2.1. Introduction

A literature review is an account of what has already been published on a particular subject or topic. The review of literature is an important component of any research. The Review of literature helps the researcher to frame the research study on a chosen topic by identifying new issues in research, concepts, methods, techniques, approaches and what has already been done. A review of related literature shows as well as guides new avenues and approaches to get solution for a chosen problem of the study.

The main purpose of review of literature in any study is to analyze and compare the prior research studies, theoretical and empirical studies. This gives a panoramic view of the research already undertaken in a particular field. The purpose of this review of literature is to analyze critically a segment of the published body of knowledge through comparing, classifying and summarizing the prior research studies.
Keeping in view the importance of review of research, in this chapter an attempt has been made to provide an account of studies so far carried out by various researchers, professionals and the views expressed by scholars on the use of ICT by students as well as digital divide.

2.2. Sources used for reviewing the literature

The investigator has collected the literature in the field of ICT in education and causes for digital divide. Various primary and secondary sources of information to the review the literature are also referred. The important sources used for this purpose are the Library and Information Science Abstracts (LISA), Library and Information Science and Technology Abstracts (LISTA), Science Direct, Shodhganga, Google Scholar, Google books and other sources available on the Internet. The researcher has also scanned many printed national and international journals and books related to the study.

The search keywords such as “ICT Literacy”, “Use of ICT by School Students”, “Digital Divide” and other related keywords are used to search the articles in the above searches. The literature collected from the different sources has been grouped into 2 categories and they are presented under the following headings:
2.3. Studies conducted at International level

Significant studies have been carried out at International level on various aspects such as the use of computers and Internet by the school students as well as digital divide. Maynard and Cheyne (2005) surveyed the uses and potentiality of e-textbooks in classrooms. An experimental study was conducted by splitting a group of 60 students into groups. A group test and individual tests were given; some Student response to e-books groups used e-textbooks and the other half used traditional textbooks. The results indicated that e-textbooks motivated group participation and achieved higher results among both group and individual tests.

In the same year Massey et al. (2005) conducted a study on reader response in evaluating the International Digital Library’s content collection. Twelve children from four countries were exposed to the International Children’s Digital Library (ICDL) and their responses to self-selected books were collected. Through a questionnaire, the children were asked to express their likes or dislikes, summarize the text and explain how the book made them feel. The results showed that, overall, most of the children felt happy (38 percent) while reading the books. In addition, over half of the books were rated with five stars, followed by four stars with 33 percent.
Further, Volman (2005) traced out the gender differences in his study. The result of the study identified the gender differences, especially in primary education, appeared to be small. In secondary education, the computer attitude of girls seems to be less positive than that of boys. The pupils from an ethnic-minority background in both primary and secondary education had less skilled ICT. It was found that ethnic differences arise in participation in ICT activities at school in both educational sectors. Based on the result of the study, the author opined that, the differences identified between pupils from an ethnic-minority background and pupils from the majority population in terms of access to ICT applications and ICT skills, especially in primary education, have an important role to play in compensating for these differences.

The author also recommended that, it is important to ensure that all the pupils have the chance and are stimulated to acquire computer experience of different kinds. An ‘ICT-skills learning line’ should be able to ensure that all pupils acquire a command over the necessary skills. It is important that parents who cannot or do not want to buy a computer and/or Internet connection encourage their children to make use of such facilities elsewhere, for example in the public library or community centre. In out-of-school activities it is also important to ensure that both girls and boys have adequate access.
A study conducted by Druin et al. (2007) to explore children’s interest and concerns when using the International Children’s Digital Library (ICDL) found out that children appreciated the variety of books in the ICDL. They respected the online searching tools but ultimately preferred reading traditional books, and valued physical libraries as a place for reading and interacting with others. On the other hand, they investigated the long-term effects on the student’s reading attitude and observed the initial reaction of the students. Their study suggested that the novelty factor may wear off with time.

