

'Learning in the 21st Century: Implications for School Leadership'.

- By Shreya Tiwari

Introduction

Learning for the 21st century must carry a vision of what that society will be and of the qualities that men and women should have to help shape it. In this, education must increasingly play a proactive rather than a merely reactive role - (Papadopoulos, 2010)

Twenty-first century skills is a construct well accepted within the international education policy world that refers to higher level cognitive, interpersonal, and intrapersonal skills, seen as increasingly relevant to public education in a global economy ((Nehring, Charner-Laird and Szczesiul, 2019)

The '21st century skills' construct is emerging as a fairly stable and relatively well accepted policy framework internationally for what students need to know and be able to do to thrive as workers and citizens in a globalized environment (Ananiadou & Claro, 2009; Voogt & Roblin, 2012).

In the Indian context, with greater emphasis on the rights perspective, and the push for achieving quality, the role of the school leader has become more demanding. With the enactment of the Right to Education Act (2009) the school head has to gear up for a challenge that is on account of the demographic upswell in the elementary schools, and the diversity that it carries with itself. Both the pressures of dealing with diversity as meeting educational aims, the role of the school leader needs to be reinvented as a person who is able to initiate and cause change. Especially, in the light of 21st century skill being markers for redefining excellence in school education system (Nehring, Charner-Laird and Szczesiul, 2019)

The OECD (2009) report on 21st Century Skills and Competences for New Millennium Learners in OECD Countries” highlights that *‘As more countries require better achievement from their schools and grant greater autonomy to schools in designing curricula and managing resources, the role of the school leader has grown far beyond that of administrator.’*

Emphasis on leadership is found in the Indian context too, Govinda (2005) points out that, *‘Training and capacity building for School leaders is the weakest dimension of the school education system in all states. Many of those who become school Heads receive no orientation or training. ... In recent years, through special project initiatives, states like Karnataka and Kerala have begun implementing programmes of capacity building for School Heads. The SIEMAT in Uttar Pradesh is also implementing a leadership training program for school heads in collaboration with the Centre for Educational Management and Development’ but these are very marginal efforts and the need for a more in depth capacity building is needed on leadership.’*

The 21st Century context: The VUCA world

According to a report from the McKinsey Global Institute on “Harnessing automation for a future that works”, 50% of all tasks currently performed by humans are automatable with technology available today. Another 15% will be automatable soon; the remaining 35% of tasks currently performed by humans will not be automatable soon.

On the other hand, while many jobs will become obsolete, automation and the resulting increase in productivity will also create new jobs. According to current forecasts, automation will replace about 15% of jobs in Western economies. At the same time, new positions equal to 21% of today's labor demand will be created, mainly because of rising incomes, healthcare for ageing populations, investments in infrastructure, buildings and energy, as well as technological development. Implying that automation has the potential to create more positions in the coming years than it will cut.

Meanwhile in India, meaningful and sustainable economic participation, already constrained by the 'service led' structure of Indian economic growth over the past two decades, will be further stressed by the rapid pace and ubiquitous scope of technological advancement. Many of today's jobs may no longer exist in the next ten years, while many others will be transformed or created by technological advancement. Job growth has indeed been slow over the past decades, but low levels of education and skilling are equally serious impediments to accessing and responding to new opportunities. Therefore, the present generation needs to be educated in an entirely different way that focuses on the skills that can ready them for the future.

The term **VUCA** is an acronym that stands for volatility, uncertainty, complexity, and ambiguity. It describes the situation of constant, unpredictable change that is now the norm in certain industries and areas of the business world.

The covid pandemic is a recent example of how drastic the world changed and shifts demanded in education policy, curriculum, pedagogy and assessments. According to a report by International Labor Organization on 7 May 2020, *'Covid-19 affects both the demand and supply sides of the labor market and has huge implications for full employment and decent work, pushing many families into poverty, and increasing existing inequalities.'* This phase has shown us that we not only need qualified job seekers, but we need more solution providers in coming times, who can solve the unforeseen problems of their community as well as of the world.

The 21st Century era reflects dramatic shifts towards an increasingly digitised world. With challenges that arise due to the automation age, clubbed with environmental and ecological changes, there is a constant demand to innovate, unlearn and relearn and adapt to the new world.

