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Indian Trainee Teachers' Perceptions of 21st Century Skills

Abstract

National Curriculum Framework for Teacher Education (NCFTE) provided a meaningful pathway to develop 'reflective teachers', creating a cadre of confident, effective and efficacious teachers for 21st century's fast changing Indian society who can teach effectively in diverse classrooms and for this to happen 21st century skills need to be focussed. This study sought to investigate the Indian trainee teachers' perception of those skills, to what extent these skills were integrated in Indian teacher education programmes and challenges against this integration. A survey was administered following descriptive method within ex-post-facto research design among 500 final year trainee teachers from 50 teachers' training colleges stratified random sampling technique. Data were analysed descriptively and inferentially. The findings revealed that few such skills were partially integrated while few others were poorly integrated. Significant differences were found in ingestion of these skills between trainees' of private and government teacher training colleges. The study also noted the challenges in integrating these skills that will provide valuable reference for teacher education curriculum planning and implementation with a view of providing a holistic educational experience among trainee teachers across the country.

Keywords: Trainee teachers; Teacher education; National Curriculum Framework for Teacher Education (NCFTE); 21st century teaching skills; India.

Introduction

John Dewey (1910) said "if we teach today's students as we taught yesterday's, we rob them of tomorrow", that implies we must offer students authentic learning experiences that prepare them for the ever-evolving challenges that lie ahead and engage, equip and ready them to lead into the 21st Century. Chronologically we are in 21st century and education in the 21st century is profoundly affected by changes in society: globalization, technology, labour market dynamics, immigration etc. (Cretu, 2017). 21st century has brought its own changes and challenges which demand that teachers be properly prepared, trained and equipped with the right skills which will help them to deal with such challenges in their profession because, quality of teachers

determines the quality of education that is linked with nation's development (Trilling & Fadel, 2009). The effect of globalization and other pressures and challenges such as the rapid technological advancements, changing patterns of work, explosion in information access and use have brought in certain demands on education such that the inculcation of 21st century skills has become a necessity because 21st century teaching is however a different perspective, learning could never happen the way it is happening these times (Stewart, 2014). The American Association of Colleges for Teacher Education (AACTE) and the Partnership for 21st Century Skills believe new teacher candidates must be equipped with 21st century knowledge and skills and learn how to integrate them into their classroom practice for our nation to realize its goal of successfully meeting the

challenges of this century (AACTE, 2010). Changes in the demand for skills have profound implications for the competencies which teachers themselves need to acquire to effectively teach 21st century skills to their students (OECD, 2012 cited as Andreas, S. 2012).

Clark (2009) expressed a need for 21st century students who not only are prepared for the technology of the changing world, but to acquire other skills needed in the workforce, such as problem solving and leadership skills. Therefore, for students to be well equipped with the necessary skills, they are supposed to be taught by teachers who have felt skills those in their lives, having a good command of those skills, and are able to transmit those skills to their students (Saavedra & Opfer, 2012). Many nations around the world have undertaken wide-ranging reforms of curriculum, instruction, and assessments with the intention of better preparing all children for the higher educational demands of life and work in the 21st century, what are the skills that young people need to be successful in this rapidly changing world and what competencies do teachers need, in turn, to effectively teach those skills to their students (Schleicher, A., 2012). It is also an established fact that many countries globally face the problem of shortage of teachers to meet the requirements of their education systems (Santina, 2014). Due to such shortages, countries emphasize on expanding teacher education to increase output without much consideration about the necessary critical skills required for these teachers to be effective in the 21st century classrooms (Saavedra & Opfer, 2012). Former USA President Bill Clinton (1998) stated in his 'Call for Action for American Education in the 21st Century' that, every community should have a talented and dedicated teacher in every classroom and consequently, the emphasis on massive training of teachers without integrating the much required skills would, therefore, mean wastage of resources. NCFTE, (2009) also stated it is well known that the quality and

extent of learner achievement are determined primarily by teachers' competence, sensitivity and motivation that constitute a critical component of the essential learning conditions for achieving the educational goals. Thus quality teachers are the key factor for sustainable global development, and their training, recruitment, retention, status and working conditions are among global priorities today (Kumar & Azad, 2016) and in this context this research topic deserves a good attention for a developing country like India being the home of 193 million school going children. The specific research questions being investigated were-

- I. How is the perception of Indian trainee teachers regarding 21st century teaching skills being integrated in their course?
- II. What are the possible challenges in conceptualising these skills in their training course?

