



Scope of Yoga Education in Promoting ‘21st Century Skills’ of the Digital Natives: An Overview

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Abstract. The pattern of social life of the adolescent has completely altered with the onslaught of digital media; truly they are digital natives nurtured in a unique period of an unprecedented influx of technology. Teens are usually have inadequate ability for self-regulation and are fragile and vulnerable to peer pressure and indulgence to any kind of adventure and experimentations with social media may be lethal for them. Adolescents exposed heavily in digital world are less competent in formal socialization as evident by latest research. In this era of digitalization, Social and Emotional Learning (SEL) is a dragging attention of educationist to mitigate negative impact of such digital dumping and to inculcate core social and emotional competencies. An ancient scientific way of life practiced in India which is combinations of practice of specific postures, breathing regulation, and meditation is yoga, which have been shown its efficacy in improving in cognitive performance in executive function and also in socio emotional adjustment. Broadly Desk Review Method has been adopted. Collection & analysis of the data collected by other researchers and as published in the journal of Repute has been considered. In the context of school education, the curriculum agreed to accommodate yoga as it could contribute to the physical, social, emotional and mental development of a child (NCF, 2005). The theoretical idea of Yoga are organized from experiences. Therefore, the need of the time is to device a frame work which can relate the theoretical construct of Yoga with learning objectives of ‘21st Century skills’ also referred to as ‘Transversal competencies’. This overview the scope of yoga education in the current approaches of the social cognitive principle of “Transversal competencies” in reference to digital generation.

Index Terms- 21st Century Skills, Social Media, Digital Natives, Yoga Education



I. Introduction

The 'digital native' coinage was introduced by Prensky (2001) in the article entitled 'Digital Natives, Digital Immigrants', to indicate the needs of modern students. The generations that have grown up with easy access to digital information and communication technologies are considered as the 'digital natives'. Adolescents surviving in digital ambience and all kinds of social interactions is being mediated by electronic gadgets in virtual environment and it is a paramount importance to understand what kind of socio-psychological impact are shaping such teenagers by such digital consumption. (Ives, 2013). There is demonstrable evidence of imbalance of brains functioning of the excessive digitally active adolescent (Siegel, 2011). Heavy and uncontrolled exposure to digital technology may be negatively influence our mental wellbeing of human being leading to Addiction, Depression, Obsessive Compulsive Disorder (OCD), Narcissistic Personality Disorder (NPD) and many more (Rosen, 2012). Lot of research established that there is intricate relationship between emotional management and the brain in case of teenagers having over gadgets engagement (Bauleke & Herrmann, 2010).

It is also found that unchecked social media involvement may impact academic consistency and personal adjustment in an undesirable fashion (Roberts & Foehr, 2008). Study found that adolescents exposed heavily in digital world are less competent in formal socialization (Mills et al., 2015). As Bandura (1977) suggested that individual attain "self-efficacy" and competence to adjust and negotiate in social situations. Therefore, Social and Emotional Learning (SEL) is a growing field in education that aims to foster core social and emotional competencies, such as self awareness, self-regulation, initiating and maintaining healthy relationships, and treating others with respect and care. (Maloney et. al., 2016). This kind of digital exposure creating new challenges to the academic community to inculcate the necessary skills among adolescent learners needed to lead a meaningful life in the 21st century. UNESCO (2014) policy education and health suggest education improves the overall health and well-being of learners. No doubt this generation is digitally literate and have equipped with media and technology, but handicapped with digital dependence. Now, the question is that how effectively we can mitigating the adverse effect of unguided digital exposure and can promote 21st century skills among these digital native adolescent learners. Is the answer is Yoga? If yes, how far yoga can be instrumental? An ancient scientific way of life practiced in India which is combinations of practice of specific postures, breathing regulation, and meditation is Yoga, which have been shown its efficacy in improving in cognitive performance in Executive Function and also in Social Emotional Learning (Purohit, S.P. et. al., 2017). Therefore, the need of the time is to devise a theoretical frame work which can relate the practical theoretical construct of Yoga with learning objectives of '21st Century skills'. In this paper a theoretical review has been done with an objective to identify the scope of Yoga education in the current approaches of the social emotional development in promoting 21st century skills or "Transversal competencies" in reference to digital generation.