Tella et al. (2007) examined the uses of ICT and its implications for further development of ICTs use in Nigerian secondary schools. The study through census drawn on 700 (430 male and 270 female) teachers from 25 purposefully selected private secondary schools in Nigeria. The result of the study has found out that 61% of the teachers have accessed computer in their schools, only 11.9% of teachers they have used video equipment and 10% teachers have digital cameras. The majority of the teachers 30.3% used ICTs in their schools between 11 – 15 hours per week. The result of the study has found out that 33.8% of teachers have lack of expertise with ICT. Furthermore, lack of knowledge on how to use and evaluate the role play by ICT in the teaching and learning at the secondary school level was 25.8%. The result also revealed that 21.5% insufficient knowledge of appropriate software as factor hindering the readiness of using ICT.
It was recommended that teacher training and professional development oriented policies should support ICT-related teaching models that encourage both students as well as teachers to play an active role in teaching/learning activities. And that emphasis must be placed on the pedagogy behind the use of ICTs for teaching/learning.

Adedeji et al. (2007) examined the uses of ICTs and its implications in Nigerian secondary schools. The study through census was drawn on 700 (430 male and 270 female) teachers from twenty five purposefully selected private secondary schools in Nigeria. The result of the study found out that 61% of the teachers used computer in their schools. It was also found that 11.9% teachers have used video equipment and 10% of teachers used digital cameras. The study also revealed that the majority of the teachers 188 (30.3) accessed ICTs in their schools for about 11 – 15 hours per week.

The result of the study found out that 33.8% of teachers have lack of expertise with ICT. Furthermore, the lack of knowledge on how to evaluate the use and role play by ICT in the teaching and learning at the secondary school level was 25.8%. The result also revealed that 21.5% of teachers indicated that the insufficient knowledge of appropriate software as factor hindering the readiness of using ICT. It was recommended that teacher training and professional development oriented policies should support ICT-related teaching models that encourage both students and teachers to play an active role in
teaching/learning activities. And that emphasis must be placed on the pedagogy behind the use of ICTs for teaching/learning. A study by Kubiatko (2007) focused to find out the information and computer literacy of high school students. The study included 283 secondary school students from different regions and districts of Slovakia. The number of boys and girls were 127 and 156 respectively. The study found out that nearly all students used computers and the Internet. Most students, nearly 70%, used the Internet at school. About half of all the students used the Internet at home.

This was caused by the fact that service for access to the Internet was expensive for the most of people in Slovakia. It also found that the main activity of students on the Internet was the search for information. Students used the Internet and computers in school most often after lessons. The use of Internet at home by boys was higher than girls. Girls used the Internet more at school and at library than boys.

In the year 2008, Ilomäki conducted a study on “The effects of ICT on school: teachers’ and students’ perspectives”. The results indicated that the technical resources for using ICT both at school and at homes are very good. In general, students are capable and motivated users of new technology; these skills and attitudes are mainly based on home resources and leisure time use. Students have the skills to use new kinds of applications and new forms of technology and their ICT skills are wide, although not necessarily adequate; the working habits might
be ineffective and even wrong. Teachers’ skills were more heterogeneous. It was also found out that the large majority of teachers have sufficient skills for everyday and routine working practices, but many of them still have difficulties in finding a meaningful pedagogical use for technology.

The study also indicated that the majority of teachers the intensive ICT projects offer a possibility for learning new skills and competencies intertwined in the work, often also supported by external experts and a collaborative teacher community; a possibility that “ordinary” teachers usually do not have. Further, teachers’ good ICT competence helps them to adopt new pedagogical practices and integrate ICT in a meaningful way. The study has also found out that male students show better skills especially in purely technical issues also in schools and classrooms, whereas the female students and younger female teachers use ICT in their ordinary practices quite naturally.