21st Century Skills for Pre-Service Teachers

The foundation of the '21st century skills', elements and definitions stem from the framework presented by *Partnership for 21st Century Skills* (Dede, 2010), the term 21st century skills is generally used to refer to certain core competencies such as Creativity, Critical thinking, Communication, Collaboration, and Information, media, and technology skills (henceforth IMTS) that schools need to teach to help students thrive in today's world (Pacific Policy Research Center, 2010; Saavedra & Opfer 2012) because today's youth are to face a rapidly changing world, requiring them to move beyond basic formulaic knowledge and skills. The current educational policy, represents a shift away from rote learning and memorization of facts to the development of the 21st century skills (Urbani, Roshandel, Michaels & Truesdell, 2017) and this tone was also reverberated in the latest National Curriculum Framework of India (NCF, 2005). 21st century learning means students master content while producing, synthesizing and

evaluating information from a wide variety of subjects and sources with an understanding of and respect for diverse culture (Rich, Elizabeth, 2010). For this purpose Fidel-and Trilling (as cited in Romero, Usart and Ott, 2015) defines 21st century skills as the new

set of skills required for success in learning, working and living. Michaels, Truesdell & Brown (2015) defined the 21st century skills for pre-service teachers in a comprehensible manner as mentioned below in Table 1.

Table 1: Definition of 21st century skills for pre-service teachers.

Creativity	Creativity is the ability to develop, choose, and integrate novel, unconventional, and innovative approaches to teaching and learning.
Critical Thinking	Critical thinking is the ability to effectively use higher order thinking skills to plan, teach, and reflect on instructional practice while integrating and applying theories of teaching, learning, and development.
Communication	Communication is the ability to successfully use interpersonal skills and components of literacy (reading, writing, speaking, and listening) to contribute to teaching, learning, and development
Collaboration	Collaboration is the ability to work productively and equitably while valuing others in diverse educational settings.
Information, Media, and Technology Skills (IMTS)	IMTS is the ability to access, manage, apply, analyse, and evaluate digital information and instructional technological tools. This includes leveraging technology innovatively and effectively in diverse learning environments to collaborate, communicate, think critically, and create new functions in the midst of rapidly changing technological advances.

Arguably, it is imperative for teacher educators to enhance their own 21st century skills in order to transfer this skill set to their students (Rust & Bergey, 2014; White & Chant, 2014; Michaels, Roshandel, Truesdell & Urbani, 2015). Grounded in cognitive apprenticeship theory, constructivist approaches to human learning that emphasizes the importance of the process in which a master of a skill teaches that skill to an apprentice (Collins, Brown, & Newman, 1987; Brown, Collins, & Duguid, 1989), this process starts with foundational course work upon entrance into the program, followed by applications to the field and continued development as in-service teachers (Collins, 2006). These skills are not novel to today's educational and business settings (Rotherham & Willingham, 2009; Silva, 2009) and these skills have been integral elements throughout human history; however, how these skills are taught and developed in K-12 schools has evolved

as a burning issue (Urbani, Roshandel, Michaels, & Truesdell, 2017). Teacher education programs should be expected to start this process by facilitating pre-service teachers' exploration and reflection on these competencies to apply them within their classrooms, so they continue to develop and learn throughout their careers (Darling-Hammond, 2006).