II. Methodology

Broadly Desk Review Method has been adopted. Collection & analysis of the data collected by other researchers and as published in the journal of Repute has been considered. The study has been conducted on the evidence and analysis published either as relevant research reports as surveyed by other researchers or in the policy documents published by the relevant international and national agencies available either in printed form or in digital format in public domain (Zhou & Nunes, 2016).

For online study initially the key-words are selected and then search in internet. Initially abstract are explored and only relevant articles and policies addressed Scope of Yoga Education in promoting '21st Century Skills' are selected for final consideration. Finally selected articles are explored in-depth with critical approach in compliance with study objective. Such approach of exploration is efficient in time management also cost effective in addressing the research objectives (Bhasin, 2020). The review findings are analyzed with precision.

1. 21st Century Skills

There are various terminologies are in use interchangeably among international academic community categorized a set of "non-academic" knowledge, competencies, values, and attitudes dim fit and essential for the life in the 21st century. Term "21st century learning" associated with 21st century skills, were chosen by P21's Framework for 21st Century learning (2007). OECD uses the term "key competencies". UNESCO's Education Research Institutes Network used 'transversal competencies' to denote such learning.

Framework for 21st Century Learning

The following 'P21 Framework' (2007), based on No Child Left Behind (NCLB) legislation, which accommodates both 21st century student outcomes and subsequent support systems. This P21 framework consider all the elements as fully interlinked in the process of 21st century learning and teaching The nonacademic essential skills needed for 21st century survival are highlighted.

Learning and Innovation Skills

Only they kind of leaning focused to develop skills which are innovative and evolving in nature to empower the students who are becoming capable to address the complex life and professional climate in 21st century. Four major 'C'- creativity, critical thinking, communication and collaboration are compulsive components of learning for preparing meaningful life in 21st century.

Life and Career Skills

P21's framework promote flexibility & resilience, self-directed initiatives, cross-cultural social negotiation skills, creative production with & accountability and responsible leadership are essential for Life and navigating career.

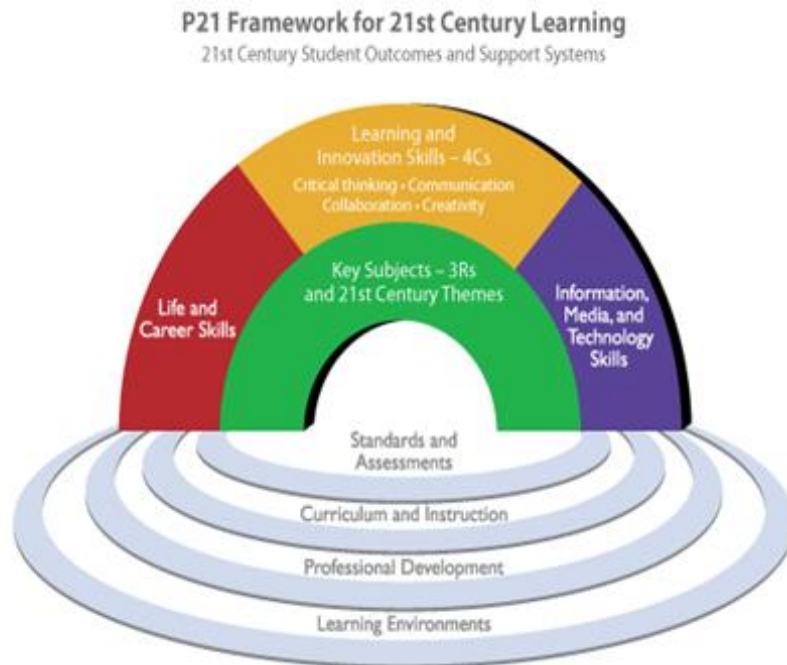


Fig 1: P21’s Framework for 21st Century learning (2007). NCLB Legislation USA.

