Element 11

Competencies, Skills & Concepts

The Learnlife model diverges from traditional learning approaches which tend to focus on content and knowledge acquisition, towards learning competencies, skills and concepts - these better prepare learners for 21st century engagement.

Concepts, Skills and Competencies

Traditional learning models tend to focus on content and knowledge acquisition. Placing content at the beginning of learning today however, fails to equip students with the key competencies and skills needed to navigate the real world. A new learning paradigm must shift its focus towards learning competencies, skills and concepts to better prepare learners for 21st century engagement.

In a pre-internet world, books and teachers were the main reference points for knowledge. In a digital age this is no longer the case. It is estimated that in the coming decade, between 30-50% of all jobs could be replaced by machines. This has massive implications on the relevance knowledge will play in an evolving digital world. Content will become increasingly irrelevant and therefore education models focusing on content delivery will become increasingly outdated.

Competencies, skills and concepts are the key learning components required to prepare students for a world of constant change. These can be easily attached to content to enhance all learning experiences. Content therefore should not remain the driving force for learning.

Competencies are the capacities people use to navigate their culture, community and careers; they are gained by learning skills. Skills are gained through the applied understanding of concepts. Concepts are the elements of understanding that construct our skills. Learning that focuses on concepts, skills and competencies lays the foundation for all future lifelong learning.

The rate of change occurring in relation to what is perceived to be the top ten key competencies and skills from the World Economic Forum, highlights the agility needed to provide a consistently relevant education model. This will require learning communities to keep a watchful eye on global trends and changes to remain relevant with curated learning experiences.

Learning today must be linked through a variety of transdisciplinary contexts where possible. Teaching linear content or subjects will not prepare students with the competencies or skills required to solve problems requiring complex, multi-faceted approaches.

We live in a digital age where we are ready to create learning experiences to equip students with the competencies, skills and concepts to tackle and solve the problems emerging in our world. The digital age has provided us with the perfect support platform from which to do so.

Then	Now
• Content led the learning experiences. • Traditional learning models once prepared learners for a predictable future. • People generally stayed on the same career path throughout their working life.	• Content is so readily accessible that it is no longer the most important component for learning. • The future remains uncertain and students must be prepared to live and work in a world of constant change. • It is predicted that the current workforce will have an average of 5 careers in their lifetime.

Starting Questions

1. Are learning communities operating under traditional models able to deliver meaningful learning experiences that equip students with key skills and competencies?
2. How relevant do you view content delivery as a way for students to learn in today's information age?
3. How would a learning community need to change to deliver learning experiences that focus on competencies and skills?
4. How would you attach content to learning without making it the sole focus?
5. With the emerging importance of the teaching of skills and competencies, what must education policy makers do to change the prevalence of traditional, rote learning models?

Key Initial Actions

1. Craft a collective vision statement for learning which clearly articulates the direction for pedagogical practices. This is a crucial first step to delivering change.
2. Outline a specific mission for developing competencies and skills in your learning community. This will enable specific focus on key areas at specific times which can become embedded into the learning culture.
3. Create a pedagogic development team. This team must have the capacity and vision to design new learning experiences which connect to the real world and provide relevant opportunities for all students.

On-going Actions

1. Include research in the learning design process. It should focus on trends in competencies, skills and concepts as well as offer foresight into the future students will enter into. It should also provide information on what stages of progression certain competencies, skills and concepts should be delivered to students.
2. Establish agreement around assessing learner growth of competencies, skills and concepts.

Further Reading

The Future of Jobs

Skills for a Changing World

The Futures of learning 2: what kind of learning for the 21st century?

Mapping 21st-Century Skills to SEL Competencies

The 10 skills you need to thrive in the Fourth Industrial Revolution

Meet executive function: How to learn in the age of information overload

Education assessment in the 21st century: New skill sets for a new millennium

The skills needed in the 21st century

3 key steps to making sure your skills stay relevant

Skills, not job titles, are the new metric for the labour market

How do we teach 21st century skills in classrooms?

Watch

What is the Fourth Industrial Revolution? by Prof Klaus Schwab

Find out More

Below is an example of a topic immersion that integrates skills, competencies and concepts into a holistic activity designed to ignite high engagement. Content becomes a by-product in the learning process.

The immersion activity was designed to develop knowledge and understanding in a range of areas, including international aid (civics and citizenship), climate-related events (geography) or geological incidents (science) that impact communities. Some task areas required calculations (numeracy) and the creation of reports (literacy). A number of competencies were targeted including developing collaborative capacity, creative thinking and problem-solving skills. An element of surprise is normally added into an immersion activity to evoke a higher level of emotional engagement with the topic.