Brief Country Profile in Teacher Training

UNESCO-ILO (2010) stated that teacher quality is an important consideration in student achievement, and although defined differently by different people, it continues to be a central concern of those responsible for teacher education. India has the world's third largest educational system and is among the largest systems of teacher education in the world (Kumar & Azad, 2016). National Curriculum Framework (NCF) 2005 places

different demands and expectations on the teacher, which need to be addressed both by initial and continuing teacher education and the importance of competent teachers to the nation's school system, can in no way be over emphasized (NCFTE, 2009). Mohanty (2015) said quality teachers are products of quality teacher education programs, policies and practices but it continues to be a challenge for every nation to produce well prepared and effective teachers. Recently 'Sarva Shiksha Abhiyan' or 'Education for All'(SSA), and implementation of 'Right to Education act' (RTE, 2009) coupled with Sustainable Development Goals (UNDP) have produced a huge requirement of teachers and to meet this new challenge, our country needs good teachers in large numbers (Kumar & Azad, 2016). In several past studies show that Indian teacher education is infested with numerous problems like, institutional inertia, brand inequity, quality crisis, overgrowing establishment, rare humane and professional teachers, poor integration of skills, alienated and incompatible modes of teacher education, little contribution to higher education, domain pedagogy mismatches, identity crisis, rare innovations, stake holders' non-alignment, inadequate technology infusion, little choice base, poor research scenario, vision and vision mismatches, non-scientific manpower planning, illusive laboratories, over activism of distance/open universities, invalid recognition and accreditation, poor monitoring, privatisation, lack of dedication among would be teachers, and no robust teacher education policy (Chand, 2015; Desai, 2012; Jamwal, 2012; Desai, 2012; Goel, 2012; NCTE, 2009; Chowdhury, 2017). NCFTE, (2009) also observed in the same line that rapid expansion of teacher training countrywide has taken a heavy toll on quality parameters of infrastructural provision, faculty qualification, learning resources and student profile. Verma Commission (2013) observed around 90 per cent of pre-service teacher education institutions are in the non-government sector, and most of the states of the east and the north-east are facing an acute shortage of

institutional capacity of teacher preparation vis-à-vis the demand. Thus Indian teacher education system has been suffering from several needs and malnourishment that need urgent and dramatic changes in policy and practice. In this regards, Goel & Goel (2012) rightly mentioned in their study that certain skills as life skills, techno-pedagogic skills, info-savvy skills, emotional skills, human developmental skills and spiritual skills need to be integrated in the teacher education programmes and there should be simultaneous focus on the creative thinking, critical thinking, self and social management skills as country's present teacher education system fails to integrate these skills within learners, similarly Jamwal (2012) stressed on the deep incorporation of ICT in educational activities of trainee teachers, Khirwadkar (2014) stressed on the pedagogical aspects of ICT integration, Kaur, (2013) stressed on the need of professional expertise and skills needed for a good teacher and inculcate them within 21st century students. In this line of research the current study is of immense importance as it will depict a picture of developing 21st century skills and the formation of the reflective teachers from among the Indian trainee teachers.

Method

This study followed descriptive survey method within ex-post-facto research design; the details regarding the method of research design, sample, research instruments, procedure of data collection and statistical technique were reported in this section.

Sites and Participants

The study was conducted following a stratified random sample comprising of 300 male and 200 female trainee teachers pursuing the same Bachelor of Education (B. Ed) program in 2016-18 session in 50 different teachers' training colleges of India, out of which 25 were government managed and 25 were privately managed. A stratified random sampling technique was used to give

representation of different cultures, zones and geographical locations with an aim to get a holistic picture. The actual names of the participants and the colleges were withheld following ethical issues. In course of the study 40 trainee teachers (20 from government and 20 from private colleges) were interviewed to help in-depth analysis of their perception and to find a reason behind such perceptions. The demographic detail of the participants is presented below in Table 2.

Table 2: Demographic information of the participants

Variables	Frequency	%
Gender		
Male	250	50
Female	250	50
Age		
20–25	275	55
26–30	185	37
More than 30	40	8
Academic qualification		
Graduate	125	25
Post-graduate	375	75
Year of study		
2nd Year/Final year	500	100
Management		
Government	250	50
Private	250	50

Tools

The following research tools were used in the present study for collection of data. The tools were selected by applying benchmark of relevance, appropriateness, reliability, validity and suitability. Brief descriptions of the tools are hereby presented.