2. ‘21st Century skills’ or ‘Transversal Competencies’ in Education Policy & Practice: UNESCO, 2015

UNESCO’s Education Research Institutes Network provided the framework for definition of the 21st century skills and designated such skills as ‘transversal competencies’.

The compartmentalization of discipline which evolved for the century, is now questioned and learning teaching is in the new trajectory while adapting cross-disciplinary, inter-disciplinary and transdisciplinary approach towards inculcation of transversal skills.

This UNESCO draft defined the concept of transversal skills and provided a framework in favour such concept. This framework of transversal competencies comprises of four major domains of skills, competencies, values and attributes. As shown in the following figure adopted from UNESCO policy draft reflect the major domain with its respective key-characteristics.

It is to be note here that each domain is not mutually exclusive, therefore curriculum planner and teachers are at liberty to place the similar components of competencies in different domains and also improvise as they think dim fit.

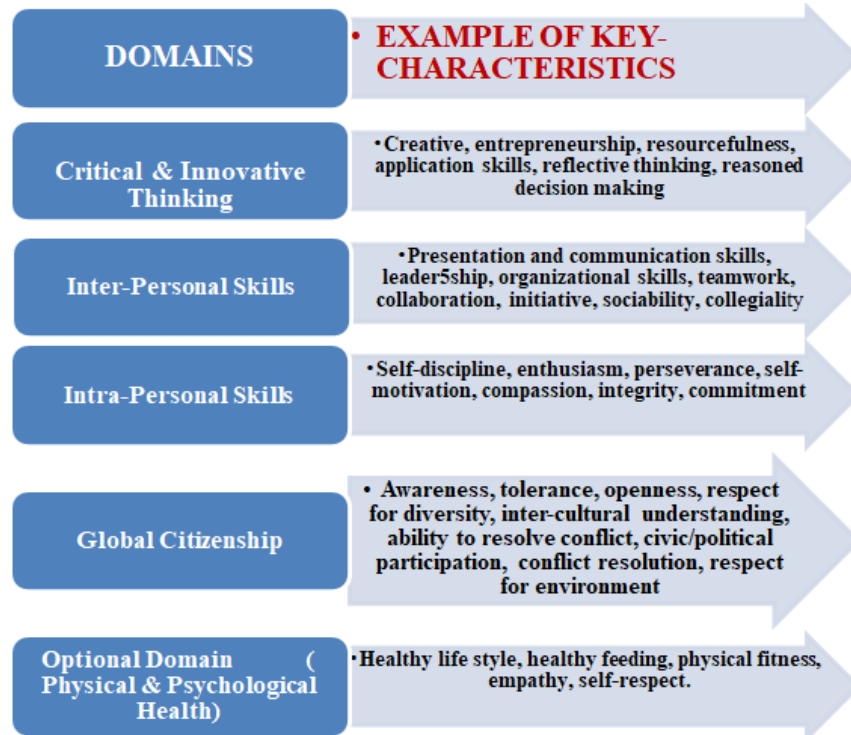


Fig 2: Adapted from UNESCO (2015), Transversal Competencies in Education Policy & Practice

III. Digital Natives and their Challenges in Social Emotional Learning

Internet, screens, download, data speed, and screen time -these words explain the students in the 21st century and their nature of interaction with the world around. This community of learners, considered as ‘digital generation’ who are growing up constantly remain attached to the surroundings through smart phones, and other electronic gadgets and remain in this hyper-connectivity.

Digital generation learners not only grown-up with digital technologies (Carlson, 2006) but also for having such background experience, they developed a level of comfort with and expertise in exploring those technologies that their predecessors (Gibbons, 2007).

