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EDUCATIONAL CHALLENGES IN 21ST CENTURY AND SUSTAINABLE DEVELOPMENT

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Abstract

The converging impact of globalization, ICT and knowledge explosion has led to phenomenal changes in the modern society, which have challenged every aspect of our modern lifestyle. To cope with these run-away changes we need to prepare workforce with the skills to handle a range of electronic technologies that characterize this digital era. To prepare citizens with cosmopolitan outlook, cross-cultural understanding, capable of working in multicultural settings on group projects and capacity to think creatively and critically a different approach to the delivery of education is required. This paper argues that nothing less than a radical change, especially in the developing countries, is required in the ways education is delivered to the 'digital natives' of today and tomorrow. Arguing that education is the engine room and strength of a nation is based on its quality education, it is crucial for a country to deliver calibrated education to prepare globally competitive citizens. The paper examines various educational reforms undertaken in some successful education systems, but it also serves a caveat that the developing countries like Indonesia or a region like ASEAN should learn from the experience of such systems. At the same time time they should be aware of that an idea which works in one socio-economic setting may not be that effective in another setting as socio-political systems play their own part.

Keyword:
Educational challenges, Information Communication and Technology

In 21st century, we live in an interconnected world where globalization, Information Communication Technology and knowledge explosion have shrunk the world into a global village. Education, ICT, innovation and science technology are the main pillars of knowledge society. Technology is shaking the world. "We live in a world today where there is an invisible hand of technology, always pushing the boundary for freer trade, for globalization and for us to be more connected" Mr. Ong, Minister of Singapore, 4 June, 2017). Socio-political and economic landscape has undergone phenomenal changes. Globalization has integrated the world into one economic space via increased international trade and financial markets and facilitated the flow of goods, services, capital and labor without barriers of national borders (Held et al., 1997). As Thomas Friedman wrote in his book *The World is Flat* (2005) the world is deeply interconnected mainly because of the rapid rise in technology and sharp fall of trade barriers. For developing countries, globalization has proven to be more of a transformative force than anything else. Hundreds of millions of people in Asia have risen from poverty to form an enormous middle class. The rise of Asia is one of the most critical developments of the late 20th and early 21st centuries. Hundreds of millions of people in Asia have risen from poverty to form an enormous middle class. Educated workforce is no longer in the domain of the developed countries as developing countries (e.g. China and India) have started to catch up. In fact the process of globalization has challenged the existing structures and processes and opened opportunities for increased international collaboration.

Technology is an enabling force behind, knowledge work ad entrepreneurship. Evidence shows that the link between education and economic growth strengthens as the rate of technology transfer increases. Many sectors of economy are now in the process of developing and actualizing business strategies based on how people use ICT as a means of individual and collective expression, experience and interpretation. Competitive advantage for a nation or region (e.g. ASEAN) is now built upon the skills of its general workforce. Innovation, rapid dissemination, accumulation and effective application of knowledge on a large scale enable a nation to be globally competitive. In this fast changing and interconnected world, internet has made knowledge ubiquitously available. Modern global economy pays for what you can do with

what you know. In a digital world, no organization can succeed without incorporating technology into every aspect of its everyday practices. The capabilities of computers and related technologies have expanded so much that computer and computer-driven machinery are replacing human labor in performing routine tasks. Technology has become an integral part of life and learning patterns in the 21st century

Challenges to Education Systems in the Digital Era

We now carry a massive storehouse of information and knowledge and face unprecedented challenge, brought by the converging impact of globalization, increasing impact of knowledge as a principal driver of growth and the ICT revolution. In the digital era technology has made it possible to access world's best subject experts and specialists in any part of the world, allow them to use the world's most brilliant methods of interactive multimedia communications, and make it easy to teach anyone anything in a way that suits each person's lifestyle. Society is changing at an alarmingly accelerating pace but schools remain lethargically stuck with structures that took place in the 19th. Century. Many of the developing countries have average levels of education in the 21st century that were achieved in many Western countries by the early decades of the 20th century (Schleicher, 2015). Many of these countries are struggling to change their pedagogical practices mainly because of politico-social beliefs and lack of resources. Schools teach obsolete skills that are not needed in the digital era. Too many children are leaving school without mastering a minimum set of cognitive and non-cognitive skills. "Entire structure of school, including its age segregation by grades and the content of curriculum, is determined by the outgrown characteristics of pre-digital age technologies. An attempted use of computers to improve the obsolete system is akin to using the jet engine to improve transportation by attaching it to a stagecoach" (Papert and Markowsky, 2013, p. 31).