A study by Yuen et al. (2008) on “Factors Predicting Impact of ICT-Use on Students: An Exploration of Teachers’ Perceptions” revealed that, teacher perception on student-practice orientation was the strongest predictor of student-impact than other factors. The direct effects of teacher-practice orientation, student-practice orientation, and pedagogical ICT competence on student-impact were positive.
The pedagogical ICT competence had direct as well as indirect effects on student-impact. However, the effects of pedagogical ICT competence on the mediated factors teacher-practice orientation and student-practice orientation were negative. The indirect effects of community of practice on professional collaboration and teacher-related obstacles in using ICT on student-impact were mediated through teacher-practice orientation, student-practice orientation, or pedagogical ICT competence. The effects of community of practice on professional collaboration on all mediated factors were positive whereas the effects of teacher-related obstacles in using ICT on all mediated factors were negative.

Ogunbote and Odunewu (2008) stated that the performance of students could be improved considerably, if they use the library regularly. Students should therefore maximize the use of school libraries to their advantage since school libraries provide favorable environment where the students can discover and develop their abilities and talents as well as improve their reading and study skills. In the year (2009) Cavas et al. investigated the Turkish primary science teachers’ attitudes towards ICT in education and then explore the relationship between teachers’ attitudes and factors which are related to teachers’ personal characteristics (gender, age, computer ownership at home and computer experience).
The sample consisted of 1071 science teachers of primary schools. The findings of the study revealed no significant differences between ICT attitudes of Turkish science teachers in terms of gender. This would suggest that male and female science teachers in Turkey have the same perception about the use of ICT in education. The results also indicated that, Turkish science teachers have positive attitudes toward ICT and although the teachers’ attitudes toward ICT do not differ regardless of gender, it differs regarding age, computer ownership at home and computer experience. The results of the study also showed that, half of the Turkish science teachers used computers in their courses and they had high levels of computer access, especially in their school and at their homes.

A study by Kiptalam & Rodrigues (2010) revealed that, about 64% of the schools had an ICT code of conduct to regulate use of computers and Internet. More than 75% of the students had access to ICT facilities. Some public schools spent less than 5% of their annual expenditure on maintaining Internet connectivity and publicly funded schools which spent up to 20% respectively. The study also found that 63.7% students had access to the Internet, with students from private schools having higher access rates compared to students from public schools. There was no significant difference when Internet access rates were compared between students from rural and urban-based schools. However, when gender was considered, significant differences were
observed among girls from public and rural based schools who had lower access rates at 41.2% compared to boys from the same schools at 89.2%. The most common place for students to access the computers was computer laboratory, though it appeared that some schools, especially privately sponsored schools were focused on the libraries with the intention of extending traditional libraries services to support digital resources.

In the year 2010, Thinyane examined 290 students relating to their access to and use of technology. The results portrayed a heterogeneous student population, with varying levels of access to and use of most technologies. Participants in this study, however, appear not to use such technologies, and to not be interested in using them in their studies. One tool that students had high levels of access to and use of is the mobile phone (98.1%). Out of all uses of technology surveyed, tasks involving the mobile phone were ranked in the top two positions. Also when asked to rank different uses of technology particularly for their studies, three of the top five uses relied on cell phones.

Zhao et al. (2010) investigated that the Internet usage status of Chinese high schools students corroborates the hypothesis of the positive impact on parents’ educational level on the Internet behavior of teenagers. In the same year Vigdor and Ladd (2010) conducted a study on “Scaling the digital divide: Home computer technology and student achievement”. The study focused on the population of 8th-9th grade
students from North Carolina public school. The study identified that 85% of students are having access to a computer at home. This access rate differs by race and socioeconomic status. 90% of white students have a computer at home, compared to 75% of black students. The disparities across free or reduced price lunch participation categories are larger; 71% of recipients have access to a home computer, versus 92% of non-participants. The Disparities between the extreme categories of parental education, students with high school dropout parents and those, whose parents have postgraduate education, are strongest. It was found that 98% of students accessed to a home computer, versus 63% of students in the lowest parent education category.