This example arose from an observation as part of a research case study…

On the day of observation students knew they would be involved in a whole day 'immersion', but unaware of the activity. The students entered the space as per normal arrangements and formed a large group for the immersion briefing. Students used a range of materials (cardboard, pipe-cleaners, straws, paper, tape, pop sticks, as well as any small and suitable item easily located nearby) to create a small city. They were informed that the city was to be built by a small team of between four to six students in a space allocated. They quickly broke off into teams, chose a space and began their city construction. This continued for an hour before students took recess. Upon returning, they were asked to choose a name for their city after any existing city in the world. Their choice would determine their country. Students were asked to make visual representations to identify their city and add to their models.

During lunch break, when the students were absent from the space, teachers began to create simulated disasters. Some cities were partially burnt, some flooded and some partially demolished.

When students returned at the end of lunch, there was immediate awareness that 'something had happened'. Upon entering the room, a range of emotions were evident. Some students declared that while they did not know what to expect, this was the surprise that normally happens; others became emotional when seeing some of their work 'ruined'. The students were informed that based on the classification of their country (using UN lists of developing or developed nations), the teams could work out a calculation for how much material would be needed to repair their city and the cost for those materials (pre-established by the teachers). Depending on the country selected, funding for repair materials would be either negotiable or allocated on a sliding scale based on the country's economic position. Students could donate materials from team to team if they wished.

The last session of the day was spent repairing as much damage as possible. There were a number of groups who had selected African or South American cities/countries and were told they would not be eligible to receive immediate assistance and therefore would need to reuse damaged materials as best they could.

The immersion activity concluded with a whole group debriefing, followed by smaller group guided conversations at the end of the day. Students shared their growing understanding of the impact that a country's economic context has on their ability to recover from a 'disaster' event. They reflected on the complications that came with location and dependency. They expressed an initial understanding that different events can have different impacts. There was also an emergent awareness expressed, recognising that 'national attitude' and economic capacity (i.e. what the group decided they would share) impacted their willingness to provide aid to other teams.

This description provides a demonstration of the way in which the collaborative design of curriculum experiences such as this are drawn from processes which include a wide range of skills, competencies and concepts together with an approach that includes multiple learning methodologies.

Key Ideas

1. Content and knowledge acquisition is no longer the critical measure of successful learning.
2. Competencies and skills learning better prepares students for the world they will enter into after formal education.
3. A description of competencies, skills and concepts.
4. Advances in research supports new pathways for learning.
5. Content will always have its place in education, however its importance must shift.

Questions

- How much emphasis is placed on the learning of content in the community? Is content used to measure learning?
- Does the learning community provide opportunities for its students to develop their competencies and skills? If so, are they a focus for learning, and not just an outcome?
- Does the learning community provide its students with opportunities to learn about how they learn?

- If the learning community operates within a government system, does it provide opportunities for learning beyond content? Or, does the delivery of learning content include the development of competencies and skills?
- Does the learning community design experiences with a transdisciplinary learning focus?

1. Content and knowledge acquisition is no longer the critical measure of successful learning.

In the pre-internet world, books and teachers were the main reference points for knowledge acquisition - they were masters of content. In a knowledge economy, this is no longer the case. Learning with content at the centre is outdated, especially in a world where the rate of knowledge expansion is exponential. Learning through content inadequately prepares students for the phases of their lives after formal education.

> ***'Education is the most powerful weapon we can use to change the world.'***
>
> *Nelson Mandela*

Across continents, the business world acknowledges alarming and growing mismatches between their needs and the worker emerging from formal education systems.

It is estimated that in the coming decade, between 30-50% of all jobs could be replaced by artificial intelligence(AI) and robots[1]. Emerging workforces will find themselves in rapidly changing environments which will continue to evolve. It is predicted that how we will work and live will be shaped by AI, autonomous vehicles, synthetic biology and many other emerging technologies[2].

> ***'Clearly there is a growing mismatch between what is required in the 21st century workplace and the focus of traditional education systems preparing young people for the workforce."***
>
> *The Skilling Challenge, McKinsey & Ashoka, 2018*

2. Blended learning has reimagined how learning can be designed and delivered.

The early decades of the 21st century bear witness to an increased focus on competencies and skills as building blocks for future-ready learning. Developing broad and relevant core competencies and skills is crucial in an age where learners have an increased access to an endless ocean of knowledge. Examining educational priorities in countries across every continent highlights universal consensus towards the teaching of competencies and skills. The challenge is how to merge this new focus on learning without abandoning core concepts, which to some degree are content-based.