The core changes brought by ICT in society call for research on specific new forms of learning and epistemological issues regarding how learning occurs and how knowledge emerges beyond the borders of traditional systems of education. These emerging challenges and opportunities have important implications for education policy makers. Knowing how we learn, how to turn information into knowledge and how to document and analyze life-long learning are essential in the 21st century. New skills are required at all levels (Chubb, June 2015). In many countries, especially in developing countries, teachers and students are stuck with a curriculum that is highly outdated and of very little use in their future lives. In 21st century challenges for education systems are many-fold. New economy is driven by entrepreneurs, technology, and innovations. Emergence of the 'knowledge society', rise of service sector, dependence on knowledge products, and highly educated personnel for economic growth are new phenomena (Castells, 2000; Friedman, 2006; Odian and Mancias, 2004). With rapid advances in knowledge, technology and skills are becoming the key drivers for development. Knowledge economy is the generator of most wealth jobs and citizens will be needed with the capacity to identify problems, work in multi-disciplinary teams to identify solutions to manage complex and multi-dimensional tasks, to synthesize ideas and to communicate effectively. In knowledge society, crucial challenge for a nation's education is to align curriculum and learning to a whole new economic model based on an emerging global knowledge-based workforce (Dede, 2008). To accomplish this, it is imperative to transform children's learning processes in and out of school and engage them in acquiring 21st century skills and knowledge.

Investment in human capital is critical for economic competitiveness and growth. Knowledge is its primary production resource. Knowledge economy is driven by two crucial forces: the increase in knowledge-intensive economic activities and globalization of these activities (Houghton and Sheehan, 2000). The knowledge-intensive economic activities are in turn driven by the information technological revolution. Therefore, employment in the knowledge-based economy is characterized by increasing demand for highly skilled workers known as 'knowledge workers' (Drucker, 1993).

The term knowledge society generally refers to a society where knowledge is primary production source instead of capital and labor. In knowledge society people create, share and use knowledge for the prosperity of its people.

In 21st century knowledge has replaced industrial organization as the major source of productivity. Education, ICT, innovation and science technology are the main pillars of knowledge society. High proportion of people is employed as knowledge workers. The nations,

which attach importance to knowledge economy are investing to produce students who can intelligently manage and evaluate information and apply their knowledge in another context. Teacher's prominent role in the digital age is that of a lead learner. Teachers need to understand the role of technology in the learning process and the principles behind integrating it in a way that promotes learning without being a distraction. When innovative teachers integrate technology in their teaching student learning is greatly enhanced. Educational technology initiatives are about enabling students to achieve their maximum potentials. Transformative use of educational technology requires changes to pedagogy, curriculum, assessment policy, ICT and funding. In fact, digital education needs excellent teachers and the teaching profession needs digital education. "As digital tools proliferate and improve, solid instruction in the basics will eventually become 'flat'-available anywhere globally. The elements of excellent teaching that are most difficult for technology to replace will increasingly differentiate student outcomes" (Bryan and Ayscue, 2012).

There is a broad consensus that yesterday's lecture-centric, one-size-fits-all approach cannot prepare students for today's challenges, let alone those that will emerge in their lifetimes. The new paradigms for education in 21st century demands a holistic transformation of education-guiding a comprehensive roadmap that covers curricular and assessment reform, new teacher recruitment and training strategies, leadership development and the integration of collaborative technologies. In 21st century graduates will "need a capacity for inventiveness and the ability to respond effectively to novelty. The new world will require them to have a thirst for continuous learning, for updating their knowledge and skills in information literacy. They will need the personal resilience to deal with uncertainty and failure…. They will need confidence in their own values and commitment to the well-being of society" (Michael Spence, Vice-Chancellor of Sydney, October, 13, 2015).

Preparing 21st Century Workforce

Job markets have become more polarized as many of the mid-skill jobs that developed during the 2oth century, particularly in manufacturing, have been eliminated by new technologies or outsourced to emerging economies. In the 21st century workforce is needed with the ability to use a range of electronic technologies to access, synthesize and apply information, citizens who can think creatively and critically and the ability to communicate effectively and collaborate with others, particularly in diverse and multicultural settings. To prepare citizens with cosmopolitan outlook and cross-cultural understanding a different approach to education is required.

To enhance students' employability they need to be equipped with skills to handle the complexity of modern world where education plays key role in everyday living. What we must be educating students to know is how to learn, how to turn information that is now accessible and ubiquitous into knowledge and analyze the effectiveness of their own learning (Cambridge, 2006, p. 14).