This demands a renewed focus on building leaders with capabilities that are uniquely human. Educators will increasingly play a key role in adjusting school curriculums that will develop the necessary skills in students to deal with challenges that arise due to the automation age in the VUCA world.

Trends in Literature

This section provides an outline of what 21st century Learning entails and the critical competencies that teachers & School leaders need to foster in K-12 children to ensure they not only keep pace with the ever-evolving/ VUCA (Volatile Uncertain Complex Ambiguous) world, but also succeed in it. The purpose of this section is to develop a much-grounded understanding of the need for education that equips the child for life, rather than mere test scores.

The research literature findings are categorized broadly into: 'Learning in the 21st Century', 'Leadership for 21st Century Learning' and 'Policy-Practice perspective'. While it is acknowledged that these are rather broad distinctions, the intent is to provide a means of summarising the vast

literature on the subject. This review does not claim to be comprehensive, or definitive but is intended as a guide to further research on 21st century learning and its implications on School Leadership.

(i) Learning in the 21st Century

There are a range of academics across the world researching 21st century learning. It has been realized that although these skills are not new, it was not until very recently that educators and policy makers agreed that they should be explicitly included in academic content standards, and be directly taught as part of the regular academic curriculum, and routinely assessed for all students. Despite widespread agreement on their importance, however, there still appears to be disagreement as to what these skills exactly are, or what their sub-competencies entail.

What our 21st century citizens need are trained minds and a passion for creative endeavor. And by a "trained mind" I mean not only the ability to think, to gather data, to formulate models, to test hypotheses, to reason to conclusions, and so on. I mean, most importantly, the desire for and habit of thinking. – Posner (2002)

The OECD working paper titled - ‘21st Century Skills and Competences for New Millennium Learners in OECD Countries’ (2009) had developed a working definition of the 21st Century skills and competencies for the purpose of their study, which has been articulated as – ‘Those skills and competencies young people will be required to have in order to be effective workers and citizens in the knowledge society of the 21st Century.’ It also made a useful distinction between ‘Skills’ and ‘Competence’ and maintained that a Competence is a broader concept that may actually comprise skills (as well as attitudes, knowledge, etc.) and 21st century competencies were in fact the primary focus of their study.

These competencies identified as 21st Century Skills have been conceptualized under three dimensions, which are – Information Dimension, Communication Dimension and Ethics and Social Impact Dimension. As quoted on Page 9, 21st Century Skills and Competences for New Millennium Learners in OECD Countries’ (2009):

- Information dimension: The information explosion triggered by ICT requires new skills for accessing, evaluating, and organizing information in digital environments.
- Communication dimension: Young people need to have the ability to communicate, exchange, criticize, and present information and ideas, including the use of ICT applications to participate in and make positive contributions to the digital culture.
- Ethics and social impact dimension: Globalization, multiculturalism and the rise in use of ICT also bring ethical challenges, so skills and competencies related to ethics and social impact are also important for the workers and citizens of the 21st century.

The National Council on Measurement in Education, Vancouver B.C., in the paper ‘Assessing 21st Century Skills: integrating research findings’ highlights the various forums at which these skills were thought over and researched, at different points in time. A few important ones of these are The Partnership for 21st Century Skills (P21, 2009) has created a comprehensive framework for conceptualising different types of skills important for college and the workforce. Two, the National Research Council (NRC, 2011) initiated an investigation into the topic of teaching and assessing 21st century skills and identified a framework for categorizing the types of knowledge and skills students need for college and career readiness: (1) cognitive skills, including critical thinking, non-routine problem solving, and systems thinking; (2) interpersonal skills, including complex communication,

social skills, teamwork, cultural sensitivity, and dealing with diversity; and (3) intrapersonal skills, including self-management, time management, self-development, self-regulation, adaptability, and executive functioning. Three, the Assessment and Teaching of 21st Century Skills (ATC21) framework that includes four classes of skills

The above research findings have been integrated by Lei & Viering (2012) under 5 broad constructs, emerging from the research. These are: Critical thinking, Collaboration, Creativity, Motivation and Metacognition.