The author opined that computer literate students may enjoy improved job opportunities later in life, or maybe poised to take better advantage of online resources and it was also suggested that school administrators should provide computer facility at school to maximizing students achievements towards the use of computer and Internet and reducing racial and socioeconomic disparities. School library, according to Busayo, (2011) is an integral part of educational system that cannot be ignored without jeopardizing the quality of education in schools. The school library is an important part of elementary, middle and high school programmes without which students would not thrive academically and invariably find it most
difficult to conduct academic research before they reach college level. A favorable learning environment is associated with the use of the library as a study space. A library containing quality, relevant, current materials and information resources as well as a professional librarian have been seen to have a positive effect on students. A study by George, (2011) stated that School library is very important in shaping students’ habit as regard reading for leisure, to pass examinations and to obtain information on different aspects of life. Library users make use of library for different purposes. While some users visit the library to read their notes and personal books, others use library to do assignments. Yet, others visit library to prepare for examination, recreation and relaxation.

In the year (2011), Luu & Freeman conducted a study on “An Analysis of the relationship between the Information and Communication Technology (ICT) and Scientific Literacy in Canada and Australia”. The findings of the study suggest that, once student demographic characteristics and school characteristics have been accounted for, students with prior experience with ICT, who browse the Internet more frequently and who are confident with basic ICT tasks earned higher scientific literacy scores. Gender differences existed with respect to types of productivity and entertainment software used. Finally, the differences in ICT use between Canada and Australia, particularly in schools, may be due to the initiatives in taken Australia
to promote the increased use of ICT in classrooms. A study by Doiron (2011) explored the issues related to using e-readers in school libraries and the challenges in creating an e-reading component in library programmes. School libraries were experiencing mounting pressure to find ways to connect their traditional reading promotion goals with the online world. Teacher-librarians were encouraged to understand the motivational influence of the digital tools and to accept them as positive and useful in promoting reading.

In the same year (2011), Miranda et al. studied the attitude and response to using e-books by reluctant middle school students at an urban middle school in Texas. About 200 students in the school’s reading improvement classes were given 15-25 minutes during their reading improvement class period to read high-interest chapter books and stories on the Amazon Kindle reader. The study has pointed out several possible issues in using e-text that need to be addressed. These included permissions from school district administration, access to the Internet, ordering of e-material, uploading e-books to the online systems and documenting procedures for e-reader classroom use.

Nwana (2012) in Nigeria conducted an empirical research study which investigated the challenges in the application of e-learning in secondary schools in Onitsha North LGA, Anambra State, Nigeria. Two hundred and twenty-five teachers in public secondary schools were used as the sample for the study.
The findings revealed that, acute shortage of e-learning materials such as online/Internet-connected computers, e-mail facilities, multimedia television, multimedia computer and digital library. It was also revealed that, the few available ones, such as offline/ordinary computers, scanner, printer and ready-made courseware are not utilized because the teachers lack the knowledge and skills of computer application. Only material identified as available and in use was the telephone. It was recommended among other things that, the government should embark on a massive computer training program for teachers. Teachers should be trained and retrained through in-service training, seminars, workshops and conferences for acquisition of the knowledge and skills needed for e-learning application in secondary schools in Nigeria.

Kipsoi et al. (2012) observed the challenges in the adoption of ICT in educational management schools in Kenya. The result of the study found that, the slow rate of adoption of technology despite its promise and potential use in educational management in schools. As such, the study also analyses the lethargy that has pervaded over education management in schools with respect to acquisition of Information Communication Technology. Education and training sector has a major role to play in the implementation of the proposed ICT policy.
First, the sector itself is a major user of ICT, not only in education, training and research but also in the management of the sector. The author recommended that ICT policies must be dynamic, cost-effective, adaptable, and differentiated between sectors and between the various segments of educational management in order to contribute effectively to education management. It is also suggested that the urgent need for the integration of ICTs in educational management in schools in Kenya. In the same year Hoque et al. (2012) found that 84% of the teachers were not aware of the national ICT policy though it exists. The finding of the study also showed that most of the schools (80%) do not have ICT policy at the school level through the facilities and equipment’s of ICT were available in most Malaysian schools.