Questionnaire: A researcher made questionnaire was used to collect opinion of the trainee teachers regarding 21st century skills having 25 question items in 5 domains-Creativity skill, Critical thinking skills, Communication skills, Collaboration skills and IMTS skills (Appendix-I). The questionnaire was standardized taking help of experts and overall reliability measure

Cronbach's alpha found 0.83 and 0.85, 0.81, 0.86, 0.82, and 0.83 in its five domains respectively. This self-report measure is scored on a five-point Likert Scale, ranging from "Strongly agree" to "Strongly disagree", with higher scores indicating better perception of skills.

Interview: To help in-depth analysis of their perception and to find reasons behind their perceptions an interview protocol was also developed and 40 trainees (20 from government colleges and 20 from private colleges) were interviewed in face-to-face mode. There had been both open ended and closed ended questions. Interviews with the student teachers were conducted in venues of their choice away from any form of distraction and for the purposes of confidentiality. Each interview lasted for not more than half an hour. With permission from the research participants, all the interviews were audio recorded so that the researchers could listen to them carefully for more insights.

Observation: An in-depth observation was also taken into the classrooms specially computer labs and current teaching modules for B.Ed colleges including National Curriculum Framework for Teacher Education (NCFTE, 2009).

Data-collection

The researchers explained the 21st century skills to the research participants to have a clear understanding of those skills. A pilot version of the surveys was initially administered to a limited number of respondents with different characteristics to establish the effectiveness of the designed tools. Testing the survey design helped ensure that the used terms were easily perceived, as well as to check for validity (i.e. the items were asking what we wanted to learn) and consistency. One-on-one, face-to-face semi-structured interviews were used in this study to get an in depth insight into the issues. The principals of the selected colleges were communicated for his/her permission to allow collecting the relevant data, and

data were collected by administering the above-mentioned tools on the subjects under study in accordance with the directions provided in the manual of the tools. Three to four days visit to each college was taken for data collection and all 500 respondents were served questionnaires and all 500 questionnaires were carefully collected and the response rate was 100%.

Data Analysis

Data were analyzed in accordance with each research approach and results were presented in several tables. Descriptive as well as inferential statistics and underlying relationships between the variables were found out by computing appropriate statistics with the help of SPSS-20.0 software. Descriptive statistics (mean and SD) were used to evaluate trainee teachers' perception of skills. Independent Samples t-tests were conducted to find out the statistical significance of the differences in perception between male and female trainees and government and private college trainees and reported in APA formats. Two statistical hypotheses were also formulated as mentioned below.

Hypotheses

The following statistical hypotheses were framed to and tested before reaching statistical inference.

- I. There is no difference in perception of 21st century skills between male and female trainees.
- II. There is no difference in perception of 21st century skills between government and private college trainees.

Results

The results of this study, the overall perception of the trainee teachers' regarding ingestion of 21st century teaching skills are presented in this section including 5 domains, supported by data tables where necessary.

Overall Perception of Skills

The overall perception of Indian trainee teachers in 21st century teaching skill is found moderately high ($M=81.2$, $SD=4.8$) in the range of scores (Min-25, Max.-125) which is found positively skewed (Mean= $81.2 >$ Mode 76) that indicates maximum scores fall towards the lower side of the scale and there are very few higher scores. The Figure 1 shows the distribution of the scores is close to normal distribution.

Table 3: Trainee Teachers' Perception of 21st Century Skills

Variables	Mean	Std. Deviation
Gender		
Male	82.32	4.35
Female	82.23	4.6
Management		
Government	81.84	4.75
Private	80.77	4.88
Overall	81.2	4.8

