

Why the Optimism Misses? An Analysis on the Gaps and Lags of Teachers' Perceptions of 21st Century Skills

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Abstract

The present century demands transformative competencies in all spheres of human life and this necessitated the evolution of a new civil right in the modern era. Inevitably, this demands for new sets of skills and competencies in the learners to meet the challenges and competitions of the knowledge economy, labor market and information settings. To build the 21st century skills and competencies in the learners, teachers need to have awareness and knowledge about these skills and apply them in their daily classroom activities. In order to execute the strategies for promoting 21st century skills among learners, a clear perception on the same is highly essential. It is interesting to analyze the perception of the teachers and the missing gaps. This study was conducted to examine the gap between the actual and ideal perception of 21st century skills among secondary school teachers of Kerala. It also examined to what extent their age, teaching experience and subjects have been related to perception level. Data has been collected from secondary school teachers (N=350) through survey method. The result of the study showed that there was gap between actual and ideal perceptions of 21st century skills among the secondary school teachers and also positive correlation between age, teaching experience and the actual perception of 21st century skills.

Keywords: 21st Century Skills, Perception, Competencies, Secondary School Teachers

Introduction

The present day learners live in a world which is continuously changing, technologically driven and influenced greatly by social media. As a result communication and knowledge sharing abilities have been made possible through internet. This calls for a set of competencies and abilities to work effectively at par with the changing societal expectation. Hence the education system of the country needs to launch various educational reforms to improve quality and excellence of education. Unfortunately the Indian education system is still emphasizing rote learning rather than inculcating skills, which will make the learners to be dependent rather than independent and lifelong learners (Gupta, 2018). Hence 21st century education must aim to develop skills essential for 21st century. Proficiency in 21st century skills- knowledge, competencies and expertise that the present day students are expected to attain from school and colleges to meet the challenges of world- must be the end result of 21st century education (Kay & Greenhill, 2011). In this scenario, the serious dilemma, for today's Indian educators, is that neither the 21st century skills are properly defined nor those are not included and transacted through the curriculum.

Douglas Rushkoff (1999) in *Playing the Future* opines “Our children...are the latest model of human being. Looking at the world of children is not looking backward at our own past—it’s looking ahead, they are our evolutionary future” (p. 4). In this context, the paramount challenge ahead of educators is to properly apply the ways and methods for helping the students to develop 21st century skills (Burkhardt, 2003). So any kinds of educational reformation must aim to foster 21st century skills among learners and teachers (Pelgrum & Anderson, 1999). Quite often it is a matter of fact that the teachers often lack a correct perception on these sort of issues. Therefore, preparing teachers and improving their level of perception of 21st century skills matter, to an extent, in developing a generation competent with 21st century skill.

Teachers are the key agents for any educational reformation and therefore the beliefs, skills and perception are significant to enhance 21st century education (Abbot, 2007; Partnership for 21st century skills (P21), 2009). It is very essential to find out whether teachers are ready, supportive and prepared for implementing 21st century skills and identify the gaps between their real and preferred perception of 21st century skills in their classroom practices. Because, it is the teachers who are the bedrocks of developing 21st century skills and competencies for the future generation. Therefore, this study aims to identify the real gaps of teachers’ perception of 21st century skills in the context of Kerala education system.

Derivatives from Review

Before further proceeding, it is necessary to conceptualize what are really 21st century skills and competencies. Different organizations have made use of the terms “competency” “skills” “ability”. The Organization for Economic Co-Operation and Development (OECD), 2006 defines ‘competency’ as a “complex action system encompassing cognitive skills, attitudes and other non-cognitive components”. Skills means an ability to do compound motor or cognitive activities with precision and adaptability to changing situations (Treadwell, 2011) and P21, 2009 defines skills as the proficiency or dexterity which is acquired through training and experience. ‘Ability’

would mean the state of being able or power to do something (Kincheloe & Horn, 2007).

Various organizations and frameworks (P21, OECD, enGague) have been proposing different competencies and skills for 21st century learners. Generally 21st century skills refer to those skills and competencies required by the learners to meet the realities of the century which are entirely different from that of previous century in terms of technology, digital work and application of knowledge. Thus 21st century skills are those encompassing basic skill-critical and creative thinking, problem solving and decision making skills, communication, leadership, ICT skills etc. (Anagün, 2018). A well-structured design and framework for 21st century skills is explained by Partnership for 21st Century Skills (P21, 2009). In this framework, three sets of skills were identified as 21st century skills.