Almost all the teachers had high level of skills in using computer and profoundly the basic skills needed for teachers in IT are attained by all teachers. Likewise, 95% schools had photocopy machines and scanners while multimedia projector is available in 85% schools. Besides, 72% schools were equipped with a video camera, overhead projector and laptop. However, it is interesting that their expertise and skills were not integrated with educational management or with teaching/ classroom purposes rather they are used for daily administrative purposes. The findings of the study will benefit the policymakers of developing countries, Principals, teachers and other education-related personalities of Malaysia.
In the year 2013, James et al. conducted a study on “Getting Schools Ready for Integration of Pedagogical ICT: the Experience of Secondary Schools in Uganda”. The purpose of the study was to establish whether secondary schools in Uganda are prepared for effective teaching of ICT education. The study was carried out in six secondary schools in Uganda. Both qualitative and quantitative research methods with a descriptive cross-sectional survey design were adapted to collect data from 96 respondents. Questionnaires and interviews were employed as data collection instruments.

The findings of the study showed that, the introduction of ICT education as a subject in the secondary school curriculum is a good policy of the government that will bring in every secondary school graduate to the use of Internet, world of employment creativity, knowledge and use of Internet and other related technologies for national development. The findings further revealed that, the success of the ICT education policy will depend on governments’ effort to recruit well-qualified teachers in the subject, supply of enough computers and the construction of adequate computer laboratories and libraries in all secondary schools and availability of a reliable power supply in the country.
A study by Li and Ranieri (2013) study aimed at exploring the digital divide issues among Chinese children from an educational and social perspective. Four schools were selected, involving 658 students aged 10 to 14 years. The study found that students' Internet access at home was better than that at school. Compared to parents, teachers have more positive influence on students' on Internet behavior. Students from rural or migrant schools score lower on all the Internet inequality indicators (digital access, autonomy of use, social support, Internet use and self-efficacy) and are therefore more disadvantaged in Internet usage status than their urban counterparts. It was also found that the more education parents have received, the better the conditions of their children according to the listed Internet inequality indicators.

Jato et. al., (2014) recommended that there should be library study hour in the school timetable to enable the students to have a specific time to use the school library regularly. They further stated that the inclusion of library study hour on the school timetable would afford the student the opportunity to study more than 30 minutes in the library on regular basis. In the same year, another author Chaudhry (2014) conducted an experimental study on fourth-grade students in an international school in Kuwait. The control group consisted of nine students. The experimental group had 16 students: eight read the book under the “read-to-me” feature and the other half read the book alone.
Students in the two groups were assigned readings randomly and their reactions were studied and compared using different methods. The result of the study has found out that the experiment demonstrated that students enjoyed reading the electronic medium more than the paperback alternative. The difference, however, was not significant. In addition, the difference between the comprehension levels of the three conditions was also insignificant. Students did, however, finish reading the paperback book in a significantly shorter time. The experiment indicated that one of the apparent benefits of reading the e-book was its built-in picture dictionary, as the book used in the study incorporated a lot of word coinage in the texts. Lessons learned from the study can benefit in enhancing features of e-books and designing reading programmes to help build more positive attitude towards reading among children.

A study by Nielen and Adriana (2015) tested the effects of an enriched school library on reading motivation, reading frequency, and academic skills. Fourth and fifth-grade students of 14 schools with an enriched library (n = 272) were compared to fourth and fifth graders from 10 control schools (n = 411). Assignment to the experimental group was external and not determined by participants within schools. Students from schools with enriched libraries scored on an average, half a standard deviation higher on a standardized reading comprehension test than students from control schools.
Mediation analysis revealed that for girls, this effect may have been obtained as a result of an increase in reading motivation and reading frequency. For boys, only reading frequency was a significant mediator. Wickramanayake, (2015) surveyed 135 school libraries drawn at random from two educational zones in Sri Lanka. The objective-oriented close-ended questions used for the study. The study found that the majority of school libraries in Sri Lanka were run by less qualified school librarians with no professional librarianship qualification. Scarcity of appropriate library buildings, inadequate funding and lack of reading materials and other physical resources were common among the studied school libraries. Unavailability of dedicated time slots within the school timetable for library and information skills sessions had significantly decreased the library usage by students. It was also found that school librarians had rather negative attitudes concerning their job.