Lei & Viering (2012) have mapped several 21st Century skill frameworks into the table below

Research-based construct	P21 Framework terminology	NRC Framework terminology	ATC21 Framework terminology
Critical thinking	Learning and innovation – critical thinking	Cognitive – critical thinking	Ways of thinking – critical thinking, problem-solving, and decision- making
Collaboration	Learning and innovation – communication and collaboration	Interpersonal – complex communication, social skills, teamwork	Ways of working – communication and collaboration
Creativity	Learning and innovation – creativity and innovation	Cognitive – non- routine problem solving	Ways of thinking – creativity and innovation
Motivation	Life and career skills –initiative, flexibility	Intrapersonal – self-development, adaptability	Living in the world –adaptability, flexibility, self-direction
Metacognition	Life and career skills – self- direction, productivity	Intrapersonal - self-management, self-regulation	Ways of thinking – metacognition or learning to learn

Source: Pg.6, Assessing 21st Century Skills, 2012

The Ontario Principals council's the International symposium on Preparing Principals and Developing School Leadership Associations for the 21st Century (2013) identified a range of 21st century skills and also developed a 'schooling student's need of 7 survival skills'. These 7 skills are: Critical Thinking and Problem solving, Collaboration and leadership, Agility and adaptability, Initiative and Entrepreneurialism, Effective Oral and written communication, Accessing and Analysing information, Curiosity and imagination.

Recently, Nehring, Charner-Laird and Szczesiul, (2019) developed a framework for the skills using Bloom's taxonomy, in order to retain the hierarchy of cognitive skills. These skills were then operationalized into projects and activities that are led by school's leadership

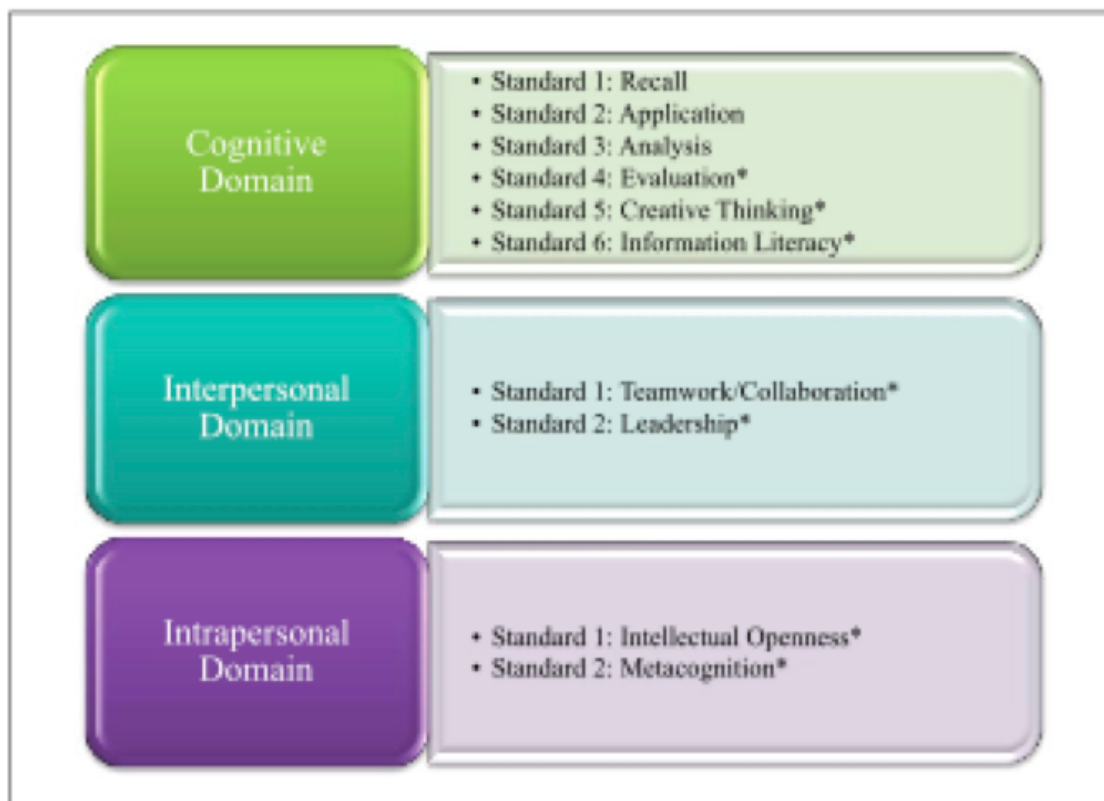


Figure 1. Student skills expressed as tasks in three domains.