The term 21st century skills refer to broad set of knowledge, skills, work habits, and character traits that are critically important for success in today's world. Literacy and numeracy, ICT skills, learning to learn, evaluating and problem solving, interpersonal and civic competencies, entrepreneurship, cultural awareness, flexibility, adaptability, working independently, critical thinking and self-directed learning are some of the crucial skills are the required attributes of 21st century workforce. Other core competencies include global citizenship, financial literacy, ability to solve complex problems individually and in teamwork, responding to change, working in high performing teams, communicating effectively in multiple modalities in the face of emerging challenges, and operating in global context. The international competition from nations with strong education systems and millions of highly educated, skilled workers, dominate markets. Education systems of these countries have geared their curricula to focus in developing the skills stated here:

- Critical thinking, problem solving, reasoning, analysis, interpretation and synthesizing information;
- Research skills and practices, interrogative questioning;
- Creativity, curiosity, imagination, innovation, personal expression;
- Perseverance, self-direction, planning, self-discipline, adaptability and initiative;
- Oral/written communication, public speaking;
- Leadership, teamwork, collaboration ad cooperation and global awareness;
- ICT literacy and scientific and environmental literacy;
- Civic, ethical and social justice literacy, multicultural literacy, financial literacy;

How to transform the education system?

In a fast changing, interconnected world, education must change to prepare students for success in life. The modern global economy doesn't pay you for what you know because internet knows everything. The world economy pays you for what you can do with what you know. Nations that want a knowledge economy are investing to produce students who know how creatively they can use what they know and apply their knowledge in another context. The shift to knowledge economy has brought wide spread concern that young people are entering workforce without the skills employers value most such as stated above. Now there is a growing realization that to prepare citizens with cosmopolitan outlook and cross-cultural understanding different approach to education is required. Japanese economic success is attributed to a highly literate and well-educated population. This gap in skills has led to focus on school-based reforms. Equally, a big concern is that young people lack opportunities outside of school to practice skills. In the workplace the youths are presented with real world opportunities to develop such skills as responsibility and independence (Levine and Haffner, 2006). They also develop social capital i.e. they create informal networks and interact with adult role models who encourage good work habits (Whalen et al., 2003). Focus of teaching is becoming to prepare students for modern learning and developing qualities to be global citizens. Expectations from educational institutions to transform the learning landscape and bring fundamental change in student outcomes have increased. For success both on the job and in their personal lives students will have advantage if they learn how to apply what they learn to deal with real world challenges, rather than simply reproduce the information in tests.

Traditional schooling is experiencing a credibility crisis as students are dropping out in record numbers and juvenile delinquency is on the rise. To bring fundamental changes in current practice of education and in the thinking of practitioners, action is needed at alllevels of education. It has never become increasingly so important to prepare the workforce to face the challenges introduced by the combined forces of globalization and technology. In 21st century educational context has changed and the new context demands new thinking. Educational leaders and policy makers face the daunting task to transform their education systems in order to produce the workforce with competencies matching these challenges. As long back John Dewey made an incisive comment "If we teach today as we taught yesterday, we rob our children of tomorrow". In a similar vein a Chinese proverb serves a reminder: "Do not confine your children to your own learning, for they were born in another time".

Modern educational thinkers have espoused different approaches to transform the 20th century model of teaching and learning. Transformative systems enable the development of 21st century competencies. They recognize that you can't effectively communicate, collaborate, innovate or solve problems in the 21st century without technology. As globalization intensifies, it becomes ever more important that the performance of pupils in our schools matches performance elsewhere. Schools in 21st century will be laced with a project-based curriculum engaging students in addressing real world problems, and issues important to humanity. This is a dramatic departure from the factory model education of the past, textbook driven, teacher-centered and paper and pencil approach. The new paradigm for education in 21st century demands a holistic transformation of education, guided by a comprehensive roadmap that covers curricular and assessment reform, new teacher recruitment and training strategies, leadership development, and the integration of collaborative technologies. In 21st century literacy is about reading for learning, the capacity and motivation to identify, understand and interpret, create and communicate knowledge, using written materials associated with varying situations in continuously changing contexts.

Transformation in schools takes place when school leaders engage their communities and stakeholders in a dialogue about the 21st century competencies they will embrace in their schools. Transformative use of education requires changes to pedagogy, curriculum, assessment and policy. Managing these changes calls for highly skilled leaders who can (a) inspire strong minded individuals, (b0 implement significant changes and advance school culture to increase collaboration, inspire innovation and establish a continuous cycle of continuous improvement.

With the help of ICT teachers can transform learning environment by engaging learners and facilitating student-directed learning; personalized learning, connecting all learners; supporting virtual learning spaces; improving teacher

earning through online materials, collaborative learning communities, building capacity through partnership.