Recently, Baro and Eze (2016) recommended that the library skills that are relevant to the effective identification and location of library resources should be taught to secondary school students. These should include library orientation, the library catalogue and its uses, classification and shelf arrangement. When students enter the secondary school in the first year they need to be formally introduced into the library, its working and resources.
Another relevant library skill to be taught in the secondary school is related to the effective use of books. These include how to identify a book, parts of a book and their uses as well as different kinds of books and their purposes.

2.4. Studies conducted at National level

Comparatively there were very few studies conducted in India regarding the use of ICT and digital divide. A study by Rao (2005) highlighted digital divide in India by discussing its infrastructural bottleneck that includes electricity, IT penetration, teledensity and Internet industry, and its enabling policies to transform India as a knowledge society. It discussed the various technology options for connectivity, viz. terrestrial wireless, satellite, wireline, etc. and presents snapshots of select successful projects that made an impact in helping to bridge digital divide in India, viz. passenger reservation system, Akashganga, Akshaya e-centres, Bhoomi, etc.

Rai (2006) investigated on “ICT for Curriculum Support and Teaching”. This paper focused on the use of Information and Communications Technology in education, with an emphasis on the tools, framework architecture for designing curriculum and the impact on teaching, curriculum and learning environment of ICT. The government’s current ICT policy in education is then explained, together with a review of the status in the implementation, regarding the four aspects of access and connectivity, teacher ennoblement,
curriculum and support, and community-wide culture. Issues and concerns facing teachers and schools were addressed in this movement towards the integration of technology in education.

A study by Bhardwaj (2006) showed that there has been a steady but slow progress in the availability of ICT facilities for students in India. In the study, the author made an attempt to assess the length of time that computers had been with schools. It was found that only a minuscule percentage of schools had computers 8 years back. These were also more noticeable in the urban areas which clearly points to the fact that computers first became accessible in towns. Access of Government School students to ICT tools outside school was in generally low. The access of Private School students to such devices was comparably better and pre-dominantly at home which implied a better socio-economic condition.

Sharma et al. (2009) conducted a study on “Digital divide in education” and they observed that all private schools are providing computer education with the use ICT tools whereas this number is less than half in government schools. The computer education is introduced at almost all the private schools whereas it has been introduced optionally in government schools only at the higher secondary level. The students enrolled in Government schools are being deprived of the ICT education and becoming victims of the digital divide in education.
Further, authors stated that in Jammu and Kashmir State, there was a huge gap between the resources available, quality of education and the facilities provided by government and private schools to their students. On one side most of the private schools were providing an efficient and resourceful atmosphere to their students but on the other side most of the government school students are deprived of basic needs of ICT. A study by Kumar (2012) highlighted the India’s position in the use of Internet and Computers technology. Initiatives taken by Indian government, Non-Governmental Organisations (NGOs) and library and information centres in India to help bridging the gap were emphasized. The study also described the importance of e-governance implementation to promote digital opportunities. The responsibilities of library and information professionals are acknowledged and a proposal for libraries to proactively involve in setting up the directions to overcome digital divide is outlined.

In the same year Khedekar and Magre (2012) conducted a study on “A Study of Information and Communication Technology Awareness and Academic Performance of Secondary Students”. The study focused on the awareness of Information and Communication Technology of Secondary students and ascertains relationship between awareness of ICT and Academic Performance of SSC, CBSE and ICSE Secondary students with respect to gender and school types.
The result of the study found that there was a significant relationship between the awareness of Information and Communication Technology and perceived impact of ICT on Academic Performance of Secondary students with respect to gender and school type. ICT awareness was there in students of SSC, ICSE and CBSE boards, but there is a significant difference in ICT awareness and perceived impact on academic performance on the basis of gender and type of schools. A Study by Dedun (2013) revealed that, there was significant difference between male and female teachers mean score of attitude scale for use of ICT in classroom, In which, male teacher’s attitude towards use of ICT in classroom was more positive compared to the female teachers.