A set of common attributes are ascribed to these digital natives (Gros, 2003; Prensky, 2006) who are Tech Savvy, Remain Connected, Screen Based New literacy, Multi-taskers, Information Rich, Self-Controlled Learner and Digital Consumers

Despite their efficiency and advantages as learning community, they are also at risk being unguided digital consumer. Till the times there are some research hints



only about how digital technology is influencing this generation's brain development. There growing evidence of imbalance of wherein left brain hemisphere stimulation is far more dominant than right hemisphere, who are heavily engaged with such gadgets. (Siegel, 2011).

Being emotionally less mature Teens are always at some risk while they engage, explore and experiment with digital media. Exposure to age-disproportionate content can influence youth to engage in unwanted behaviours which might be a risky for them. (American Academy of Paediatrics, 2011).

How internet use could impact cognitive abilities of adolescent is becoming major concern for researchers. Mills (2016), after an in-depth literature study identified some area, as noted below, of concern of effect of digital exposure on cognitive development of adolescent learners which might challenge their skills needed for 21st century.

Analytical Thinking: It has been found in literature that disproportionate engagement with digital tools and internet may downscale the capacity of adolescent to adopt the cognitive strategy to reach a solution when such solutions are easy to formulate. .

Multitasking: These results suggest that desired kind of social interactions could be heavily hampered when adolescents are simultaneously keeping track of extraneous information as is often done when using digital devices during real life socialization.

Processing Social Cues: Interpersonal cues were exhibited in lesser degree in communications through digital media as interconnected with the decreased feelings of bonding and nonverbal affiliation cues.

Social Competence: Use of social net-working sites to present himself / herself in disproportionate manner to compensate for weak social cognitive skills found to be linked with increased peer-related loneliness. And ultimately negatively impacted the desired social competencies.

Social Evaluation: the adolescents who reacted most strongly to the rejection feedback during the task were more likely to report feelings of social disconnectedness.

Scope of Yoga Education in promoting '21st century skills'

The general stresses added with over digital exposure of modern life style is not only overtaxing our psycho-physiology but unguided exposures to social media leading to erosion of our value system. Yogic practice, being psychosomatic and holistic in nature, can be most instrumental in mitigating such challenges. For children at the beginning of their journey in life who are trying to discover how



different parts of themselves connect, yoga is by far the most useful way to do this (NCTE, 2015)

Research findings revealed that yoga not only make people tolerant and help them to adjust with surroundings but mindfulness meditation also inculcate higher cognitive flexibility among adolescents. Research established that practicing mindfulness meditation can develop the skill of self-observation, and subsequent neurological disengages from the prior learning enables individual to accommodate present-moment input in an alternative way (Siegel, 2007). Meditation activates that region of the brain associated with more adaptive responses to stressful situations (Cahn & Polich, 2006).

There are lots of evidenced based empirical researches on 'school based yoga' which reflects that yoga has tremendous impact in socio-emotional learning which might have significant role in achieving 21st century skills. The cognitive behavioural intervention of adolescent children is intensely connected with yoga because latest understanding of cognitive science well embraced in yogic psychology and practice (Sharma et. al., 2010).

Researchers finding have identified and documented majority of the factors that enable adolescent learners to thrive throughout high school and into adulthood. These factors are: self-awareness of self, managing emotional pressure and stress, empathy, and negotiating relationships effectively. When adolescent learners masters these skills, they became happier and healthier in reference to emotional status and such skills empower them to focus on academics.

General Benefits of Yoga for Children

Yoga has been linked to several physical, emotional and psychosocial benefits in children. A positive impact on motor performance in children (Chaya et al., 2012) an increase in working efficacy to concentrate (Galatino et al., 2008), has been documented. Sibinga & Kemper, (2010) demonstrated a positive impact on socialization & stress management and also potential reduction in levels of fear and anxiety along with an improvement in mood and an improvement in attention and behavior. An increase in long term emotional balance and decline in feelings of helplessness, aggression and an improvement in overall well-being (Galatino et. al., 2008) are also observed as an effect of yoga. An improvement in verbal/spatial memory and visual perception (Sibinga & Kemper, 2010; Chaya et al., 2012) and an improvement in general mental health (Birdee et. al., 2009; Chaya et. al., 2012) has also proved.