Global Educational Reforms Movement (GERM)

The flagbearers of GERM are the nations that have demonstrated that the real wealth of a nation is its well-educated human resources. These nations have realized that quality education is the engine room for modern economies, well-educated workforce is the backbone for nations' progress and 'Knowledge workers' are the cornerstones of a nation's economic growth and prosperity. Most of these nations invest over 6% of their GDP on education, much higher than the developing countries do. The assumption of high spending on education is that it would lead to an increase in the skilled workforce to improve national productivity and make the workforce better able to perform and compete in global markets (e.g. Japan, South Korea). In this knowledge society knowledge economy is the generator of most wealth jobs and citizens with the capacity to identify and solve problems, to work in multidisciplinary teams to manage complex and multidimensional tasks, to synthesize ideas and to communicate effectively are asset to a nation's prosperity.

Since 1980s GERM has become increasingly main educational reform in the OECD, the USA, UK, and Australia. Common features of educational policies and reforms have been employed to improve the quality of education and fix the apparent problems in public education systems. Main features of GERM have been identified by Hargreaves and Fullan(2012). The first feature is the standardization of education: outcome-based educational reform in the 1980s followed by standard-based educational policies in the 1990s. Underlying concept of these reforms is that setting clear and sufficiently high performance standards or schools, teachers and students will improve the quality of expected outcomes. By setting detailed performance targets, frequent testing of students on standardized tests will improve student outcomes. Second, GERM focuses on core subjects: literacy and numeracy tested on PISA, TIMSS and PIRL. Success or failure of pupils, teachers, and schools is judged on the basis of standardized tests. Third, by searching for low-risk ways to teach learning goals teachers focus on guaranteed content to best prepare their students for tests. Fourth, GERM uses corporate management models as a main driver of improvement. This process is motivated by economic profit. Fifth, schools accountability is closely tied to the standardized testing.

The Standards Movement came about because of legitimate concerns about standards in schools. This movement is rooted in competition between students, teachers, schools, districts and now between countries. All is not well with Standard Movement. Why do one and half million students in the USA drop out of high schools each year? There are millions of students who stay at schools but are bored by the whole process. What do we do with kids who are low achievers and written off students at risk? How to reengage young people who are either failing in school or have pulled out of it altogether? System is failing large number of students. Dropping out is a symptom of deeper problem in the system…. Standards Movement is largely failing by its own terms and creating more problems than it is solving" (Hargreaves and Fullan, 2012 P. 25). Although many countries have started to overhaul their education systems others have started to have a rethink about PISA League Tables. There is a big concern about the form of PISA and the harm it is causing. One of the perils of standardized education is the idea that one size fits all and life is linear. It is more sensible to help develop children in their different ways and identify the personal talents and interests that engage them. There is a strong world-wide demand for alternative to PISA tests. Robinson (2015) argues that we should start with projects that interest them and where they can work collaboratively in groups. He calls it alternative education.

In the USA, *Race to the Top* marks a historic moment. It has helped to pursue higher standards, improve teacher effectiveness, use data effectively in the classroom and adopt new strategies to help struggling schools. Now in the USA emphasis is on improving science, technology, engineering and math (STEM) to enable all students to learn deeply and think critically.

Anti-GERM: Finnish Model

Educational improvement efforts now in place, even in developed countries, re aimed at bringing back the education of the 20th century with technological enforcements. Even if, as a result of such efforts, the current reforms will not solve our educational problems, which are related not to test scores, but to the future. When educators think success at education is moving our kids up in the PISA rankings, they send the

message that they want our students to compete in the past. In many cases, reforms have failed to take hold in the classrooms or at best get 'adopted on the surface without altering behaviors and beliefs' (Fullan, 2015). Our biggest educational need is not raising scores but as preparing children for the future. Rather than trying to insert knowledge into our kids' heads as in the past (and then trying to measure how much of it has been retained) today's teachers need to find ways to create 21st century citizens who parrot less and think more. Many reform efforts have failed to adequately prepare schools for the changing environment (Fullan, 2010; OECD, 2015b). Meanwhile, schools are urged to learn fast and teachers are urged to become 'knowledge workers' in order to deal effectively with growing pressures of a rapidly changing environment (Schleicher, 2012; 2015). Finland has remained un-impacted to the viruses of GERM mainly because of its professional strength and moral health of it schools. The main elements of GERM are not adopted in Finland.

Finland is a by-word for successful education but ironically it is also in the process of making radical educational reform. The country is scrapping traditional teaching by subject in favor of teaching by topic or *phenomenon teaching*. The underlying philosophy is to prepare people for life. Teaching pedagogy is adopting more collaborative approach with pupils working in small groups to solve problems while improving their communication skills. Teachers are being trained to adopt new approach. Phenomenon-based teaching will be fully implemented by 2020. If Finland goes ahead will she retain its ranking in PISA tests? If it does how will the world react (Hargreaves and Fullan, 2012)? Sahlberg (2013) maintains a good education system can be created using alternative approaches.

