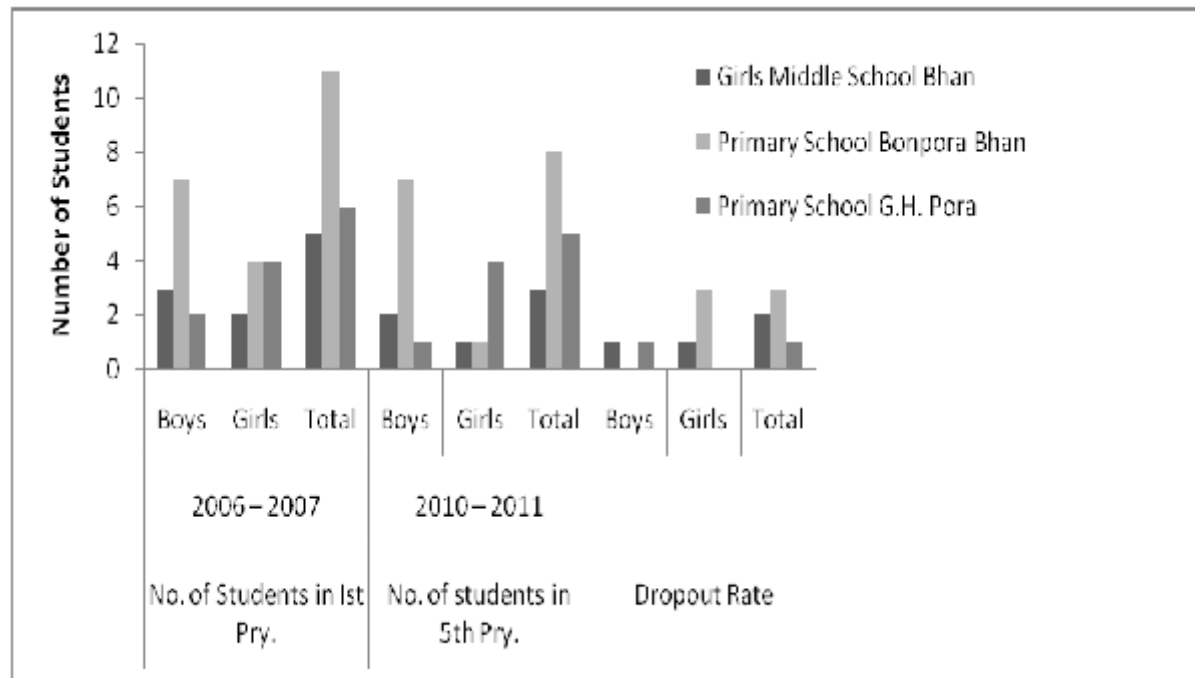
8. Cluster Bhan The dropout rate of cluster Bhan is given in Table 8 and graphically represented in Fig. 8. In Girls Middle School Bhan in 2006 – 07, the total number of students enrolled in 1st primary was 5, out of which 3 were boys and 2 were girls. In 2010 – 11, the total number of students enrolled in 5th primary was 3. Thus 2 students, 01 male and 01 female, dropped out during these years. Hence the dropout percentage of this school was 40%. In primary school Bonpora Bhan in 2006 – 07, the number of students enrolled in the 1st primary was 11, out of which 7 were boys and 4 were girls. In 2010 – 11, the total number of students in 5th primary was 8 in which 7 were boys and 1 was girl. So during these years 3 students dropped out and all the 03 were girls. Hence the dropout percentage of this school was

27.27%. In Girls Primary School Herpora in 2006 – 07, the total number of students enrolled in 1st primary was 6, out of which 2 were boys and 4 were girls. In 2010 – 11, the total number of students in 5th primary was 5 in which 1 was boy and 4 were girls. So 01 student dropped out during these years. Hence the dropout percentage of this school was 16.66%.

Table 8: Dropout rate of cluster Bhan

Name of the School	No. of Students in 1st Pry. 2006 - 2007			No. of Students in 5th Pry. 2010 - 2011			Dropout Rate		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
Girls Middle School Bhan	03	02	05	02	01	03	01	01	02
Primary School Bonpora Bhan	07	04	11	07	01	08	-----	03	03
Primary School G.H. Pora	02	04	01	01	04	05	01	-----	01

Fig. 8: Dropout rate of cluster Bhan



Causes of Dropout : There are various causes responsible for premature withdrawal of children from schools. Despite tremendous increase in enrollment process in 1st primary, the dropout rate continues and many children do not complete full cycle of education and dropout before reaching 5th primary.

- The precarious economic conditions of the parents become a big handicap in keeping back their children from schools particularly when the poor parents have to bear the costs of books, stationary, uniform, private coaching etc.
- The poverty of the parents in the territorial area under study i.e. Qaimoh, results in involvement of school going children in wage earning, domestic work and child labour.
- The practices like child marriage, traditions, beliefs etc are responsible for dropout of the children.
- The illiteracy of the parents and poor literacy rate of the community at large too play an important role in dropout of the children.
- Inadequate facility in terms of infrastructure, staff, organization and managem etc are also the causes for early withdrawal of the children from schools.

Conclusion

The following major conclusions have been drawn from the present investigation.

1. The overall dropout rate of education zone Qaimoh is 20.83%. The cluster wise dropout rate of education zone Qaimoh is as under:

Suggestions

The following suggestions are put forth to overcome the problem of dropout.

1. Ensure right education as fundamental right for children.
2. Making adequate provisions as directed in NPE, 1986 in the form of non- formal education centres as alternative channels for dropouts, working children, girls and other types of children who are unable to attend full time schools.
3. Organizing continuous awareness and counseling camps in the area under study regarding importance of education in the age of fast changing landscape of learning.
4. To increase investment, correct deficiencies and improve school infrastructure to the desired level.
5. Enhancement of more scholarships to the outreach children.
6. Ensure implementation of schemes/ acts and its effective follow-up.
7. Form a team of teachers, civil society members/ panchayat members/ municipal committee members for proper implementation of right to education.

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