Note. An asterisk (*) indicates a task that is higher level, often described in the literature as a 21st century skill.

A more recent framework relevant to Learning in the 21st century is the Social, Emotional and Ethical Learning (SEEL) or SEE Learning, conceptualised and developed by the Emory University's Center for Contemplative Science and Compassion-Based Ethics. It is *"both an international program designed to foster social, emotional, and ethical learning in K-12 (kindergarten through high school) classrooms around the world and a framework that can be used for all levels of education, including higher education and professional learning"* - The SEE Learning Companion.

Inspired by His Holiness Dalai Lama's writings on secular ethics, Daniel Goleman and Peter Senge's book, *The Triple Focus*. SEE Learning Framework is fundamentally based around three dimensions:

- (1) **Awareness**-one must become aware of the issue or problem,
- (2) **Compassion**-one must care and develop an emotional investment that generates motivation to act, and
- (3) **Engagement**-one must act skillfully, which broadly encompass the types of knowledge and competencies it seeks to foster in students.

		DIMENSIONS		
		Awareness	Compassion	Engagement
DOMAINS	Personal	Attention and Self-Awareness (1A)	Self-Compassion (1C)	Self-Regulation (1E)
	Social	Interpersonal Awareness (2A)	Compassion for Others (2C)	Relationship Skills (2E)
	Systemic	Appreciating Inter-dependence (3A)	Recognizing Common Humanity (3C)	Community and Global Engagement (3E)

Source: The SEE Companion

The world in which students are growing up is increasingly complex, global, and interdependent. The challenges that they will face in future, requires a new way of thinking and problem-solving that is collaborative, interdisciplinary, and systems oriented. Socio-Emotional and Ethical learning is the acquisition of skills needed to recognize and manage emotions, develop care and concern for others, make responsible decisions, establish positive relationships and handle challenging situations effectively, which is important to make them future ready.

Daniel Goleman, Author of the Emotional Intelligence: Why it can matter more than IQ, calls it an educational approach for the future - 'I'd call SEE Learning 'SEL 2.0', showing the way to the future direction for this critically important educational approach.'

(ii) Contentions to 21st Century Learning

While on one hand there is so much ideation and research on the idea of 21st century skills, there is on the other hand, Rotherham and Willingham (2010) that argue that there is no novelty in the idea of the '21st century' skills and that these have always been a part of our education system. They highlight that, although ideally they must have been a part of the education system, it was restricted to those who were taught well; or had good teachers. He argues that the struggle today is that of breaking that vicious cycle of good education being received by the elite and a selected few and making it universal for everyone. He argues that these skills have always been a part of content that has been taught well with effective pedagogy and also that skills in themselves have no meaning, unless they are in a context of content. He argues that –

Today, we cannot afford a system in which receiving a high- quality education is akin to a game of bingo. If we are to have a more equitable and effective public education system, skills that have been the province of the few must become universal. This distinction between "skills that are novel" and "skills that must be taught more intentionally and effectively" ought to lead policymakers to different education reforms than those they are now considering. If these skills were indeed new, then perhaps we would need a radical overhaul of how we think about content and curriculum. But if the issue is, instead, that schools must be more deliberate about teaching critical thinking, collaboration, and

problem solving to all students, then the remedies are more obvious, although still intensely challenging. (Pg.17, ibid.)

He suggests that better curriculum, effective and improved teaching and better forms of assessment is what it takes to ensure that children learn well and are also the exact challenges of those who have been marginalized so far. He argues - *'If we ignore these challenges, the 21st-century- skills movement risks becoming another fad that ultimately changes little—or even worse, sets back the cause of creating dramatically more powerful schools for U.S. students, especially those who are under- served today.'*

The OECD working paper '21st Century Skills and Competences for New Millennium Learners in OECD Countries' (2009) highlights a similar contention towards the idea of 21st century skills raised by 'Common Core Group', which contested that although such skills are very important, they cannot be taught independently, i.e. outside a particular knowledge domain such as those designated by traditional academic subjects, nor will students be able to apply such skills if they lack the appropriate factual knowledge on a particular domain.