Typical features of teaching and learning in Finland are high confidence in teachers and principals, encouraging teachers and students to try new ideas and approaches: putting curiosity, imagination, and creativity at the heart of learning. Main idea is to pursue happiness and development of every Child. Lessons from Finland help kill 99% of GERM (Sahlberg, 201

Elements of this approach can be applied in Indonesian education system. For instance, an upper high school student may decide to study tourism vocational course that could include elements of math, languages (of ASEAN) writing and communication skills. More academic pupils could be taught subjects such as the history of ASEAN, economics, language and geography. 3).

Bottom-up approach

The vision of a number of educational thinkers (e.g. Robinson, 2015; Prensky, 2016; Fullan, 2013) is that innovative changes in education should be bottom-up. This school of thought maintains that students and classroom teachers are vital cogs in affecting the innovative approach to transform the educational process. A change should start from students-what they need and how we can give it to them. A key element to implement this vision is the inspiring and motivating teachers. Adherents of this argument maintain, "How teachers view their students and how they see their mission with them will have an enormous influence on the world to come". Teachers and students need to work together in new forms of partnering in which students do what they do best (like using technology, find information and create products that demonstrate their undertaking) and in which teachers guide students by doing what they do best (asking the right questions, putting the things into the proper context and ensuring quality and rigor). To educate students, teachers must listen to them.

Robinson (2015), among others, maintains that the best ways to raise student achievement is by improving the quality of teaching, teaching a rich and balanced curriculum and having supportive, informative systems of assessment. "The task we face is not to increase yields in schools at the expense of engagement, it is to invigorate the living culture of schools themselves" (Robinson ibid). Schools in the 21st century will be laced with a project-based curriculum for life aimed at engaging students in addressing real world problems and issues important to humanity.

Secondary Education in 21st century

Primary and secondary education is clearly the bedrock on which any subsequent learning is based. The focus of knowledge in 21st century has moved to a great extent from the teacher to internet. Current research has demonstrated that teacher quality is the key determinant of student success. The issue of teacher quality is currently one of the most pressing concerns identified by educational policy makers. Ensuring that all students have access to highly qualified teachers is of paramount importance. In recent years, few educational issues have received more attention than the problem of ensuring that elementary and secondary classrooms are all staffed with quality

teachers. Many countries are pouring billions of dollars to improve the training of quality teachers. Underscoring the importance of quality teachers Hargreaves asserts, "We live in a time when great vision is called for, when our prosperity and security depend on our capacity to develop pupils and teachers who can understand and be able to engage with the dramatic social changes today's knowledge society represents, along with the human consequences" (1998, p. 161).

In modern era, teachers are expected to prepare virtually all students for higher order thinking and performance skills once reserved only for a few. Schools need capacity to learn routinely from the world around them and apply their learning to new situations that they are able to continue on a path towards their goals in an ever-changing context, and be able to prepare children and young people both for the present and their future (Stoll, 2009). Growing body of scholars and educators are arguing for re-conceptualizing schools as learning organizations.

Leadership is crucial to ensure that technology-enabled learning becomes a permanent part of the educational experience. By creating strong leadership team, building community support, managing changes expertly, and planning for long term sustainability, skilled leaders can empower school systems to not only deploy mobile devices, but also use them in meaningful ways to improve student achievement and equity (Wilson, 2013). Leaders' job is to ensure that all the elements of the system line up to make that happen. This involves changes throughout the system-sustainable funding, creating policies that support it, and then creating a continuous cycle of innovation and improvement (Leslie Wilson, 2013). Changes in education require that leaders

- Understand research and theory behind the proposed changes and communicate it persuasively to teachers and other stakeholders;
- Inspire confidence that the proposed changes can produce great results-that they are worth the efforts;
- Understand how proposed changes will affect curriculum, instruction, and assessment, and lead in implementing the changes;
- Monitor results and make adjustments as needed to continuously improve the program's results-Robert Marzano (2012).