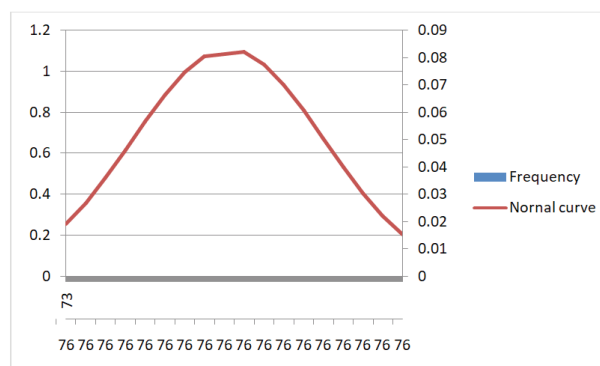


Figure 1: Frequency distribution of perception scores

Further analysis reveals that there is no mentionable difference between male ($M=82.32$, $SD=4.35$) and female ($M=82.23$, $SD=4.6$) trainees and the slight difference that is observed is not statistically significant as the t-test result in Table 4 shows $t(494) = 2.23$, $p=0.81 > 0.05$ (critical value) and the 1st Null hypothesis is accepted and there is no statistically significant difference in perception of 21st century skills between male and female trainees.

Table 4: Perception of male trainees compared to females on 21st century skills

	Mean	SD	t-cal	t-crit	df	p	Decision
Male	82.32	4.35	2.23	1.38	494	0.81	Accept
Female	82.23	4.6					

To test the 2nd Null hypothesis another t-test was conducted and the findings are reported in Table 5 that shows $t(494) = 2.4$, $p = 0.004 < 0.05$ (critical value) and the 2nd Null hypothesis is rejected which means there is statistically significant difference

of perception in 21st century skills between government and private college trainees and the perception of skills is better among government college trainees ($M=81.83$) than their mates in private colleges ($M=80.8$).

Table 5: Perception of government college trainees compared private on skills

	Mean	SD	t-cal	t-crit	df	p	Decision
Government	81.83	4.75	2.4	1.65	496	0.004*	Reject
Private	80.8	4.88					

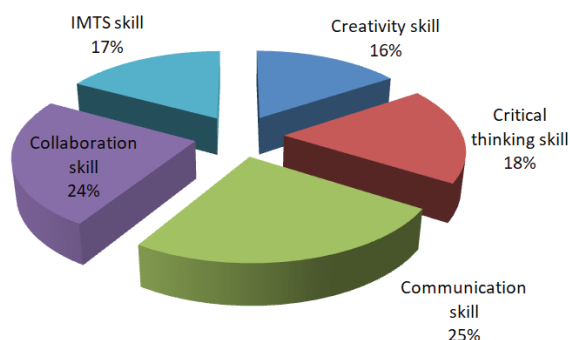
* $p=0.004 < 0.05$ (critical value)

Perception in different Domains of Skills

A further division of skill perception in five different domains as shown in Table 6 reveals that Indian trainee teachers have comparatively high perception in certain domain like Communication skill ($M=21.16$, $SD=2.36$), Collaboration skill ($M=20.62$, $SD=1.98$) while in other domains they are found low perception like Creativity skill ($M=13.32$, $SD=2.03$) Critical thinking's skill ($M=15.65$, $SD=2.15$) and IMTS skill ($M=14.52$, $SD=2.24$) which is further made evident in the pi-diagram in Figure 2 that shows trainees have the highest level of perception in Communication skill (25%) followed by Collaboration skill (24%), Critical thinking skill (18%), and IMTS skill (17%).

Table 6: Trainee teachers' perception of 21st century skills in different domains

Domains	Mean	SD
Creativity skill	13.32	2.03
Critical thinking skill	15.65	2.15
Communication skill	21.16	2.36
Collaboration skill	20.62	1.98
IMTS skill	14.52	2.24
Overall	81.2	4.8

**Figure 2:** Pie-diagram of perception in different 21st century skill domains

An analysis of the raw scores reveals that 53% respondent trainees disagree with the proposition in Item No. 1 in the questionnaire that their program is efficient to develop critical thinking in them and only 21% show agree while 26% remain neutral. In Item No. 5, 65% respondents show disagree that their program allows 'six thinking hats' which is tool for group discussion and individual thinking during micro-teaching, while only 19% show agree. In Item No. 9 regarding respondents' overall perception of nourishment of critical thinking faculties in their program which unequivocally shows respondents are dissatisfied with the existing opportunities in their program to develop this 21st century skill when 53% respondents show disagree,

26% remain indecisive and only 19% show agree with the statement. In Item No. 10, 46% respondents show disagree that their program gives opportunity for inquiry and questioning and 25% show agree. In Item No. 25 of the questionnaire majority of 55% respondents disagree when we asked them if their program is helpful in developing their confident in using ICT during classroom instruction. In Item No. 22, 62% respondents disagree on the question of using ICT during micro-teaching classes and in Item No. 23, 61% respondents show disagree on the question of mandatory use of media and ICT during practice teaching.