There was a significant difference between granted school and self-financed school teachers mean score of attitude scale for the use of ICT in the classroom. Self-financed school teachers attitude towards use of ICT in classroom is more positive compared to a granted school teacher. The study also found that, there was no significant difference between Gujarati and English medium school teachers mean score of attitude scale for use of ICT in classroom. English medium school teachers’ attitude towards use of ICT in classroom is more positive compared to the Gujarati medium school teachers.
Sampath Kumar et al. (2014) conducted a study on Computer literacy competencies among Indian students. The result of the study found that, majority (91.33%) of urban students used computers while only 32.33% of rural students used computer for their academic work. The most notable finding of the study was that 67.66% of rural students never used computer.

The findings of the study shows that the majority of urban students (47.44%) used computers every day while 45.25% of students used computers two to three days a week and only 7.29% of urban students used computers once in a week. 79.38% of rural students used computers once in a week and only 15.46% of them used one every day. Most of the rural school students not used computers mainly because they didn’t know how to use computers (49.75%) followed by a lack of support from teachers (48.76%). 48.27% of rural students stated that non-availability of computers and inconvenience about the use of computers in schools (47.78%) were also the main reasons for not using the computers.

The study also revealed that the majority of urban students (93.79%) used computers at school followed by home (39.78%) and then at neighbors’ or friends’ home (28.83%). Comparatively fewer rural students used computers at school (56.7%) followed by home (13.4%). majority of urban students (97.81%) reported that they learned computers with the help of teachers and a few students also
learned with the help of parents (14.96%) and by reading books (12.04%). The majority of urban students used computers to play games (85.40%) followed by using Internet (30.65%) and watching cartoons (19.12%) while a much lower percentage of urban students used computers for class assignments (18.61%) and to see exam results (17.51%). The findings of the study also showed that power failure was the major problem faced by both the rural and urban students (31.75% urban students, 40.2% rural students) and other major issues faced by rural students were: inadequate computers in schools (30.92%), lack of support from teachers (26.80%) and lack of support from parents (21.64%).

A study by Haneefa, (2015) discussed three basic levels of digital divide among students. The first level concerns the difference in ICT equipment. Second level of the digital divide indicates the differences in the use of the Internet and the third level of digital divide describes the disparity of performance in education using ICT. Educational level of individuals is often reported to correlate with digital inequality. The academic level of students depends upon their socioeconomic, cultural and psychological factors. To bridge the digital divide, co-ordinated efforts may be needed by governments, educational authorities, teachers and parents. Educators can make an attempt to identify more institutional and societal factors that may cause to the widening the digital divide so that they can incorporate equity strategies in their
educational institution. Government can make encouraging steps to improve the ICT infrastructure in educational institutions.

Another study by Sampath Kumar & Basavaraja (2016) found that only 32.33% of students used computers for their academic work, 72% of female and 63.33% of male students have not used computers. Most of students opined that lack of support from teachers (91.57%- Male, 94.25%- Female) non-availability of computer at home and schools (82.10%- Male, 80.55%- Female) were main reasons for not using computers. Notable finding of the study was that 93.68 % of male and 95.37 % of female students were interested to use computers.

The study also noticed that students were interest to use computer at home (70.78% of male and 80.58 % of female) and school library (61.79% of male and 75.72 % of female). It also found that the majority 95.50 % of male and 89.32% of female students expected the Internet facility to their schools. Students were also expected computers (male -83.14% and female-82.52 %) and to appoint computer teachers to teach computer application to them (77.52% of male and 78.64% of female) and also expected that the state/local government should establish computer lab and provide Internet facility in rural schools.
2.5. Conclusion

The review of literature discussed in the above sections clearly showed that plethora on literature found related to the use of ICT in school education and computer literacy competencies among the students at International and National level. After reviewing the literature, it has been noticed that there were no comprehensive and in-depth study on computer literacy competencies among the rural and urban students and digital divide in India. Further, there were no studies on the role of the school libraries in bridging the digital divide. With this background, the present study has been undertaken to know the ICT literacy competencies among school students and the digital divide and the role of school libraries in bridging the digital divide.


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