In a new learning paradigm, literacy and numeracy skills remain crucial, but learning these alone insufficiently prepares students to succeed and navigate the 21st century. A holistic set of skills are required, extending into physical, social, cognitive, digital, creative and emotional spheres.

> ***'According to Darwin's Origin of Species, it is not the most intellectual of the species that survives; it is not the strongest that survives; but the species that survives is the one that is best able to adapt and adjust to the changing environment in which it finds itself.'***
>
> *Professor Leon Meggison (1963)*

Rapid change requires agility

The World Economic Forum highlights the rate of change occurring in relation to what is perceived to be the top ten key competencies and skills[3]. It focuses on the implications of the so-called 'fourth industrial revolution[4]' and the predicted changes in skills-relevance in an anticipated time-frame of five years:

in 2020	In 2015
1. Complex Problem Solving	1. Complex Problem Solving
2. Critical Thinking	2. Coordinating with Others

[1] The digital future of work: What skills will be needed?

[2] 9 ways to make education fit for the 21st century

[3] 10 The 10 skills you need to thrive in the Fourth Industrial Revolution

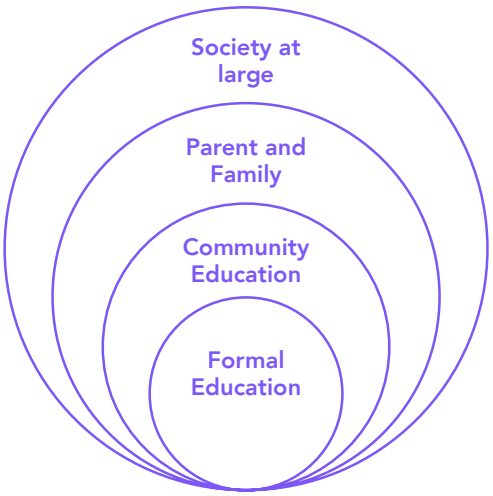
3. Creativity	3. People Management
4. People Management	4. Critical Thinking
5. Coordinating with others	5. Negotiation
6. Emotional Intelligence	6. Quality Control
7. Judgement and Decision Making	7. Service Orientation
8. Service Orientation	8. Judgement and Desision Making
9. Negotiation	9. Active Listening
10. Cognitive Flexibility	10. Creativity

Within such a short time-frame, the changing needs of the workplace, technology and workforce depicts shifting priorities in competencies and skills. This has huge implications on what learning communities should plan for, and supports the importance of agile learning design frameworks to adapt accordingly.

Furthermore, the United Nations Sustainable Development Goal 4 identifies literacy and numeracy skills, skills for employment and entrepreneurship, and skills needed to promote sustainable development as targets for all children and youth by 2030[5]. Creating a holistic curriculum that is fit for purpose is crucial to successfully delivering the skills set out in this goal.

Learning today must be linked through a variety of transdisciplinary contexts - formal and informal and in local communities and global societies. Understanding these links creates transferable competencies and skills. The diagram below demonstrates links that learning communities should understand and take responsibility to adopt to prepare learners appropriately:

Learning Ecosystem



[4] The Fourth Industrial Revolution: what it means, how to respond

[5] Sustainable Development Goal 4

A new learning paradigm must enable students to attach 'action' to specific content. In this learning scenario content goes beyond 'why' and towards 'how'. More specifically, the acquisition of skills and competencies are achieved by attaching tasks to conceptual content. This context moves learning beyond mere digestion of content so it becomes individually relevant and engaging because it is no longer merely about memorising and regurgitating information.

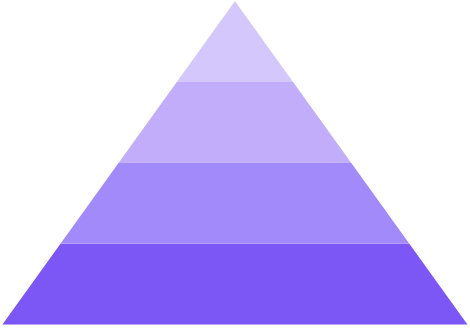
> ***"The great aim of education is not knowledge but action.'***
> *Herbert Spencer'.*

3. A description of competencies, skills and concepts.

Learnlife recognises connections between competencies, skills, core concepts and learning experiences:

1. Competencies are the capacities people need to navigate their culture, community and careers. These are gained by learning skills.
2. Skills are gained through the applied understanding of concepts.
3. Concepts are the elements of understanding that build skills.
4. Learning experiences are the driving force for the development of all competencies, skills and core concepts.