Another contention to the idea is that some claim that although the concept of competency is extremely valuable for guiding how teaching and learning should unfold in the classroom; it usually represents the voices of businesses and firms. *'In many ways, the rhetoric of 21st century competencies is seen as yet another facet of an economist approach to education according to which its main goal is to prepare workers for knowledge-intensive economies or even in some cases for particular firms. Instead of putting the emphasis on a harmonious development of all human abilities, the discourse on competencies overstates the relevance of work-related competencies.'* (ibid.)

(iii) Leadership for 21st Century Learning

In today's schools there is a new breed of administrator evolving - a leader who embraces school-based management and teacher empowerment. Individual school staff, once tied to a central chain of command, are becoming more powerful in planning their school's futures. This movement not only shows promise for improving education, but it also implies a new theory and direction for school leadership of the near future.

- Morris (1999), School Leadership for 21st Century Skills': Seeds for change

Morris (1999) highlights that the leadership role now is much different as compared to the previous school-based management concept, and insists that it is not just significant but also crucial for the purpose of moving the school forward.

He argues that Leadership, as developed from the perspective of school-based management, involves six basic tasks, roles, or skills, which include

- The school leader as a Facilitator and Trainer
- The School leader as an Expert Adviser
- The School leader as a resource coordinator
- The School leader as a communicator
- The School leader as an advocate

These tasks and roles, which have come to be seen as the heart of school-based leadership, should be the focus of any individual training in the field of educational leadership. And also highlights that the

final and an important leadership characteristic for a 21st Century leader is - *‘Sensitivity to the role of leadership means both examining practice and examining the values that determine practice. Leaders who look to the school to reflect their educational beliefs must recognize the consequences-intended and unintended- and use them in rethinking their leadership.’* (Pg.6, ibid.)

The OECD report titled *Preparing Teachers and Developing School Leaders for the 21st century: Lessons from around the World*, 2012, provides a comparative review across 34 countries for school leadership and has identified a focus on supporting, evaluating and developing teacher quality as the core of effective leadership. This includes co-coordinating the curriculum and teaching program, monitoring and evaluating teaching practice, promoting teachers’ professional development, and supporting collaborative work cultures.

The findings also report that effective school autonomy depends on effective leaders, including system leaders, principals, teacher leaders, senior teachers and head teachers, as well as strong support systems. This, in turn, *‘...requires effectively distributed leadership, new types of training and development for school leaders, and appropriate support and incentives. As a result, it is crucial for the quality of the education provided that school leaders are well equipped to meet these demands and that leading a school is regarded as a valued profession. In some countries, focusing on the development of effective school leaders has become a key part of education reform’* (Pg.19).

The report highlights that for an effective school head, concerned with developing 21st century skills, aligning the teaching in the school with external standards, setting school goals for student performance, measuring progress against those goals and making adjustments in the school program to improve performance of teachers for improvement in student’s learning were identified as other important aspects of school leadership.

The OECD study concludes that school leaders can make a difference in school and student performance if they are granted the autonomy to make important decisions. To do this effectively, they need to be able to adapt teaching programs to local needs, promote teamwork among teachers, and engage in teacher monitoring, evaluation and professional development. They need discretion in setting strategic direction and must be able to develop school plans and goals and monitor progress, using data to improve practice. They also need to be able to influence teacher recruitment to improve the match between candidates and their school’s needs. Last but not least, leadership preparation and training are central and building networks of schools to stimulate and spread innovation and to develop diverse curricula, extended services and professional support can bring substantial benefits.

The Ontario Principal’s council’s report on *Preparing Principals and Developing School Leadership Associations for the 21st Century* in 2013 highlights that School Principals matter in deep and profound ways and argues that - *‘A new wave of research on educational leadership has confirmed that the quality of leadership practices in a school can make a significant difference to the learning and achievement of students. As Viviane Robinson states in her book Student-Centered Leadership, “in the higher-performing schools it is much more focused on the business of improving learning and teaching.”’* And insists that strategies for improving student achievement *must* include efforts to move principals from *‘primarily managers to instructional leaders’*.