Preliminary evidence supports yoga as a means of developing mindfulness and emotion regulation skills that can lead to enhanced outcomes. Mindfulness represents "awareness and attentiveness to immediate experience." Webster's Dictionary (1998) defines -the quality of "having in mind," being "aware, careful of something is mindfulness. As per the interpretation of Grossman (2010), mindfulness of breathing is self-awakening, progressively elevates from the physical qualities of

the breath to other bodily sensations, perceptions, feelings, emotions, and other states of mental ability leading to greater insight into inner and outer experience. For last few decades Mindfulness gain much attention as way of disciplining mind. By means of practicing mindfulness adolescent learners will be more mindful. Such exercise of practicing mindfulness may be beneficial for the students in many ways like they will be able to concentrate in effective manner with better mental clarity. Self-control, power of tolerance, flexibility in attitude are the crucial skills that might be enhanced by mindfulness training and in turn that could be helpful for the learner to sharpen emotional intelligence and the ability to have a compassionate and harmonious relationship with others. These kinds of skills are instrumental in formal academic achievements and also in earning the life skills. The major benefits are definitely improvement of attention and concentration. The major benefits could be showcased as:



Fig 3: Benefits of Practice of Mindfulness for Learner of 21st century

Improved attention and concentration (Sangtangelo, 2012; Khalsa et. al., 2012) and improved executive function (Diamond & Lee, 2011) has been documented. Research revealed improved ability to stabilize emotions and an improved emotional status (Harris, 2012). Related research studies results include improvements in anger control, (Khalsa et. al., 2012), social-emotional competence (Greenberg & Harris, 2012) and decreased anxiety (Sangtangelo, 2012; Greenberg & Harris, 2012). Improved behaviour (Sangtangelo, 2012) and behavioural reactivity (Greenberg & Harris, 2012) including reduced oppositional behaviour, and reduced



symptoms of obsessive-compulsive disorder and ADHD (Greenberg & Harris, 2012; Kayley-Isley et. al., 2010) has also documented in empirical studies. Enhanced capacity to coping atress (Greenberg & Harris, 2012; Khalsa et. al., 2012; Santangelo, 2012), improved self-regulation (Greenberg & Harris, 2012; Santangelo, 2012), improved self-control, self-esteem (Santangelo, 2012), self-awareness (Mendelson et al., 2010), social self-concept (Kayley-Isley et. al., 2010), optimism (Greenberg & Harris, 2012), self-confidence (Greenberg & Harris, 2012), and social skills (Flook et al., 2010) are also established in school based research studies.

There is emerging evidence that yoga as a mindfulness training practice can be a positive adjunct treatment for various mental health-related problems. Children with ADHD have exhibited increases in attention and decreases in ADHD symptoms Children with examination anxiety have shown de-escalation of aggression, helplessness in school, physical complaints, as well as an increase in stress-coping abilities and general well-being (Stuck & Gloeckner, 2005; Kayler-Isley et. al., 2010). Children with emotional, behavioural, or learning difficulties have demonstrated significant improvements in their levels of self-confidence, social confidence with teachers, peer to peer communication, contributions in the classroom, and over all functioning (Powell et. al., 2009). Results have also shown decreases in the involuntary stress response (Mendelson et. al., 2010).

There is lot of evidence in Indian context too that proves physical activity is instrumental in keeping mind sharp with age, and this goes for yoga. Yoga plays crucial role in mitigating Cognitive Decline. An in-depth study indicates that while tested for attention and concentration, remote memory mental balance, verbal retention of dissimilar pairs, visual retention and recognition and have better mental health, those who regularly practice yoga have outperformed the others (Nangia and Malhotra, 2012). Verma et. al. (2015) tried to study the relationship of Yoga Practices and Cognitive Development taking rural residential school students as sample and this empirical data showed improvement in understanding and logical thinking which could be result of maturation. Application of specific Asanas, Mudras and Pranayams of Yoga with specific Cognitive Behaviour therapy (C.B.T.) found to be effective for the mental wellbeing of the selected group of school children and in reducing the study related stress (Sharma et. al.,2010). The sustained effect of Yoga on Executive Function of adolescent may have potential implications on learning, classroom behavior and in handling the adverse situations and found protective for mental health problems. (Purohit et. al., 2017).