Core concepts aggregate to create skills, and skills are the building blocks of wider competencies. In other words, concepts must be understood to grow skills, and from that skills can develop competencies.



Embedded into all competencies, skills and concepts learning, is the unique experiences of each individual. Learning experiences that focus on concepts, skills and competencies build a strong foundation for future, lifelong learning.

The following descriptions demonstrate some of the key learning features of competencies, skills and concepts:

21st century competencies

Relationship management, responsible decision-making, social awareness, self-management, self-awareness, civic literacy, digital literacy, global awareness, cross-cultural skills, critical and inventive thinking, communication, collaboration and information skills and social and emotional competencies[6].

21st century skills

Socio-emotional, communication, critical thinking, citizenship, complex problem-solving, creativity, people management, self-coordination, coordinating with others, emotional intelligence, judgement and decision-making, service orientation, negotiation, cognitive flexibility, quality control and active listening[7].

21st century concepts

Self-determined learning, adaptability, interdependence, diversity, design-thinking, data-rich environments, media-driven societies, civic duty and sustainability[8].

How can we teach competencies, skills and concepts?

There is no single approach to teaching competencies, skills and concepts. Nevertheless, there must be a re-conceptualisation of learning design. Some schools of thought exist on how to best deliver them:

1. Teach skills as subjects in their own right.
2. Embed skills into learner design programmes so that content acts as a catalyst for the development of skills.
3. Design trans-disciplinary learning scenarios to encourage skills-use in the overall learning experience.

4.New advances in research supports new pathways for learning.

New advances in research support a new learning paradigm by highlighting the need for individuals to learn about 'how' they learn. Research supports individual

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[6] 21st century competencies and desired Student Outcomes (Singapore)

[7] Mapping 21st-Century Skills to SEL Competencies

[8] The Futures of learning 2: what kind of learning for the 21st century?

capacity through advances in the key concepts of motivation, grit, a growth mindset and a better understanding of brain plasticity which can all be grown in the right learning community. Awareness and cultivation of these supports better acquisition of competencies, skills and concepts.

Metacognition

Metacognition is the process of thinking about thinking, knowing about knowing, becoming aware of one's awareness and higher-order thinking skills. It encourages individuals to take responsibility in developing their own competencies and skills by recognising their capacity to do so through careful thinking and self-management. Metacognition is central to the success of other skills such as problem solving, decision-making, critical thinking and reflective thinking. These skills can be developed using the following steps:

- Visualising learning success.
- Setting learning goals.
- Focusing attention on tasks.
- Monitoring progress through continued evaluation.
- Engaging in practices that challenge cognitive capacities.
- Reflecting on learning and considering future improvements.

> ***'Education, in the real sense, is not preparation for life, it is actually living. It is the child participating in adult concerns.'***
>
> *Alan Watts*

Learn, Unlearn, Relearn

Futurist, Alan Toffer, wrote in the last part of the twentieth century, 'The illiterate of the 21st century will not be those who cannot read and write, but those who cannot learn, unlearn and relearn.' Many educators were trained under pedagogical frameworks that placed them as masters of the learning process. They assessed what needed to be taught and created the content and activities for a prescribed set of learners. As learners in the 21st century enter a new learning epoch, educators must assume responsibility to unlearn and relearn much of their learning methods to support the change process.

5. Content will always have its place in education, however its importance must shift.

Reports claim that content acquired from a degree is practically obsolete after an average of 5 years[9]. In 2013 new knowledge doubled about every 13 months, and in 2018, new knowledge was estimated to double almost every day. With increasing knowledge stocks, there is an ever-increasing need for individuals to develop the skills needed to manage content in a way that enhances their learning, their lives and their work.

Content usage in the 21st century might be best utilised thus:

1. Educators are no longer solely responsible for routinely disseminating content to groups of people.
2. Content should ideally be individually chosen to facilitate a unique attachment to passion and purpose as well as strengthening intrinsic and extrinsic motivation.
3. Content should be used to support learning, not drive it.
4. Content can be used as a stepping stone from which competencies and skills can be grown.
5. In a context where self-determined learning is the ultimate outcome for learners, they must assume control over the content they wish to use.