Discussions

This section discusses the findings according to each research question following the research theme of the study.

Question 1: How is the perception of Indian trainee teachers regarding 21st century teaching skills being integrated in their course?

The study found that the Indian pre-service training teachers' overall perception of 21st century skills is of moderate level having enough place of improvement and the perception of government college trainees were better than their colleagues in private colleges and this difference was found statistically significant. But no statistically significant difference of perception between male and female trainees was found. Few skills like Communication skill and Collaborative skill were found partially integrated but other skills like Creativity, Critical thinking and IMTs skills were found poorly integrated.

Partially Integrated Skills

From the responses of participants it is evident that the majority of them think they have incorporated with the skills like Communication and Collaboration, still the study found in all parameters of these two skills, a significant number of respondents

remain 'neutral' which is an impediment in accepting that the program is successful in developing students' Communication and Collaboration skills among trainee teachers. Besides a large number of trainees were found disagree which can't be ignored and in the parameters of Interpersonal skills (Item No. 13) or Cross cultural awareness (Item No. 14) majority of respondents found disagree. Participants also noted that skills such as global and cross cultural awareness and interpersonal skills are not effectively learnt. It was particularly emphasized that interpersonal skills are very important for a democratic society. Participants seemed to suggest that as prospective teachers; they need to learn how to relate with others and in this context one interview participant said,

"... I think teachers should have strong interpersonal skill to relate to his students and the society outside to create a robust learning environment for his students."

Another participant said,

"...to teach the students in this globalised era, teachers need interpersonal and cross-cultural communication skills but I feel our course is less inventive in this respect, and I personally felt no tips to inspire these skills among student teachers."

The participants believed that it is very important for teachers to be culturally and globally aware. This validates the argument made by Stewart (2014); Young, Grant, Mounbriand and Terriault (2001); Haciomeroglu, (2013) that students have to be internationally prepared with international knowledge, strong training in languages, and deeper cultural understanding. For this reason, participants seemed to suggest that overall communicative and co-operative skills including interpersonal skills need to be emphasized in the curriculum to allow teachers greater exposure to in this globalised era and to make them effective agents for social transformation as NCFTE (2009) claimed that learning is not confined to the four walls of the classroom and for this to happen, there is a need to connect

knowledge to life outside the school and enrich the curriculum by making it less textbook-cantered.

Poorly Integrated Skills

From the participants' response it is evident that 21st century skills like Creativity, Critical thinking and ITMS are found poorly integrated in the said training program as evident from Table 5. In all parameters whether it is brainstorming or research or giving constructive feedback, trainee teachers showed dissatisfaction with their program. In Critical thinking skill also, respondent student-teachers found dissatisfied as majority of them neither get opportunity for inquiry nor get the opportunity to participate in debates in regular intervals and this finding was also echoed in NCFTE (2009) that recommended in favour of developing 'reflective teacher' with creative potential, positive attitudes, values and skills for the craft of teaching. Regarding ITMS skill also respondents showed dissatisfaction. In all the five question items (Item No. 21-25) respondents found disagree with clear majority margins while ITMS or ICT skills are very essential in a 21st century classroom. Respondents were, however, quick to note that computer skills are very important in today's world and especially when India is rapidly advancing in technology integration especially in Information and Communication Technology (ICT), and information explosion is very high (Bharadwaj, V., 2007; Kundu, et. al, 2018; Bindu C.N., 2019). With the onset and proliferation of ICT, there is a growing demand that it be included in school education but NCFTE (2009) also found it has become more of a fashion statement to have computers or multimedia in schools, the result being that in spite of its potential to make learning liberating, its implementation is often not more than cosmetic.

Question 2: What are the possible challenges in conceptualising these skills in their training course?