The countries that have demonstrated excellence in teaching and learning have ensured to raise the status of teaching as a career and made concerted efforts to attract quality graduates for teacher training. High performing education systems such as Finland, Singapore, South Korea, Japan among others (i) enroll high ability graduates for teacher training courses (ii) control over the number of students undertaking teacher education courses (iii) pay high salary to teachers, (iv) use rigorous process to select entrants to teacher education. Teachers with a passion for teaching develop high-level knowledge of their subject and they use high level of pedagogical teaching and learning practices. A successful change strategy requires professional development, feedback and support for teachers along with well-researched mentoring and valuation. It is critically important to attract good teachers, support and encourage their professionalism, continue to invest in them, and align assessment and rewards to support innovation in teaching. Although it is widely accepted (Darling-Hammond, 2006; Hargreaves and Fullan, 2012; Robinson, 2015) that teacher quality is critical component of successful education, there is little agreement about how to fill nation's classrooms with teachers who can succeed at the more challenging mission of today's schools. Main demand is for teachers not deliverers of curriculum but developers of learning. To meet the growing challenges, teachers need a new kind of preparation-one that enables them to go beyond covering the curriculum but teaching to instill passion for student learning. Teachers must prepare their young pupils to have the strongest chances of success in the knowledge economy. It is imperative that the focus of teaching remains to develop skills for deep learning as identified by Fullan (2012):

- Character education (personal traits and attributes such as responsibility, perseverance and empathy);
- Citizenship (knowledge of the global issues, respect for other cultures, involvement is sustaining humanity and environment);
- Communication: ability to communicate effectively and actively listen to teachers;
- Critical thinking, problem solving and making effective decisions;
- Collaboration: working in teams, learn from and contribute to others' learning and collaborate with diverse individuals;
- Creativity and imagination: consider and pursue novel ideas , lead others and undertake entrepreneurial activities;

- Take ownership of their learning and engage in meaningful social learning.

The knowledge-base on which a teaching career is based has expanded and calls for teachers to engage with it on an ongoing basis as life-long learners (Coolahan, 2002, p.13). In 21st. century teachers are urged to become '*knowledge workers*' in order to deal effectively with the growing pressures of a rapidly changing environment. Schools need to prepare students for life and work in a radically changing environment, for jobs and for technologies some of which have not yet been created.

Students enrolling for teacher training have strong academic achievement, high rate of literacy and numeracy, strong interpersonal communication skills, openness to ongoing learning, and passion for teaching (Masters, 2012). They control entry to teacher education to match the balance between demand and supply of teachers.

Successful education systems develop citizens with the skills such as the (i) ability to use a range of electronic technologies to access, systematize and apply information; (ii) think critically and creatively and evaluate the product of one's thinking; (iii) the ability to communicate effectively and collaborate with others, particularly in diverse and multicultural settings.

OECD refers to successful learner-centric schools as innovative learning environments with the following attributes:

- Make learning and student engagement as central;
- Ensure that learning is social and collaborative;
- They are attuned to learner motivations and emotions;
- Are acutely sensitive to individual differences;
- Are demanding for all students but without excessive overload;
- Use assessments consistent with learning aims, with a strong emphasis on formative feedback;
- Promote connectedness across subjects

The skills that students need to contribute effectively to society are changing constantly, but our school systems are not keeping up. Teachers themselves are often not developing the practices and skills required to meet the diverse needs of today's learners (Schleischer, 2015).

Supported by effective policies, professional development, digital curriculum, teachers gain unprecedented tools and information to customize the students' learning experiences and deliver an academically rigorous education that emphasize inquiry, investigation, independent learning and collaboration. Guided by highly skilled teachers, students in a transformed environment use powerful mobile devices as personal learning platforms. Accessing a wealth of digital learning resources and following modern pedagogic strategies students can (i) manage their time an take more control of their learning; (ii) engage with the world and access different mediums for learning to improve their outcomes; (iii) use wide range of creative methods to demonstrate what they are learning; and (iv) take ownership of their learning and engage in meaningful social learning.

All learners should be prepared to be life-long learners, creative, connected and collaborative problem solvers, happy individuals who contribute to the common good in today's globally inter-dependent world. We need our learning systems to encourage youth to develop their own vision about what it means to connect and flourish in their constantly emerging world and equip them with new skills to pursue those visions" (Fullan and Langworthy (2014). Students in 21st century need not only to master a foundation of facts and concepts, but also be able to apply, extend, and expand on that knowledge. Students must (i) work independently as self-drive, lifelong learners and innovators; (ii) work collaboratively and respect diverse viewpoints; (iii) ink critically about new challenges; (iv) apply their knowledge in novel situations to sole new problems; (v) communicate via range of technologies and methods; (vi) work persistently in the face of difficult challenges.

In their teacher training program, prospective teachers need to be equipped with command of critical ideas, skills and capacity to reflection, evaluate and learn from their teaching so that it continually improves. With increased use of technology in education and expectations from stakeholders teachers are expected to demonstrate that they are making difference in student outcomes. Mode of teaching and learning is undergoing big changes and the domain of academic literacy is spreading beyond reading and writing. Focus of teaching is becoming to prepare students for modern learning and developing qualities to be global citizens. Thus the demand from teachers and schools is to transform the learning landscape, bring fundamental change in student outcomes, measured by their ability to think critically, work collaboratively, solve problems and become life-long learners .