It argues that 21st century leader, reflects a ‘Student-Centered leadership’ that gets *translated into school effectiveness and school leadership frameworks for shared understandings, leaders create the conditions required for teaching and learning’* by following these practices

- Setting direction
- Building relationships and developing people
- Developing the organization to support desired practices
- Improving the instructional program
- Securing accountability

Fullan's and Sharratt's Whole System Approach (2015) in *Putting Faces on the Data* to inquiry involves educators questioning their practice, looking at purposeful collection and use of data, and reflecting on what's working, what's not working, and what could be done differently. This whole-system approach to inquiry focuses the work on data "*resulting from deep, collective thought and conversations over a sustained period of time.*" (As quoted on Page. 10).

Ferrandino (2001) in the paper 'Challenges for 21st Century Elementary School Principals' argues that - '*The principal-ship of the 21st century requires something more than a compendium of skills. It requires the ability to lead others and to stand for important ideas and values that make life meaningful for others. It requires never losing sight of a vision, even while making the hard day-to-day decisions.*' He mentions the following attributes possessed by tomorrow's principals:

- 1) The leader to have a vision of 'learning' in the school
- 2) A vision for the school culture and instructional program in the school
- 3) A system for effective management in the school
- 4) Where school collaborates with families and community
- 5) The principal acts with integrity, fairness, and ethics
- 6) The principal has an awareness of political, social, economic, legal, and cultural context.

(iv) The Policy-Practice Perspective: National & International

From a policy lens, literature suggests re-conceptualising the teacher and school leader's capacity building models. In order to create 21st-century learners, there must be focus on teachers' 21st century skills and re-conceptualize how we can evaluate and train teachers. To achieve this, there is a need to '*invoke constructivist understandings of what goes on in class-rooms and, in particular, teachers' practices. Beyond common dimensions of practices, we sought to discover and construct dimensions that were expressed in contextually and culturally meaningful ways*' (Kim, Raza, Seidman, 2019)

The classroom must also serve as the space where learners observe the modeling of skills by their teachers. If teachers do not know how to identify teaching practices, they certainly will not know how to model them. (Kim, Raza, Seidman, 2019)

Traditional ways of teaching and training on these skills may not work. As through the transmission model, students can learn information, but typically don't have much practice applying the knowledge to new contexts, communicating it in complex ways, using it to solve problems, or using it as a platform to develop creativity. Therefore, transmission is not the most effective way to teach 21st-century skills. Students are not developing them because they are not being explicitly taught and because they are more difficult to assess than factual retention. (Saavedra, Opfer, 2012)

This work will be demanding and complicated, and it will require educators and policy makers at all levels precisely the sorts of skills that we deem critical for the next generation. However, if we believe 21st-century skills are the key to solving economic, civic, and global challenges and to engaging effectively in those spheres, then we must act upon the belief that using those skills to overhaul our education systems is possible (Saavedra, Opfer, 2012)

An emphasis on what students can do with knowledge, rather than what units of knowledge they have, is the essence of 21st-century skills. These skills are also gaining steam with policy makers (Silva, 2009)

21st Century skills in the Indian Context

The National Education Policy, 2020 recognizes and emphasizes on the need of responding to the 21st century learning context. It recognises the difference in approach needed to be an important marker for progress for India and its system of Education.

‘This Policy proposes the revision and revamping of all aspects of the education structure, including its regulation and governance,, to create a new system that is aligned with the aspirational goals of 21st century education, including SDG4, while building upon India’s traditions and value systems.’
- Pg. 3, NEP 2020

Further the NEP aims at equipping children with 21st century skills, towards a holistic, multidisciplinary knowledge that helps actualize their potential. *‘The aim of education will not only be cognitive development, but also building character and creating holistic and well-rounded individuals equipped with the key 21st century skills.’* - Section 4.4, page 12, NEP

‘A holistic and multidisciplinary education would aim to develop all capacities of human beings -intellectual, aesthetic, social, physical, emotional, and moral in an integrated manner. Such an education will help develop well-rounded individuals that possess critical 21st century capacities in fields across the arts, humanities, languages, sciences, social sciences, and professional, technical, and vocational fields; an ethic of social engagement; soft skills, such as communication, discussion and debate; and rigorous specialization in a chosen field or fields. Such a holistic education shall be, in the long term, the approach of all undergraduate programmes, including those in professional, technical, and vocational disciplines.’ - Section 11.3, pg. 36,

The NEP surpassed the OECD and other international frameworks on the dimensions of the 21st Century skills. *‘Curriculum and pedagogy are transformed by 2022 in order to minimise rote learning and instead encourage holistic development and 21st century skills such as critical thinking, creativity, scientific temper, communication, collaboration, multilingualism, problem solving, ethics, social responsibility, and digital literacy.’* (Pg.76, NEP, 2020)

Further to this, the NEP sheds light on the Pedagogical approach and promotes *‘Interactive and fun classrooms, where questions are encouraged, with creative, collaborative, and exploratory activities for deeper and more experiential learning.’* furthering the spirit of the 21st century skills in practice.