From the survey results it is evident that 21st century teaching skills are not

satisfactorily nurtured in Indian teacher education program. Now we went to find out the possible challenges in conceptualising these skills during the interview with the participants because finding those challenges could help in the better integration of those skills into the teachers' training programme. Therefore, the interview protocol was formed focussing on the discernible challenges. From interview outcomes we came to learn that, even though participants believed that such skills are very crucial, but the curriculum seems to not successfully match with the skills requirements. It was observed that trainees had to cover too many course modules per semester. As such they spent most of the time memorizing the subject matter so that they could pass the exams with a good score rather than internalize or thinking about the skills. Here the remark of one trainee is worth mentioning, who said-

“...in our country assessment of skill comes later and what comes forefront is the marks, without which a trainee will never be offered with a job, therefore, we focus more on gathering marks than gathering those soft skills.”

The respondents stated critical thinking and knowledge application skills as difficult to develop since they rush through and memorize content in order to pass the examinations; they had to give preference on knowledge over wisdom, baffling the high idealism as guided by NCFTE(2009) that teachers need to be prepared to care for children, enjoy to be with them, seek knowledge, own responsibility towards society and work to build a better world, develop sensitivity to the problems of the learners, commitment to justice and zeal for social reconstruction. However, one would think that because they cover many subjects per semester, one could become a more critical thinker, more creative and more imaginative since he/she has to think, study and work hard in order to make sense and successfully navigate through the courses but Henry, Nyaga & Oundo (2014) showed in their study that examination oriented teaching may not help students to achieve their academic aspirations because here teachers concentrate on the cognitive

domain; equipping learners with knowledge and theoretical skills through examination oriented teaching which would enable them pass examinations instead of providing a holistic educational experience.

Another challenge is that Indian teacher education program focuses more on theory and less on practice which is mentioned in several past studies as well (Jamwal, 2012; Desai, 2012). Moreover, the time for practice is not sufficient to prepare the teachers for working in the field. In this context one respondent trainee said-

"....duration of the practice teaching we get in our curriculum is very short to develop those skills or consolidate them by practicing in a real situation."

Another trainee said,

".....during practice teaching we are not allowed to use any ICT device and we follow the pedagogy used by the teachers in the respective school and no scope for inventive pedagogy practice."

Teacher education programmes need to help teachers appreciate the potential of hands-on experience as a pedagogic medium both inside and outside the classroom; and work as integral to the process of education (NCFTE, 2009). Verma Commission (2013) also observed and recommended in the similar manner that every pre-service teacher education institution should have a dedicated school attached to it as a laboratory where student teachers get opportunities to experiment with new ideas and hone their capacities and skills to become reflective practitioners. This observation goes in line with that of Darling-Hammond (2006) who also observed that strong teacher training programmes among other things are those that have an extended period of internship. But teacher education programmes in India are not aligned with teaching practice and thus do not appeal to the 21st century teaching-learning. All these hamper the development of a 'reflective teacher' and transmission of 21st century skills.

It was also found that the Indian way of teaching is a challenge to successful

integrationsuch skills in the teaching-learning that most teachers follow the same old lecture methods that do not make students get involved, and teacher educators' is no exception. They also follow the note based exam oriented pedagogy and trainees are to follow him without questioning since a threat perception prevails in the teacher-student relationship. Admitting this drawback one trainee teacher of a government college said-

"....most of our teachers follow a lecture method based on note demonstration, and we are to copy them because these are going to be set in the examination question."

Thus the reality is awe-inspiring and seems difficult to come out of the strong traditionalism and reactionary attitude, omnipresent in life around us. These colonial norms even in the teacher training colleges deprive trainees' chances of individual thinking, research and group discussions, and minimising education to a task of 'copy-paste'. Making students involved in the learning process would allow them to learn intercultural skills, communication skills, team work, critical thinking, imagination and leadership skills which are necessary for the 21st century classes. Korthagen, Loughran, & Russell(2006) also said that teacher education programmes are being accused of misalignment between teacher training and reality in schools where they note that there is too much reliance on lectures during theory work. Even though document analysis, during observation, showed that university training modules of National Curriculum Framework for Teacher Education (NCFTE) for teacher education show a clear commitment to increasing opportunities for teachers to develop the requisite competencies, this seems to only appear on paper.