The issue with content usage in education today is that it assumes an organisational body - a government, department or school - will select information deemed relevant to a community or sub-group, and from this create a standardised curriculum which forms a local, regional or national learning culture. Centralised curriculum choice does not respect differences between individuals. If education systems continue to make content the pivotal component of learning, there is an increasingly awkward conversation around what content, which cultures and even what history might be selected.

Global changes witnessed over several decades must be met with monumental changes in our attitude to learning, life and the future if our species is to survive and thrive. The future remains uncertain, but what remains certain is that a framework for learning must be formulated to solve the challenges we face. We are entering a critical juncture where individualised learning in formal education settings is now possible.

1. Will we bestow further burden onto the workforce of 2040 by insufficiently preparing them for their future?
2. Can we offer a new learning paradigm which fosters the competencies, skills and concepts needed to solve the global challenges by those who created them?

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[4] WEF: The Future of Jobs

Act Now

Implementing the concepts outlined in this element is one of the more complex activities to tackle. There may be external mandated parameters to maintain. It will require a re-conceptualising of how learning experiences might be designed and confidence that the incorporation of competencies, skills and concepts is effective. There are inherent complexities designing learning experiences to combine competencies and skills with relevant core concepts, authentic experiences and knowledge. The following suggestions address these wider perspectives:

1. Craft a collective vision statement for learning

If the intention is to change the nature of learning experiences, then a specific, collectively crafted statement that articulates a vision for learning - a pedagogic vision statement - is crucial. Many institutions have vision statements about growth or expansion but not necessarily a statement outlining a vision for how learning occurs. Continued professional development to grow and embed capacity is also necessary. Content is not excluded in this new vision for learning, however its place should take precedence only when specific concepts require building blocks to deepen understanding.

2. Outline a specific mission

There must be a common consensus on the specific competencies and skills that are given priority in a learning community. These can change over time. A clear and consistent mission across an organisation will enable specific skills and competencies to become a prime focus. An example might be a mission to grow the capacity of all learners to strengthen their verbal articulation skills. If every educator adopts this mission, strong verbal articulation skills will likely become more embedded in the learning culture.

3. Create a pedagogic development team

With a clear vision in mind, a core team must drive the process across various stages. This team must have both the knowledge of any mandated requirements and the collective creativity to envision and design new learning experiences. There is no set formula for this process but rather a need for the core team to have the acumen to create strategies around the pedagogic vision, so that its implementation is consistent.

4. Include research in the learner design process

There are multiple statements around the world that outline competencies and skills. Research a variety of statements and plan to select just a couple as the template for what is preferred in your context. From the research, develop a statement which

lists the competencies, skills and core concepts that will become the backbone of a learning design process. Any statement will likely need to be written to be stage relevant i.e. bands of skills and competencies that would be important at different stages of learning.There may be national standards or a mandated curriculum to be integrated into the entire process of learning design experiences to ensure relevant core concepts, skills and competencies are covered at appropriate stages.

5. Establish agreement around assessing learner growth of competencies, skills and concepts

Assessing individual progress around general understanding and application of core concepts, skills and competencies is vital in contexts where the learning goal is to grow self-determination. This might best be done through a combination of perspectives drawn from the students themselves, their educators, parents or guardians and at deeper levels of knowledge, the inclusion of specialists and/or experts.

The ability to aggregate knowledge (data) around that which is understood and mastered by learners may enable a learning design team to select relevant experiences that can advance the understanding of necessary core concepts, skills and competencies incrementally.

6. Keep the bigger picture in mind

We are living through an age where a mega-shift is occurring. Most education systems have a foot in both camps. They have not left the traditional structures of schooling while at the same time many governments have outlined a set of competencies, skills and core concepts deemed relevant to a learner's future capacity. This traps communities between these two worlds and is undoubtedly a contributing factor to rises in learner stress and anxiety.

The same fundamental social shift is occurring in both employment and the higher education sectors. Any conversation that brings universities, colleges or employers into a discussion about how to assess a learner's current strengths as a potential prerequisite for advancement or placement will be highly relevant.

It is easy for a community to overfocus on achievement to the detriment of a student's journey. In an educational utopia, there would be no national standards or national testing; just an individual sense of purpose to inspire passion and learning growth. If the intention is to bring about a transformation in the learning community, then there is a need to be deliberate about the design of all learning experiences.

Examples in Action

Competencies, skills and concepts are becoming crucial components to learning in many contexts - some in schools where they are being taught, some in education ministries where they are being attached to policy documents, and some in organisations whose mission is to bridge the gap between learners and what they will experience in the real world when they leave formal education. Below are examples from these contexts.