- *Learning and Innovation Skills* consists of skills for engaging in critical, creative and innovative thinking and communication and collaboration with others (Trilling & Fadel, 2009). These skills are very essential for those who are engaged in more and more complex life and work and these skills essentially prepare the learners for the future (Kay & Greenhil, 2011).
- Digital Literacy Skills include three components like information, media, and technology skills. Information literacy is considered as ability to access, locate and evaluate information effectively (American Library Association, 1989) and media literacy points out the ability to analyze, produce and evaluate the print and electronic media (Aufderheida, 1997) and technology literacy refers to the capacity to apply and use digital/ICT tools and create information (Kay & Greenhil, 2011; Trilling & Fadel, 2009).
- Life and Career Skills consist of abilities which make one to be flexible, adaptable, making one to have socio-multi cultural interactions, accountable and productive etc. (Trilling & Fadel, 2009; P21, 2006).

In order to prepare the present day learners, teachers must develop educational goals which are part of global context (Genzon, 2009) and to update and remain relevant to the needs of the 21st century learners, the teachers must possess 21st century

skills (Corpuz et.al, 2006) because the learners of this century are digital natives and independent thinkers (Anagün, 2018). Hence their level of actual and ideal perception of 21st century skills and the gap between the two are very prime matter for bringing educational reformations. Teachers are the key gatekeepers to educational innovations and it is through them educational reformation happens (Borko, 2004; Butler & Schnellert, 2012). It is to be clear that teachers have the sole responsibility of every type of learning since they are the decision making agents in constructing and adapting the teaching and learning practices in the classroom (Colburn, 2000). The success of instructional and pedagogical strategies depends on the readiness and willingness of the teachers to implement them in the classroom. It means that the perceptions and awareness of all the essential elements related to teaching and learning are also very significant for learning outcomes (G.Sang et.al, 2018). The studies very clearly report that there is influence of teacher's perceptions and various demographic characteristics like age, teaching experience and teaching subjects (Chai et al. 2011; Lin et al. 2013; O'Bannon and Thomas 2014). These studies all generally agree that the age and teaching experience influence teachers' perceptions.

Digital literacy skills including information and communication tools and its integration in teaching and learning process is very remarkable reformation in the 21st century education. Twenty first century paves way for technological and information revolution which in turn facilitated career opportunities in the field of ICT. So it is the duty of 21st century education system to prepare teachers to instill the technological values and competencies so that they may introduce ICT-enriched lessons to the students. Digital Literacy Skills are now common denominator correlated with all the other 21st century skills. Many studies also prove that these digital tools or application of ICT in learning become an effective tool for the students to develop 21st century skills (McMahon, 2009). Having this conceptual basis the study posed the research questions below:

- To what extent the perception of 21st century skills are related to secondary school teachers' age, teaching experience and subjects taught?

- Is there a significant gap between secondary school teacher's actual and preferred/ideal perception of 21st century skills?
- What relationships exist between the application of digital literacy skills and other two components of 21st century skills?

Methodology

Respondents

The participants of the study were 350 secondary level school teachers (58.32% female; 41.68% male) responded the Perception of 21st Century Skills Scale. The age of the participants ranged between 26-53 (M=38). The average years of their teaching experience was 14.52 (04-26 years). The teaching subjects were categorized as: Social Science (n=76), Science (n=65), Mathematics (n=63), English (n=90), Hindi (n=56)

Instrument

To analyze the real and preferred level of perception of 21st century skills among secondary school teacher, Perception of 21st Century Skills Scale was constructed and standardized. The scale had 54 items rated on a 5 point Likert Scale (5= strongly agree, 4= agree, 3= neutral, 2= disagree, 1= strongly disagree). To establish the validity, the scale was reviewed by five experts in the field and a reliability testing was done and the result revealed that the scale was reliable since the Cronbach's Alpha is .886. Each item of the scale assessed both preferred and real form of teacher's perception of 21st century skills. The items related to actual perception in the scale were intended to measure the level of implementation of 21st century skills in the teaching activities in the classroom by the teachers whereas the items related to preferred/ ideal perception of 21st century skills were intended to analyze the perception of teachers regarding their willingness or readiness to integrate 21st century skills in the teaching activities in an ideal situation.

Data Collection and Analysis

The data collection process was done in different districts of Kerala (Kasaragod, Kannur, Calicut, Trissur, Ernakulum, Kottayam, Kollam, and Trivandrum) including government, aided and

private schools. Teachers were selected by using convenient sampling techniques. Pearson Correlation method was applied to analyze the relationship between perception of 21st century skills with age and teaching experience teachers. ANOVA tests were applied to analyze the significant difference in 21st century skills and teaching subjects. To explore the gap between the actual and preferred level of perceptions of 21st century skills among teachers,

paired sample t tests were employed and finally to find out the correlation between teachers' application of digital literacy skills with other components of 21st century skills, Pearson correlation was conducted.

