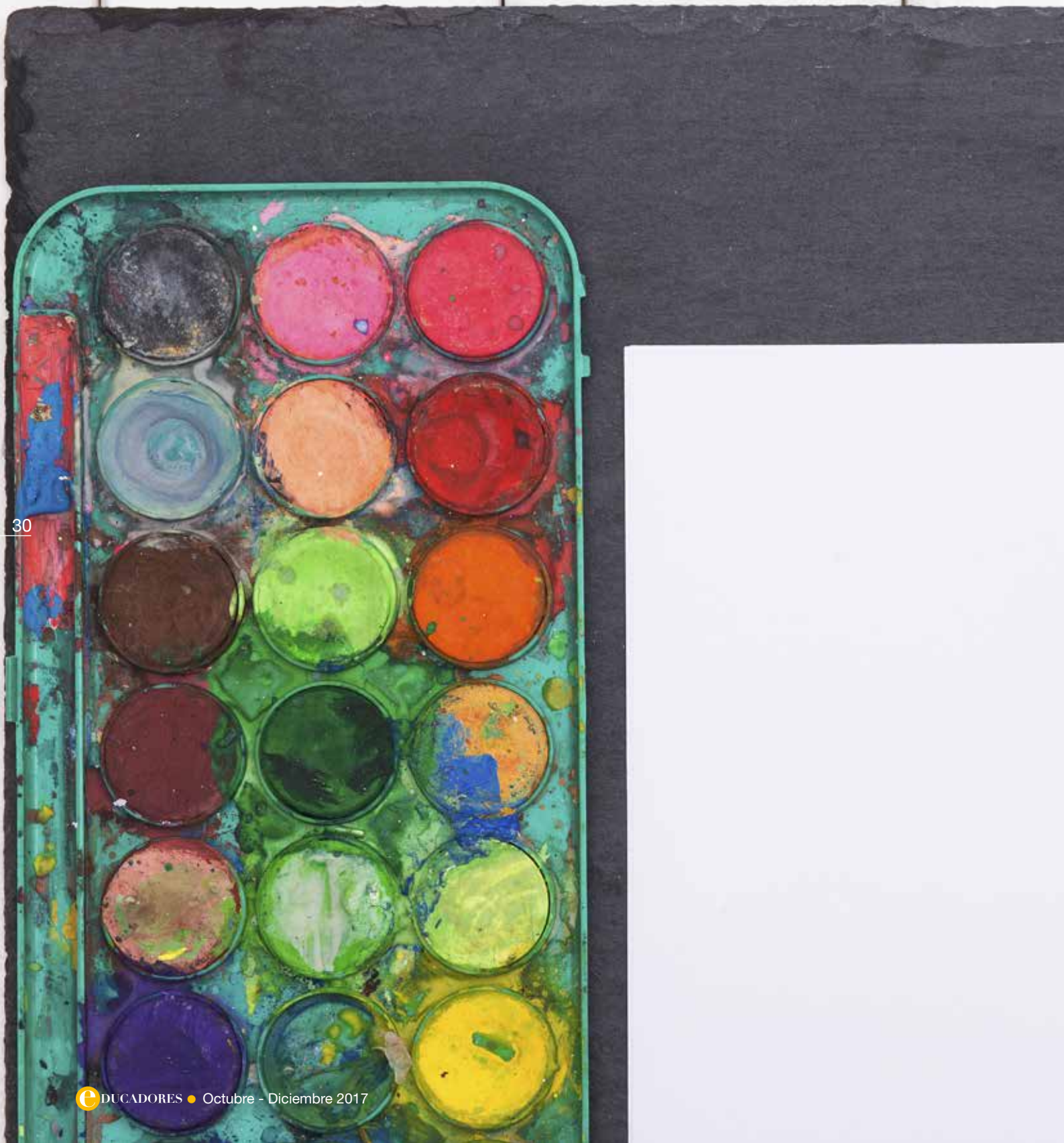

21st century SKILLS in 21th century classrooms

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Over the last five years the focus on 21st century skills has shifted from the question of why we should be teaching the skills to how we can do so. Many schools or systems are adopting an agenda for teaching 21st century skills but encountering difficulties when it comes to identifying resources to do so. With different perspectives and little concrete evidence, educators are understandably uncertain about how to adopt a new learning and teaching paradigm. Unfortunately, we are in a 'chicken and egg' holding pattern. Schools may not be in a position to take a risk in adopting one approach over another without evidence of its effectiveness, and researchers cannot provide evidence of effective approaches until schools opt in to trials. Many teachers recognise the value of teaching 21st century skills and are open and enthusiastic, but have found that they have not been adequately prepared to do so. Just as teachers are trained to teach subject content, they will also require training and support to teach skills.