Schools

Escolas Lumiar, Brazil

Escolas Lumiar are three primary schools that share the same pedagogical motto: "Interactive and inter-disciplinary mosaics are the basis for building knowledge". At these schools there are no lessons, no fixed schedules, and no old-school teachers. Students freely work in three or four different projects that they themselves have chosen and defined with the aid of their tutors. Tutors ensure students progress with the support of a matrix for observing, grading, advising and measuring the development of 21st century skills.

The School of the Future, United States

The Schools21 initiative involves the integration of skills and routines for thinking into the contents of the curriculum. As well as this preferred option, they advance the use of reflective learning portfolios, projects and programmes to stimulate intelligence.

Acton Academy, United States

An academy that encourages self-education and game based programmes for core skills development. Furthermore, Socratic discussions are facilitated to strengthen critical thinking.

The News Literacy Project, United States

This Project empowers educators to teach students the skills they need to become smart, active consumers of news and other information and engaged, informed participants in civic life. This is becoming more and more important as the prevalence of fake news continues to distort the lines of truth in local and global societies.

Education Ministries

Ontario Ministry of Education

This new age-appropriate curriculum reflects input received from more than 72,000 engagements with parents, students, educators, employers and organizations from across Ontario, Canada.

Kenya Institute of Curriculum Development: Competency Based Curriculum

The Kenyan education policy document guides the implementation of the Competency-Based Curriculum (CBC) which will ensure that all learners acquire competencies and qualifications to promote national values, inspire individual innovation, nurture lifelong learning and provide opportunities for learners to realise their full potential.

Australian Government Department of Education: Skills for Education and Employment

The Skills for Education and Employment (SEE) program provides language, literacy and numeracy training to eligible job seekers, to help them to participate more effectively in training or in the labour force.

Ministry of Education Singapore: 21st Century Competencies

The Singapore Ministry for Education has identified competencies that have become increasingly important in the 21st Century. These competencies underpin the holistic education that schools in Singapore provide to better prepare their students for the future.

Scotland: Curriculum for excellence. Building the Curriculum 4: Skills for learning, skills for life and skills for work

Scotland's mission is to guide all young people to become successful learners, confident individuals, responsible citizens and effective contributors through the incorporation of competencies and skills based learning.

Organisations

Assessment and Teaching of 21st Century Skills Project

ATCS is committed to establishing new forms of assessment that can support fundamental changes in how we approach education worldwide.

PWC Australia Education and Skills: Committed to education for the long run

The PWC team believes that increasing quality and access in education and skills is critical to Australia's future.

Global Education Innovation Initiative

This site lists a series of organizations from around the world who put 21st century education into practice.

Assessment of transversal competencies: policy and practice in the Asia-Pacific region

This final report summarises several reports from nine participating countries in the Asia-Pacific: Australia, Hong Kong (China), India, Malaysia, Mongolia, Philippines, Republic of Korea, Thailand and Vietnam, on their approaches and successes in delivering competencies to schools and its implications on assessment techniques.

Committee on Defining Deeper Learning and 21st Century Skills

This link is to the National Research Council publication: Developing Transferable Knowledge and Skills in the 21st Century.

Skills for Social Progress: The Power of Social and Emotional Skills

This OECD report discusses how policy makers, schools and families facilitate the development of socio-emotional skills through intervention programmes, teaching and parenting practices.

Further reading

Skills for a Changing World

The Futures of learning 2: what kind of learning for the 21st century?

Meet executive function: How to learn in the age of information overload

Education assessment in the 21st century: New skill sets for a new millennium

The 10 skills you need to thrive in the Fourth Industrial Revolution

Teaching problem solving: Let students get 'stuck' and 'unstuck'

How play can help Africa's kids develop skills for the future

What's the difference between skills and competencies?

Strategies for teaching metacognition in classrooms

The skills needed in the 21st century

Visualizing the breadth of skills movement across education systems

How do we teach 21st century skills in classrooms?

Let's not forget the essential link between psychology and education

How technology can bridge the skills gap it created

Skills, not job titles, are the new metric for the labour market

Skills for Social Progress: The Power of Social and Emotional Skills

Life skills education is more than teaching skills

Skills for a changing world: Where do we go from here?

Mind the (Skills) Gap

Learning Progressions: Road Maps for 21st-Century Students—and Teachers

3 key steps to making sure your skills stay relevant

Science of learning: Why do we care?

Deloitte: The Big Shift


learnlife