Results and Discussion

The interpretation of the analyzed data leads the result and discussions which follows:

Table 1: Correlation Between the Age and Teaching Experience with the Perception of 21st Century Skills

21st century Components	Learning and Innovation Skills (LIS)		Digital Literacy Skills (DLS)		Life and Career Skills (LCS)	
	A	P	A	P	A	P
Age	0.19**	0.04	0.18**	0.06	0.16**	0.04
Teachers' Experience	0.16**	0.06	0.17**	0.03	0.15**	0.03

A-actual ,P- preferred *p < .05; **p < .01

In order to examine the relationship between various demographic characters like age, teaching experience, and 21st century skills, correlation analysis was conducted. Table 1 clearly speaks that there is a positive correlation with the actual perception of 21st century skills among teachers with respect to age and teaching experience. As the age increases the LIS ($r=0.19$, $p<.001$), DLS ($r=0.18$, $P<.001$) and LCS ($r=0.16$, $P<.001$) also increase. The teaching experience of the teachers is also positively correlated with the actual perception of 21st century skills. This would mean that as the teaching experience increases the LIS ($r=0.16$, $p<.001$), DLS ($r=0.17$, $P<.001$) and LCS ($r=0.15$, $P<.001$) also increase. Sang et. al, 2018 had reported that the age and teaching experience of the teachers do positively influence the perceptions of 21st century learning. This study also indicate that the age and teaching experience irrespective of subjects they teach have positive correlation on their actual perception of 21st century skills. Lin et.al, 2013 also came up with a similar result that the ages of the teachers have correlation with the pedagogical skills of the teachers. It means that the age and the experience of the teachers are not an impediment for teaching 21st century learners rather as the age and experience increase; this would help learners to develop 21st century skills and competencies.

Table 2: Teaching Subjects and Perception of 21st Century Skills

Subject	LIS	DLS	LCS
	(M,SD)	(M,SD)	(M,SD)
	A P	A P	A P
Mathematics	3.21(0.66)	3.18(0.67)	3.19(0.66)
	4.11(0.64)	4.67(0.65)	4.34(0.63)
Social Science	3.73(0.62)	3.65(0.63)	3.56(0.64)
	4.38(0.66)	4.86(0.57)	4.98(0.67)
Science	3.86(0.69)	3.58(0.66)	3.72(0.56)
	4.74(0.59)	4.82(0.63)	4.23(0.65)
English	3.43(0.67)	3.76(0.64)	3.63(0.67)
	4.89(0.53)	4.32(0.67)	4.43(0.61)
Hindi	3.92(0.61)	3.82(0.65)	3.94(0.63)
	4.29(0.68)	4.72(0.62)	4.22(0.55)
F	1.20	0.68	1.00
	1.53	0.65	0.59

M-mean, SD -standard deviation, A -actual, P-preferred ***p < .001, *p < .05

Table 2 presents the summarized result of ANOVA test conducted to examine whether there is any difference of actual and preferred perception of 21st century skills among the teachers and the subjects they teach. The results of ANOVA reveal that there is no difference in teachers in their actual and preferred perception of 21st century skills on the basis of teaching subjects.

Voogt et. al 2013 studied that the language teachers are more likely to apply ICT tools in their classrooms to support creative thinking and writing. As compared to language teachers mathematics teachers less apply digital tools in their classroom teaching due to its high structure and less expressiveness (Sang et. al, 2018). In this study, looking at the mean score, it is found that compared to other subjects the mathematics teachers have less digital literacy skills. As we know that mathematics is the foundation of all computer programming and hence transaction of mathematics needed high utilization of digital tools. Therefore mathematics teachers must be provided more professional development in the digital literacy skills to design ICT mediated pedagogy (Lin et.al, 2013).

Table 3: Difference between teachers’ actual and preferred perception of 21st century skills

	LIS	DLS	LCS
Actual	3.72 (0.63)	3.24 (0.83)	3.75 (0.64)
Preferred	4.16 (0.66)	3.83 (0.82)	4.29 (0.62)
t test	-10.33***	-14.59***	-13.23***
Cohen’s d	0.60	0.91	0.83

LIS Learning and Innovation Skills, DLS Digital Literacy Skills, LCS Life and Career Skills ***p < .001

Table 3 presents the result which reveals that the mean scores obtained on the actual perception of 21st century skills were lower than the mean score of preferred perception of 21st century skills of teachers ($d \geq 0.60$, $p < .001$). The effect size calculated ranged from medium to large (Cohen, 1998) which shows that the difference was accurate and substantial. From the result it is evident that the participant’s choice and interest for 21st century skills were significantly stronger than the actual competences in this regard. This gap between the actual and preferred perceptions indicates that teachers prefer to apply 21st century skills in their pedagogical practices and in other classroom activities. This may be due to the impact of new online teaching needs and strategies derived due to the COVID-19 and promotion of 21st century learning styles across the country as envisaged in the National Educational