IV. Teaching Learning of Yoga Education in Promoting 21st Century Skills

UNESCO (2015) documents suggested different education systems ad0pted different kind of teaching and learning strategies to integrate transversal competencies into the curriculum. Three major modes found to be can take place: Specific Subject, Cross Subject along with Co-Curricular that is learning of transversal competencies is



made part of school life. It is found to be more effective in all kinds of out of the classroom activities.

In Canada, the 2006 Elementary Health and Physical Education Curriculum Review conducted by OPHEA advocates the changes by educators which include (OPHEA, 2006) expansion of leisure activities, de-emphasize competition and traditional organized sports, facilitate awareness of community resources to encourage physically active life and elements like spiritual and mental health , parental education and internet safety.

From above discussion on research findings and curricular context, it is evident that yoga education has unlimited scope in imparting the 21st century skills. A brief review of policy in Indian context will justify the scope of teaching-learning of yoga education.

In India, 21st century skills are accommodated in education policies, and the National Curriculum Framework – 2005 that advocated for inclusion of transversal skills in the curriculum. Several alternative terms are used in curriculum to indicate various transversal competencies are: “Life Skills”, “Co-Curricular Skills”, and “Attitudes and Values”. Though the NCF-2005 in particular does not mention the term transversal competencies or 21st century skills, but it has advocated lot of competencies like critical thinking, decision making, problem solving, and skills to cope with a variety of situations and how to manage oneself in curricular design.

In CBSE’s documents too “Co-Scholastic Skills”, or “Attitudes and Values” used to denotes the transversal competencies. The competencies embodied the ideas align with the UNESCO’s (2015) ERI-net framework for transversal competencies.

NCERT (2010), within this overall framework both yoga and physical education are seen as routes for achieving overall development of children. (NCF) 2005 has re-conceptualized the structure of curricular area of Health and Physical Education. Apart from NCF-2005 advocacy, a separate Position Paper on Health and Physical Education prepared by one of the 21 National Focus Groups that were set up for revision of the upcoming National Curriculum Framework. The recommendations are:

- Healthy physical growth of all children is preconditions of all kind of development
- Adequate nutrition supplement, physical exercise and other psycho-social care for adolescent need to address. Children and adolescents should have opportunity for free play, informal and formal games, yoga and sports activities along with yoga as essential for their all-around development.
- This curricular area adopts a more inclusive and holistic definition of health within which physical education and yoga contribute to the physical, social, emotional and mental development of a child.



- Health and Physical Education and yoga need to be taken collectively as a comprehensive health and physical education curriculum instead of compartmentalized design.
- Health and Physical Education should be consider as a core component of curriculum and therefore, need to continue as a compulsory subject from the primary to the secondary stages.
- To translate this curriculum in to practice, it is need to ensure that the minimum essential physical space and equipments are available in every school. This subject area also be included as core component of elementary and secondary pre-service teacher education courses.
- Yoga could be introduced from the primary level onwards in informal ways, but formal introduction of yogic exercises should begin only from class sixth onwards. Health and hygiene education should be experiential in nature.

The teaching learning should involves development of domain-specific knowledge and competencies and socially appropriate skills in teachers and teacher educators in order to inculcate these skills in learners (NCTE, 2015). Laying emphasis on health and life style of the learners, NEP-2020 also accommodated health education in school curriculum. Intake of Proper nutritive diet physical education, sports for fitness, wellness, proper sanitation and hygiene are proposed to include as some of the key focal points to ensure so that necessary skills and capacities must be learned.