The consequences of the nature of the skills

The skills needed for the 21st century are complex, cross-disciplinary, important for many different aspects in school and life, and are much more demanding to teach and learn than rote memorization-based skills (Saavedra & Opfer, 2012). Human nature shows us that we are intuitively curious and social. People want to understand how and why things happen, and want to engage in fulfilling relationships. There is therefore nothing unnatural about our valuing of social and cognitive skills. For students, this education shift allows them to follow their natural curiosity and their engagement with others. The skills shift in education now provides students with the opportunity to develop cognitively and socially within the formal learning environment, and within the curricular studies that each country believes are important for their citizens' futures. In the classroom, students can be scaffolded into what is expected of them and explicitly taught behaviours that demonstrate varying levels of proficiency in the skills. In particular, having students engage in meta-cognitive behaviours, in reflection about their learning, empowers them in the education process. It can enable them to monitor their own progress. However, students do need to have a clear understanding of what is expected of them and what the long term goal is. This requires a clear departure from a model in which students enter a year of study centred only on subject-based curriculum, embodied in textbooks, to work through. They need to understand the vision of this 21st century education shift and see its empirical consequences in their education experience.

The nature of the skills has consequences for each part of the education delivery system – for curriculum, for pedagogy, and for assessment. Above and beyond these however, it has consequences for education delivery structure. 21st century learning activities are often open-ended. The dynamic cha-

racter of such activities may make it difficult to provide clear explanations for how to undertake tasks, or how long they may take to complete. This makes classroom planning and management difficult. The classroom itself is situated in a traditional structure and organisation. This means that systems of education need to consider how to establish structures that are amenable to more active and dynamic teaching and learning and assessment paradigms.

The nature of 21st century skills is that they are non-routine. Things that are not routine are very difficult to define, and even more difficult to assess. Most schools in the past have been dedicated to transmission forms of teaching, ensuring that content knowledge is made available to students to be learned. The content itself can be specified, and learning can be assessed through tests that identify whether the content has been memorized. Demonstration of learning of skills is less easy to capture in a standardised way. The skills may be developed through many different types and styles of learning experiences, and they will similarly be demonstrated in a multiplicity of ways. This implies that there is no likely single teaching technique that will be most effective. The best strategy for integration of a skills focus into curricular goals will likely depend on use of a variety of techniques. These may include explicit teaching, modelling of the skills, presenting curricular materials in a way that will naturally elicit the skills and thereby develop them, and varying the structural dynamics in the classroom both between students and teachers, and among students.

Focus on the teacher and teaching practices is secondary to decisions by the education systems, which identify how they intend to implement a skills education agenda through the curriculum. Therefore, a first decision to be made by the system concerns how skills teaching is to take place (Nieveen & Plomp, 2017). Will it be seen as a stand-alone subject? Will it be integrated across all subjects? Will there be a trans-disciplinary subject that can act as a teaching medium for the skills? Will the skills be attended to through extra-curricular activities? The decision about this implementation structure determines the curricular approach, the pedagogical approach, and the assessment approach. If a system decides,

for example, to integrate the skills throughout all subject areas, then it must ensure that this integration occurs in a reasonably similar way in all subject areas if the goals of skills development are to be fulfilled. The primary goal of developing skills is to ensure that individuals can draw upon these in very different situations, or in environments that might previously have been unfamiliar. In order to facilitate this development, the school experience needs to provide an authentic environment in which transfer of skills can be employed by students.