Conclusion

The findings of this study reveal that the Indian teacher education program is not effective in developing the 21st century teaching skills among trainee teachers up to the satisfactory

level. Out of the five discussed skills in this study, Communication and Collaboration skills were shown getting moderate level of success in respect of their ingestion whereas Creativity, Critical thinking and ITMS skills were found to be poorly integrated. The acquisition of such skills would enable the teacher trainees to be able to deal with the ever changing terrain of the contemporary teaching profession (Msiska & Salik, 2016). The study further investigated the challenges in conceptualisation of these skills and it came out that following a rote based teacher centered approach, age-old exam oriented curriculum, lack of motivation on the parts of all stakeholders, lack of infrastructure and a reactionary mindset towards technology integration in teaching are some of the prominent challenges that hamper the acquisition of these skills. There are, however, several areas where the Indian teacher education programmes need to improve that include skills of nurturing creativity, technological skills, as well as cross cultural and global awareness skills. Teaching practice period is not enough to adequately prepare teachers for the skill

development and need to extend and focus on the teaching practicum. There is also need to strengthen cross cultural awareness, interpersonal and other skills that have not yet been integrated into the Indian teacher education programmes so that the teachers are fully equipped for the 'reflective teacher'. The Indian teachers' teaching methodologies also need to change deserting the individualistic teacher-centric traditional methods which Lemley and Schumacher (2014) note that are fast becoming irrelevant, and by adopting interactive and innovative approach adapting to new collaborative, team-centered methods that appeal to the 21st century learning environment. Trainee teachers need guidance in applying their knowledge to learning activities for their students as well as support in how to do so in various educational contexts. Teacher education programs need to provide more hands-on experience with technology and guidance on how to implement IMTS into teaching. Therefore, teacher educators need to consistently integrate new technologies to enhance their instruction and model these techniques for their students.

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Appendix: I

Questionnaire						
Perception of 12st century skills						
The following are 25 questions on few vital skills a teacher needs to teach in a 21 st century class. Please find those skills and report your perceptions on those skills how far those skills incorporated in your B. Ed program are or how far your course gives you confidence in attaining and integrating those skills in your teaching, in the 5-point scale provided at the right end of each question. Please show your perception by putting a Tick (✓) on the appropriate number where 1= Strongly Disagree, 2= Disagree, 3=Neutral, 4= Agree and 5= Strongly Agree. If you have not experienced this feeling, or if the item is inappropriate for your position, circle number 1 (no strength; not noticeable).						
		1	2	3	4	5
Creativity skill						
1	I think my program is efficient to develop critical thinking in you.					
2	I get constructive feedbacks regarding my performance.					
3	My program encourages me to participate in projects or researches.					
4	My program arrange regular brainstorming session					
5	My program allows 'six thinking hats' during the micro-teaching sessions.					
Critical thinking skill						
6	My program gives opportunity for inquiry and questioning.					
7	My program encompasses regular debates or seminars.					
8	My program focuses on understanding and interpreting knowledge.					
9	My program is helpful for developing my critical thinking faculties.					
10	My program follows problem solving approach.					
Communication skill						
11	My program gives opportunity for ample interaction between teachers and students.					
12	My program gives freedom to express your ideas.					
13	My program gives scope to learn interpersonal skills.					
14	My program helps me in developing a global and cross cultural awareness.					
15	My program gives me scope to communicate with school students.					
Collaboration skill						
16	My program endorses group work activities among students.					
17	I get adequate peer support.					
18	My program encourages 'gallery tour' or 'reciprocal teaching'.					
19	I share course related ideas with my colleagues.					
20	I think my program is strongly built to develop collaborative mindset in me.					
Information, Media, and Technology Skills (IMTS) skill						
21	My program encourages computer and ICT skill development.					
22	I use ICT during micro-teaching classes.					
23	My program encourages a mandatory use of media and ICT during practice teaching.					
24	My program has adequate provisions for ICT classes.					
25	My program is helpful in developing my confidence in using ICT during classroom instruction.					