Geoff Masters (2015) identifies five main challenges education policy makers face today.

First, to improve the quality of teaching it is important to improve the status of teachers. To develop teaching as a knowledge-based profession more able gradates must be attracted in teacher training courses. Successful education systems (e.g. Singapore, Finland, Japan and South Korea) enroll graduates from top 10% to 30% percent cohort. In Finland, for example, only one in 10 applicants is selected to become primary school teacher.

Enrolled in teacher training graduates undergo rigorous training subject contents, pedagogy of teaching and integrating technology in teaching and learning.

Second, OECD's PISA shows that some countries (e.g. Germany, Mexico, and Turkey) have been successful to lift levels of achievement and reducing differences related to socio-economic backgrounds of students.

Third, the school curriculum must attempt to equip students for the significantly changed and changing world. Instead of teaching subjects in isolation ad focusing on the mastery of factual information it is more beneficial to teach curriculum with a focus on themes and students tackle issues collectively.

Fourth, there is a need to use more flexible ways of personalizing teaching and learning by using technology to better target individual's current levels of achievement and learning needs. Thus flexible learning arrangements need to be adopted for students' individual growth.

Fifth, low achieving students' learning trajectories need to be identified so that students at risk are identified early on and their problems are addressed.

Higher Education in 21st century

Keeping in view the pace of technological changes and globalization institutions of higher education in many countries have made it their top priority to produce quality graduates. Institutions of higher education in many countries have made it their top priority top produce quality graduates. Teacher training institutes in many countries have started to modernize their teacher training practices in an effort to provide quality education from the foundation level (primary and secondary) to tertiary level. High quality and responsive education system is vital to increase skills which in turn boosts labor force participation and productivity.

Once revered as ivory towers of learning, today's universities are forced to regard their students as consumers and customers. Many universities are torn between market forces and increasing public expectations and accountability. They are expected to develop world-class reputation in research (academic agenda) while teaching increasing numbers of students (economic agenda). They are required to be engines of economic development while maintaining comprehensive scholarly profiles.

University missions need to be redefined and the meaning of scholarship reconsidered to meet today's urgent academic and social mandates (Boyer, 1990). In 21st. century, because of globalization, ICT revolution and belief in the increasing importance of knowledge there are tremendous challenges for universities for market satisfaction and competition. The landscape of universities has considerably changed. The rise of knowledge economy requires universities to provide life-long learning, greater and more equitable access to a more diverse study body.

The traditional model of broad-based teaching and research, with large campuses and bureaucratic structure is unsustainable. Unless universities are transformed an avalanche will sweep the systems away (Barber, Donnelly and Rizvi, 2013).

The scope and impact of higher education has changed drastically in the last few decades. Tertiary institutions are much more diversified and include new types of institutions to cater for labor market needs. There is a diversification of funding sources for universities and public funding has been increasingly tied to competitive performance. There is a growing focus on accountability, performance and quality assurance. Universities are much more connected with the wider world through regional integration, formation of networks, research collaboration, student and staff mobility and transnational education (ibid).

While universities have historically been critical to the development of research and innovation though their autonomous freedom to pursue research for its own sake without a commercially motivated purpose, today's universities are increasingly encouraged to pursue applied research which can be commercialized.

Higher education has an obligation to advance, create and disseminate knowledge through research and scholarship. University admission policies, which are based on meritocracy,

tend to favor socially privileged groups who have better chance of gaining admission (Horn and Sherrington, 2010). The dilemma for universities is to reconcile the mission tensions between equity and other imperatives, such as quality and excellence in the face of diminishing public funding (Douglas, 2007).

In 21st century, universities are expected to produce knowledge of immediate benefit to society and the economy (Laredo, 2007). The emphasis is increasingly on application problem solving innovation, economic and social impact rather than pure research. It demands university research to commercialize, innovate and accelerate research output through direct collaboration with industry.

Institutions of higher education in many countries have made it their top priority to produce quality graduates. Role of our institutions of higher education should be to continually review the pedagogical practices and train the pre-service teachers who would ignite the passion and zeal for teaching in order to create intrinsic as well as extrinsic interest in learning. There is quite a lot to be done at tertiary level to produce quality educators, administrators, educational leaders and quality teachers. Teacher training institutes must adopt a dynamic view of providing necessary tools to incoming graduates. University provides opportunities to develop critical thinking in order to test new ideas and theories. This intellectual excitement takes place in a vibrant and embracing social context. There is openness to differences and challenges.