Embedding and transferring skills

Students need to experience the learning of skills and their sub-processes in different subject areas, so that they can understand the transferability, and recognise the common challenges across the areas. To enable transfer of skills, teaching across subject areas appears to provide the most aligned approach. It has the promise of delivering three things. It provides opportunity for the developing skills to contribute to student performance in their disciplinary studies; it demonstrates to students the transferability of skills; and, it provides a consensus model for teachers to follow in their approaches to teaching. For example, teachers would benefit from collaborating with teachers from other subjects, not just in their teaching of the skills but in their observations and assessment of them. Sharing collected and recorded evidence, and justification of the interpretation of that evidence, will provide teachers with guidance concerning whether the students are developing skills as envisaged in revised curricula.

Such an approach requires the system to recognize the degree to which different subjects will lend themselves to the teaching of particular skills. For example, physical education is easily seen as an area in which collaborative skills might be enhanced; mathematics and science are areas in which problem solving can be seen to be immediately relevant; language and history are areas which provide opportunities for critical thinking activities. Although these examples will be immediately recognizable to many teachers, less well-known and understood skills can equally be applied to a range of subjects. An approach to identification of teaching and learning opportunities is through curriculum audit at system level, and to lesson plan audit at the classroom level. With a deep understanding of the skills themselves, of how they develop, and how they manifest, educators can analyse curriculum in order to match the teaching opportunities with pedagogical strategies aligned with the nature of the skills. Educators can demonstrate the approach with a subject, a topic, or a lesson plan, in order to provide examples for teachers who can continue to adapt lessons to their new valuing of skills development.

The sticking point of course, is the phrase "deep understanding of the skills themselves". To date there has been little large scale research to demonstrate effective methods of teaching skills to ensure their generalizability and transferability in mainstream education. The majority of research that has focussed on social and cognitive skills has taken place in academia, and been associated more with psychology than with education; more recently, however, the non-government organization sector has been implementing life skills programs particularly with disadvantaged populations, some of which are strongly linked with the 21st century skills mainstream education shift. It is imperative that the education sector, in association with the research sector, gives high priority to educational research around understanding the nature of the skills, reviewing curricula, re-addressing 21st century notions of pedagogy, and taking innovative approaches to assessment to ensure this is aligned with the shift.

The bigger picture

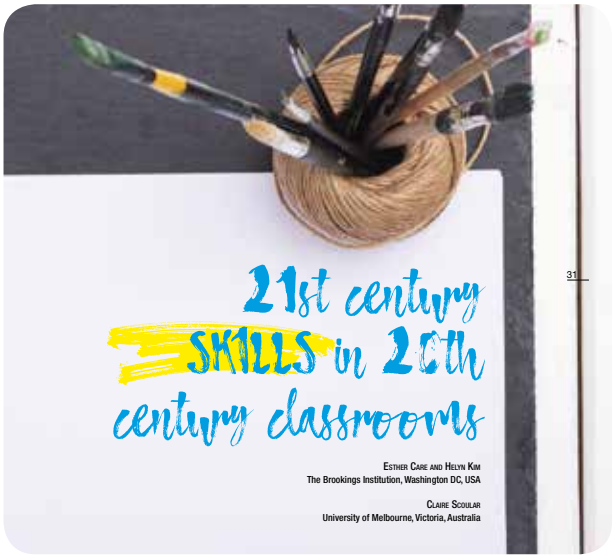
The imperatives triggered by the Sustainable Development Goals (SDGs; OECD, 2015) for education have two direct connections with the skills shift. That the SDGs are aspired to for all is the first connection. And that the SDGs specify achievement in areas beyond literacy and numeracy, for example global citizenship, is the second. Although simple in conception, it can be challenging in practice to meet the individual learning needs of each and every student in the classroom. Similarly, although just one process in a problem solving scenario might be relatively easy to master, developing proficiency in complex and interrelated skills for students across a wide range of ability, is challenging. A big issue facing teachers in the classroom is that the competencies being targeted are complex

and multi-dimensional. They involve calling on both cognitive and social capacities, and these two might be differentially developed in the one individual. An issue for the teacher lies in needing to diagnose whether it is the social or cognitive aspects that are contributing to a particular learning outcome of a student. Rather than pursue old models of team work, where typically the strongest skills of each team member are drawn upon, this model requires that all skills of all members be the focus. When a teacher is attempting to enhance all skills in all students, then collaborative work for example, needs to help each student strengthen the skills least developed to date. While a diverse range of techniques are necessary to address both the complex skills and the differences in student ability, teachers may be limited by their immediate classroom environments in terms of changing the dynamic structure of the classroom. It is issues such as these that require education system exploration, analysis, and problem solving. The teacher in the classroom is just one part of the system, and that system needs to understand the different demands that differentiation – of instruction, and of instructional content – makes in that classroom.