The NCERT’s National Curriculum Framework (2005) also acknowledges the skills of Critical thinking, Creativity, Collaboration, Problem Solving and Metacognition throughout. The positional

paper of Aims of Education specifically reflects these, be it Independence of thought and action or, Learning to respond to new situations in a flexible and creative manner.

Further, by promoting the idea of adopting Critical pedagogy and Participatory Learning throughout as pedagogy and approach to teaching and learning, the NCF that promotes critical thinking, problem solving and finding real life applications, that have been recognised by several international frameworks to be 21st century skills. (2.4.5, Page 22, NCF, 2005).

Shedding light on the teacher's capacity to be able to lead such progressive classrooms, the NCF - Teacher Education, 2009 explicitly articulates the following as an objectives of teacher education: *Teachers need to reconceptualize citizenship education in terms of human rights and approaches of critical pedagogy; emphasise environment and its protection, living in harmony within oneself and with natural and social environment; promote peace, democratic way of life, constitutional values of equality, justice, liberty, fraternity and secularism, and caring values.* (Page 21, NCF-TE)

The National Skill Development Corporation's *Education and Skill Development Report*, (Volume 8, 2017) also acknowledges research that the education model that uses play and other creative methods to promote holistic learning that goes beyond classic notions of the classroom, builds 21st century skills, and promotes preparedness for the modern economy The skills are endorsed by students and stakeholders as important for building resilience, persistence, and confidence, amongst others that facilitate facing 21st century life's possibilities and challenges.

While 21st Century Skills have caught momentum internationally, the policy focus in India, can be seen under the name of 'Life-skills'. These have been broadly in the domains of education which encompasses life skills education for students and training for teachers and skilling for the purpose of employment. On a closer analysis, the 21st century skills and the term life skills seem overlapping. These can be seen in modules of the YUVA program in Delhi, Toolkits developed by the NCERT and CBSE, the recently launched NISHTHA program by the MHRD also emphasises on these skills. More recently the Ayushman Bharat curriculum developed by the NCERT for adolescents reflects most of the skills but with the focus on content knowledge topics like health, sex & sexuality education, nutrition, gender inequality etc.

A large scale mapping study of nations' aspirations to equip students with these 21st century skills revealed how widespread the shift to their explicit identification has become (Care & Kim, 2018). Countries are broadening their educational provision beyond a sole focus on academic achievement. However, the degree to which aspirations have translated to implementation within education systems varies across countries. In the study, how far countries have moved toward implementation was explored through several indicators

- Whether a country identified specific 21st century skills in their education mission, vision statements, or associated policy documents, such as national education plans;
- Whether a country identified specific 21st century skills within the curriculum;
- Whether a country described how 21st century skills develop and progress over time from basic to more complex forms and through the education levels

Mission and vision statements, and associated national policy documents, portray a country's educational aspirations for individual learners, or may reflect social and economic goals and national values.

Way Forward

There is a need for a well-developed, holistic framework situated in the Indian context. A framework that brings together learnings from across cultures and incorporates indigenous knowledge and practices in a well-research way. A framework that is both - inward looking as well as outward looking in approach that equips the children of tomorrow with competency to face the VUCA world and innovate for the challenges.

The framework should focus on a certain set of values & mindset that forms the core, domains that range from self, others and the ecosystem one is a part of, actual skills / competencies that may be universal in nature. A combination of the above when nested may need alternate pedagogy and reorganization of traditional subjects, to achieve these competencies as the end goal. The pedagogy would throw opportunities to children to explore and identify their development as an individual, as a society and as a system.

In order for children to be able to learn these, our system consisting of teachers, school leaders, community, textbooks & educational functionaries need to be prepared and equipped with capacity to lead such schools & classrooms. This calls for integrating the 21st century learning into the leadership development programs as well for our school leaders.