Successful Education Systems

Most of the OECD countries, Australia and New Zealand Singapore, South Korea, Hong Kong and Japan are rated as high performing education systems. The most common ground among these nations is the importance of keeping excellent teachers in the classroom, continually building teachers' pedagogical knowledge and skills, and recognizing and awarding expert practice. These education systems engage teachers to set their own teaching and learning targets and teachers crafting productive learning environments. A major aim of these education systems is to develop teachers as professionals and experts in their area of teaching. Exemplary teachers are rewarded for their dedication and professionalism.

In Australia only 10% of Year 8 students now perform at about the same level in math as the top 50% of students in Singapore (Masters, 2015).

Mismatch between what students learn at school and what the community or the world of work demand is an issue to be addressed. This irrelevant curriculum and teaching learning process contributes to the widening gap between educational institutions and world of work and leads to high dropout rate that leads to higher unemployment.

In this new economic environment-The New Economy- most developed countries invest heavily in improving the quality of human capital because they realize that it is critical for their economic competitiveness and growth. Successful education systems set high expectations for all students and provide high degree of support for each student. They focus on attracting high caliber teachers and support their professionalism, continue to invest in them, align assessment and reward innovative teachers.

Conclusions

In many countries what today is touted as 'educational reform' is really just reassuring the "deck chairs on the Titanic. We are applying Band-Aids to an education that is in need of a blood transfusion…. We can't win the future with the education of the past…. No matter how innovative programs to improve scores may appear on the surface, it is money being thrown away. If we continue on our current course, we could in the words of Mark Anderson, 'even double or triple the amount being spent, and it wouldn't move the meter an iota' (Prensky, 2012, p. 14)". Before we start on school improvement we set a clear vision and roadmap to achieve our goal. Critics of GERM and standardized curriculum argue that we can change almost everything about the system- schools, leaders, teachers, number of hours and days of instruction- and still not provide an education that interests our students and gets them deeply engaged in their own learning and what they need to be successful in 21st century. We need to change what we teach and how we teach. When we believe that succeeding in our current education is what is important for today` and tomorrow's students, we are putting students at a huge disadvantage in these fast changing times.

When our educational leaders think that the job of educators is to recreate the old education better and more effective for today's students, they deny our students the means to cope and thrive in 21st century. "The educational medicine most prescribed today-the test scores-driven and results-rewarding, it is not the right way to educate

our children, even if it teaches whatever goals they set, because it treats the wrong disease (Prensky, ibid).

The knowledge society belongs to everyone. All children should have an opportunity to reach the highest and the most creative levels of education. We cannot afford to risk a future in which teachers have prepared pupils neither for knowledge economy nor for social and moral challenges (Hargreaves, 1998). Education must continue to innovate and it must empower students to succeed in future that we cannot anticipate.

Challenges for teacher training institutes and teachers in Indonesia are immense. With its massive size, the Indonesian archipelago represents the third largest education system in Asia (after China and India). Measured on global competitiveness Indonesian education system is not performing as well as it should do. Some of the stumbling blocks are embedded in the poor quality of teacher training, out dated pedagogy of teaching and learning, lack of teaching resources, follow-up professional development of recently certified teachers, lack of quality control on graduates who enter teacher training courses, and lack of rigor in teacher training program. Shortage of quality teachers and equity, status quo of traditional teaching styles are some of the major issues, teacher training institutes in Indonesia need to address. Success of New Curriculum in Indonesia depends on the supply of dedicated, well-trained and passionate teachers. "Let us esteem teachers, resource them and help them 'know their impact' on every student in our schools" (Hattie, 2011).

There is a mistaken belief that economic growth alone might result in a happier society. But current inequalities in economic development, resulting in a huge gap between the rich and the poor across the globe, as well as within the nations, is a source of tensions and practical problems. The failure of humanity depends on the adoption of positive mental attitude by the current generation. This is why education is important. Knowledge is like an instrument, and whether that instrument is put into use in a constructive way depends on motivation.

Modern education is very sound, but it seems to be based on a universal acceptance of the importance of developing the brain. Not enough attention is given to the development of the person as a whole, and to encouraging a clear sense of values and warm heart. It is important to address moral questions related to the whole life of an individual. Parents have a special responsibility to introduce their children to the benefits of basic good human qualities such as love, kindness and warm heart.

An agitated mind usually provides some physical imbalance. Younger generations have a great responsibility to ensure that the world becomes a more peaceful place for all. This can happen so long as our modern educational system involves educating heart along with brain-Dalai Lama (*Indian Express, 1/7/2017*).

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