A large scale study (Care, Anderson & Kim, 2016) undertaken to explore how widespread is the shift to a skills agenda found that countries around the world are focusing more explicitly on a broad range of skills, beyond the traditional academic subject areas of literacy and numeracy. Of the 152 countries in the large database, 76% identify specific skills, such as creativity, critical thinking, social and emotional skills, and problem solving, in their national policy documents, including their mission and vision stations, national education plans, and curricula. Despite this, only 18 countries mention progression of skills—the understanding that skills develop, change, and grow more complex over time and across different education levels; and even less countries, only six percent, consistently identify specific skills and their progressions across multiple policy documents. These findings suggest that although countries may be aspiring to equip their students with a wide range of skills needed for success, actual teaching and integration of skills in

their curricula and teaching practices may be lagging behind. Without a clear understanding of how skills develop, it is impossible to know what and how to teach at increasing levels of competence in a particular skill.

There is no doubt that 21st century skills have been formally adopted at policy level in many countries. Equally, there is little information to date concerning implementation of teaching these capabilities (Clarence & Comber, 2011) or which departments within a school should take responsibility (Klenowski & Carter, 2016). As found in a series of studies undertaken by the ERI-Net and NEQMAP networks hosted by UNESCO Education Bureau in Banngkok, there are three sets of challenges to implementation. The first set is definitional – the lack of understanding of what these skills are. The second set is logistical – there is a lack of resources, both human and instructional, with many of these emanating from the definitional challenges. And the third set is systemic, or cultural – education systems have been operating for decades now based on a discipline approach to curriculum, on standardization of experience (teaching and assessment), on competition, and on limiting access to the highest education to those who excel academically. There are thus both local and global factors which influence how countries cope with the consequences of a movement they have put in train, but did not perhaps understand the implications of



En los últimos 5 años en educación ha habido un cambio de foco: del porqué educar por competencias, o destrezas del siglo XXI, al cómo hacerlo y cuáles son las dificultades. Desde diferentes perspectivas y con todavía pocas evidencias concretas, los educadores se sienten inseguros para adoptar un nuevo paradigma de enseñanza y aprendizaje. A esto se añade que los investigadores no pueden ofrecer suficientes pruebas de enfoques efectivos hasta que no haya un número significativo de centros educativos que opten por analizar y evaluar su práctica educativa por competencias.

El hecho de que diferentes y numerosos sistemas educativos hayan valorado la necesidad de educar en las destrezas del siglo XXI en la escuela y para la vida laboral, implica atender cuatro niveles:

La necesidad de investigar la naturaleza de dichas competencias, cómo se desarrollan, cómo se muestran y cómo se pueden educar. La naturaleza humana intuitivamente curiosa y social, busca descubrir por qué y cómo pasan las cosas, así como comprometerse a través de relaciones significativas, y el enfoque competencial permite dicho desarrollo cognitivo y social dentro de la educación formal y curricular. Más allá de una enseñanza instructiva y de habilidades memorísticas es una enseñanza para la vida y la escuela, compleja e interdisciplinar. Para ello, los estudiantes necesitan comprender con claridad lo que se espera de ellos y cuál es el objetivo, es decir, salir de un modelo centrado en procesos anuales, por asignaturas y basado en libros de texto.

La naturaleza de las competencias tiene consecuencias curriculares, pedagógicas y de evaluación, además de estructurales. Por ejemplo, el diseño de este tipo de actividades requiere otra planificación y gestión de aula de la que marca la estructura y organización tradicional. La demostración de los aprendizajes es difícil de recoger de una forma estandarizada por los diferentes tipos y estilos de experiencias de aprendizaje, requiriendo el uso múltiple de técnicas. La mejor estrategia para la integración de las destrezas es dicho uso variado que pase por una enseñanza explícita, el modelaje en destrezas o la presentación de materiales curriculares a través de dinámicas diferentes. Este enfoque permite a los alumnos hacer explícitos determinados comportamientos y demostrar diferentes niveles de progreso, que unido a procesos de reflexión y metacognición, dará lugar a la autorregulación de su aprendizaje.