Discussion

It is a matter of fact that majority of research on the Yoga engaging adolescent children were challenged with criticism of questionable sample sizes, insufficient interventions in many cases lack of control group etc. Many of the randomized studies lacking of proper randomization and suffering from inappropriate and inadequate statistical interpretations. (Birdee GS et. al., 2009) The research on the influence of Yoga on children and adolescents are inadequate and much of these small bodies of works are criticized for poor methodological quality (Birdee et. al., 2009 and Kokinakis, L. H., 2011). With the increasing prevalence of Yoga in school, researchers are beginning to examine the impact of yoga on children and adolescent. From the above journey of text, it is well evident that yoga education becoming a must in school system to promote the essential skills needed for 21st century along with formal discipline of subject and a guideline may be suggested for designing yoga education at school level.

Participation of all students must be ensured in learning by means of engagement with yogic practices. Need to create positive ambience and optimistic social climate to emphasize awareness of one's self and others, embracing differences among the peers, and personal growth. Executable evidence based, classroom- tested, curriculum is in demand which can optimally inculcate 21st century socio-emotional skills. And finally well designed in-service teacher training is the most important input for an effective yoga education.



Teacher must be co-learner and co-practitioner. Lecture, video, readings, and role-plays also may be used as instructional strategies and techniques. Web portal that may contain related videos, e-library of related materials, frequently ask questions, and models of best practices to supplement on going yoga practices. Considering the gravity of need of yoga education in order to develop requisite personality development and to inculcate desired attitude of children and young adults for healthy and socially appropriate meaningful living, and ultimately orienting them for understanding global context and contributing to social and national development NCTE (2015) took major initiative in restructuring the teacher education curriculum of different teacher education program introducing Yoga Education as an essential element. Now, as the nation is in process of restructuring curriculum and pedagogy of school education in accordance with directives of NPE-2020, it is time to consider the spirit of the policy where Yoga Education might play most instrumental role. NPE-2020 in its School Education section promised to frame national Curricular Framework for School Education (NCFSE) with in 2021 along with effective national professional standard of Teachers. As the Policy highlighted to inculcate the India's traditional values and ethos, the policy advocated 'Sports-integration is another cross-curricular pedagogical approach that utilizes physical activities including indigenous sports, in pedagogical practices'. Though not mentioned the term Yoga directly but hinted about adoption of pedagogic practices which will promote both physical and mental fitness and to inculcate attitude the real life skills. This are also the global mantra of 21st century. And such aspiration of 'Fit India Movement' as envisaged in the policy NEP-2020, only can be achieved by adapting the yoga in school education curriculum in effective manner.

V. Conclusion

Technological evolution appears to be a 'technological tsunami' in the post-pandemic world and the subsequent changes in all the social and institutional organizations are omnipresent, having a paramount influence on how our social systems function. Such a technological influx into our social and private life is mostly beyond our choice and control. As digitalization by means of technology affects every sphere of people's lives, patterns of work and profession and, finally, it's impacting our wellbeing.

The older generation might have some immunity to their pre-digital life experiences and practices, but digital generations face many challenges in navigating life in such a digital era. The traditional way of education is suffering from a kind of inadequacy to empower this digital generation so that they can function in the 21st century with proper transversal skills for management of wellbeing. Yoga can be the final answer here to make a fine balance in life that can empower the digital generation to renegotiate their cultural relationship with the digital technology.

To adapt to such a new digital ecosystem, we need to re-look at the entire education system from perspectives of policy, curriculum, pedagogy and praxis. We understood that the art of cohesive and peaceful living in the contemporary world can be achieved only by embracing yogic practices as an integrated part of life through



education. Adapting peace in social and cultural context is possible by learning to live together. Yoga education can ensure an effective infusion of Social Emotional Learning that can ensure the social emotional wellbeing of this digital generation. It is high time to conduct in-depth research on yoga education for social emotional learning that can bring verifiable changes in the education system towards wellbeing education.

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