Policy, 2020). To analyze the reasons for the gap between actual and preferred perception are due to the lack of proper integration of 21st century skills in the curriculum and evaluation process, improper teaching strategies, non-conducive classroom climate and teaching-learning infrastructure for the 21st century learners (Voogt et.al, 2013, Reigeluth et.al, 2009). How is it possible to design pedagogical activities suitable for 21st century learners if the teachers don’t perceive and consider the importance of competencies and skills for the century (Law et. al, 2002)? In this study, the secondary teachers showed strong preference for the 21st century skills. Hence gap between the actual and preferred perception of 21st century skills suggest that there is a great need for change in improving the pedagogical practices and teacher preparation strategies (Fraser 2012, Sang et.al, 2018). The result of this study demands for improving 21st century skills among teachers and provide by transforming the existing teacher education pedagogical practices and integration of 21st century skills in the curriculum.

Table 4: The correlations between teachers’ perception of Digital literacy Skills and other components of 21st century skills (actual and preferred)

	Teachers’ Application of Digital Literacy Skills	
	Actual	Preferred
Learning and Innovative Skills		
Actual	0.41***	0.16**
Preferred	0.12	0.38***
Life and Career Skills		
Actual	0.58***	0.24***
Preferred	0.32***	0.64***

*p < .05; **p < .01; ***p < .001

Table 4 is presented with the data of the correlation between the applications of digital literacy skills and other two sets of 21st century skills. The result highlight that the actual and preferred perception of teacher’s application level of digital literacy skills was significantly correlated with other two sets of skills ($r = 0.41, .58$, $p < 0.001$). If the teachers have higher actual perception of the digital literacy skills,

it is evident from the study that, they would show higher perception in the actual perception of the other two sets of 21st century skills. In a similar way, if the teachers have high preferred perception on digital literacy skills, they have high perceptions in other sets of skills too. This result also agrees with other studies conducted in this area that teachers who assimilate ICT into their teaching practices confront little difficulties in other aspects related to creativity, communication, collaboration, problem solving etc. (Sang et.al, 2018). Other studies in this area also found that digital literacy skills are important for the development of 21st century learning skills (Kim et al. 2012; García-Valcárcel et al. 2014). This would imply that teacher preparation programs must focus on developing necessary and essential knowledge and skills of digital technology and the use of them in the classroom situation. This will enhance their interest and attitude towards a 21st century education.

Conclusion and Recommendation

As the society is moving in a supersonic pace which demands new skills, new abilities and competencies, a pedagogical and research culture have to be enforcedly evolved to retain the preferred perception of teachers for augmenting the varied skills among the students that will progress both individual and societal development in harmony. The study clearly depict that the secondary school teachers are having inbuilt/embedded enthusiasm which is reflected from the high score obtained on 'twenty first century preferred perception'. Also it is a fact that neither age, teaching experience nor subjects taught have much influence on the preferred perception of 21st century skills. But when it comes to the real context where the transformation has to take place among learners through well-defined and sequentially organized curricular and co-curricular inputs to which teachers are the major responsible personals, the field reality does not reflect a positive note with no difference as Age, Experience and Subjects taught (revealed from the findings of the study). The factors behind this paradox are yet to be identified by researchers. As dreaming with aspirations of curricular manifestations have no pragmatic use as far as the growing children are concerned. Hence the study suggests for urgent

call for action in the field of 21st century education and integrating competencies and skills relevant to meet the challenges of this century. There must be proper incorporation of 21st century skills in the curriculum designing, transaction and evaluation. It is the responsibility of the educational institutions and administrative personals to provide a climate to sustain and improve the 21st century learning competencies in the teachers as the study revealed that the teachers do have preference for applying 21st century skills in their pedagogical practices. In this context, the stakeholders need to identify the impediments that prevent teachers who are having high knowledge and perception of 21st century skills and still they lag behind when applying them in the actual classroom situations. Hence it is recommended that it is essential to examine the institutional barriers which prevent the teachers like lack of infrastructure (smart classrooms, use of ICT, wifi campus etc.), autonomy to apply necessary pedagogical practices in the classroom teaching, systematic provisions to update recent trends of education and provisions for the teachers to receive factual, procedural and metacognitive knowledge of these skills time to time. Studies can be carried out to examine the current practices and programs at school level to promote 21st century skills and the impact of these skills on the learning culture of the school.

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