Los sistemas educativos necesitan tomar decisiones sobre cómo estructurar el currículum para incluirlas. Desde si la inclusión pasa por diversas materias o una asignatura transversal hasta si es cuestión de una materia única, y una vez llevada a cabo esa decisión, esta determinará el enfoque curricular, pedagógico y de evaluación. Un sistema educativo que decide incluirlas en todas las áreas ha de asegurarse de que la integración sea similar en cada una de ellas para conseguir su desarrollo, con la primera meta de proporcionar ambientes auténticos para la adquisición de las mismas.

Los profesores, como responsables de la educación del alumnado necesitan estar equipados para ir más allá de ser expertos en su materia. Al mismo tiempo, los estudiantes precisan tener la experiencia de aprender las destrezas y procesos en áreas diversas, para que puedan entender la transferencia y reconocer retos dispares. La capacitación en competencias pasa por ofrecer un enfoque alineado, en el que los profesores se beneficien de colaborar con otros profesores, no únicamente a la hora de enseñar, pero a través de compartir sus observaciones y valoraciones, documentando evidencias que justifiquen la interpretación de las mismas. Es decir, desarrollando una guía que indique en qué grado las diferentes áreas se implican en el desarrollo de las competencias. A través de una

comprensión profunda de cómo se desarrollan y manifiestan, los educadores podrán analizar el currículum para conectar las oportunidades de enseñanza con estrategias pedagógicas.

Las instituciones dedicadas a enseñar al futuro profesorado (universidades) deben reconocer las implicaciones que tiene esta demanda global en el sector educativo y proporcionar una formación de calidad y adecuada a dichas necesidades. Es imperativo que el sector educativo se asocie con el académico e investigue acerca de la naturaleza de las competencias, la revisión del curriculum, resituando las nociones pedagógicas del siglo XXI, y lleve enfoques de innovación al campo de la evaluación. Los profesores necesitan de la adquisición de múltiples técnicas para trabajar de forma competencial y atender las particularidades del alumnado. Esto requiere exploración del sistema educativo, análisis y resolución de problemas. El profesor es una única parte del sistema y el sistema ha de entender las exigencias que conlleva una enseñanza diferenciada.

Un estudio de amplia escala (Care, Anderson y Kim, 2016) para explorar la expansión del cambio en la agenda competencial en países de todo el mundo ha mostrado que se focaliza en la educación competencial cada vez de forma más explícita, más allá del peso en áreas específicas como la matemática y la lengua. De un total de 152 países, el 76% identifica destrezas específicas como la creatividad, el pensamiento crítico, habilidades

socioemocionales y la resolución de problemas en sus documentos de política nacional, incluyendo en su misión y visión, en los planes de educación nacional y en el currículum. Sin embargo, solo 18 países mencionan el progreso en dichas destrezas, la comprensión de cómo se desarrollan de forma más compleja a través y en los diferentes niveles educativos; y solo un 6% identifican de forma consistente destrezas específicas y su desarrollo y progresión en los múltiples documentos de política educativa. Estos resultados sugieren que aunque los países quieren equipar a sus alumnos con competencias, la enseñanza, la integración en el currículo y su práctica van todavía rezagadas. Sin un entendimiento claro de las mismas es imposible saber qué y cómo enseñar diferentes niveles competenciales. No hay duda de que las competencias del siglo XXI han sido adoptadas en la política educativa pero todavía tenemos poca información de lo que supone e implica su puesta en marcha●

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Bibliografía

Abstract

Learning is related to emotional ties. Teacher`s experience and developmental psychology concur that children don´t learn like machines. Kids consider the environment, the emotional meaning of the information and the relationship with the emitting source. The bonds with the adults that teach them and take care of them are the principal impact on their learning. Therefore, the child needs to be able to step outside its comfort zone, explore new and uncertain information, cooperate with others, tolerate uncertainty and trust the information that comes from the outside.

These kind of trustful relationships make children feel that they live in a organized and reliable world, adults will be available for them in case of stress, need or pain and that they are worthy of love and care. This confidence is the center of learning processes and that´s why it should be in the center of all our educational reflections.

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