References

1. Ananiadou, K. and M. Claro (2009), *21st Century Skills and Competences for New Millennium Learners in OECD Countries*, OECD Education Working Papers, No. 41, OECD Publishing.
2. Binkley, M., Erstad, O., Herman, J., Raizen, S., Ripley, M., & Rumble, M. (2010); *Defining 21st century skills. Assessment and teaching of 21st century skills draft white paper*; The University of Melbourne.
3. Ferrandino, L. Vincent.; *Challenges for 21st-century Elementary School Principals*; Phi Delta Kappa International, Vol. 82, no.6, February, pp. 440-442
4. Fullan, Michael. (2011). *The Moral Imperative Realized*. Thousand Oaks, CA: Corwin Press.
5. https://www.actfl.org/sites/default/files/pdfs/21stCenturySkillsMap/p21_worldlanguagesmap.pdf as accessed on 10th May 2016 at 1:25pm
6. Jean-Marie, Normore, & Brooks, 2009, Leadership for social justice: Preparing 21st Century School Leaders for a New Social Order, *Journal of Research on Leadership Education*, June 2009, Volume 4, Issue 1
7. Kim S., Raza M., Seidman E., 2019, Improving 21st-century teaching skills: The key to effective 21st-century learners, *research in Comparative & International Education* 2019, Vol. 14(1) 99–117
8. Lai, Emily R & Viering, Michaela (2012); *Assessing 21st century Skills: Integrating Research Findings*; National Council on Measurement in Education, Vancouver, B.C.
9. Male T., Palaiologou I.; *Pedagogical Leadership in the 21st Century: Evidence from the field*; Educational Management Administration & Leadership 2015, Vol. 43(2) 214–231, 2013
10. McKinsey Global Institute (2017); *Harnessing Automation for a future that works*; as accessed on March 2020

<https://www.mckinsey.com/featured-insights/digital-disruption/harnessing-automation-for-a-future-that-works>

11. Morris, Robert C. (1999); *School Leadership for the 21st century: Seeds for Change*; Educational Horizons; Vol.77, No.2 Leadership in Education, pp.95-100
12. National Curriculum Framework, NCERT, 2005
13. National Curriculum Framework for Teacher Education, Accessed on http://ncte-india.org/ncte_new/pdf/NCFTE_2010.pdf
14. National Education Policy, 2020, accessed on https://www.education.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf
15. National Skill Development Corporation, Education and Skill development Industry reports accessed on <https://nsdcindia.org/industry-reports>
16. NISHTHA portal accessed on <https://www.india.gov.in/spotlight/nishtha>
17. Nehring J., Charner-Laird M. and Szczesiul A., 2019, Redefining Excellence: Teaching in Transition, From Test Performance to 21st Century Skills, NASSP Bulletin 2019, Vol. 103(1) 5–31 © 2019 SAGE Publications
18. Ontario Principal's council, Preparing principals and developing school leadership associations for the 21st century
19. Posner, Dave (2002); *Education for the 21st Century*; The Phi Delta Kappa International; Vol. 84, No. 4, pp. 316-317
20. Rotherham, A & Willingham, D. (2010); '21st Century Skills' Not New, but a Worthy Challenge; American Educator, Spring, pp.16-21
21. Schleicher, A. (ed.) (2012), *Preparing Teachers and Developing School Leaders for the 21st Century: Lessons from around the World*, OECD Publishing.
22. Papadopoulos (2010), *Looking ahead: An educational policy agenda for the 21st century*, European Journal of Education, Vol. 30, No. 4, 30-Year Anniversary Issue (Dec., 1995), pp. 493-506
23. Silva E., 2009, measuring skills for 21st century, PHI DELTA KAPPAN, May 2009, Pg.630-634
24. Saavedra A., Opfer D., 2012, Learning 21st-century skills requires 21st century teaching, Kappan October 2012
25. Smythe S., Toohey T., Dagenais D., 2016, Video Making, Production Pedagogies, and Educational Policy, Educational Policy 2016, Vol. 30(5) 740–770
26. The SEE Learning Companion, SEE Learning Curriculum, Centre for Contemplative Sciences and Compassion based ethics, Emory University, <https://seelearning.emory.edu/node/5>
27. World Economic Forum Report, 2014