

A close-up photograph of a person's eye, which is a striking blue color. A vibrant rainbow light effect is cast across the eye and the surrounding skin, creating a spectrum of colors from red to violet. The background is softly blurred, showing more of the person's face and hair.

Insights from Implementing a 21st-Century Skills Programme in Nine Countries

2018

ArcSkills

INTRODUCTION

This paper is not another statistical tool designed to convince you of the need for 21st-century skills. That subject is already widely documented and accepted. Instead, this is an early evidence paper demonstrating effective global teaching practices for 21st-century skills based on real experience acquired from delivering a programme to over 3,700 students in nine different countries - Argentina, India, Indonesia, Kenya, Malaysia, Nigeria, South Africa, UAE, USA.

We will guide you through a small introduction of the programme and then delve into pedagogy outcomes and learnings. In the appendix, you can find a summary of the most highly regarded research on 21st-century pedagogy, for more in-depth understanding.

From this paper, we hope to demonstrate that one programme can have a global impact no matter the culture, economy, student profile, or level of education standards.



1. ABOUT THE PROGRAMME

We developed a research-backed programme with educational and design experts called Skills 21, which has been nurturing skills in students for 24 months (on the date of printing).

Learning with the Skills 21 programme is highly collaborative and framed in a narrative that immerses students in problematic situations, which they must solve. Every class is a progression from the previous, creating numerous opportunities for students to adjust their behaviours and learn from experience.

School teachers facilitate the programme for students in grade 6 to 9, which runs in the school as an extracurricular activity or as part of the curriculum.

1.1 Pedagogy

Many of the agreed critical pedagogies that allow students to safely and successfully develop 21st-century skills (see Appendix) are deployed in Skills 21, including:

- Teacher training
- Game-based learning
- A safe and familiar environment
- Reflection and linking to the wider world
- Technology
- Student-led learning
- Purposeful teaching
- Immersion and engagement
- Teamwork
- Targeting specific skills



Skills 21 Class, Malaysia



Skills 21 Class, India

1.2 The Learning Cycle

Step 1: Teacher Training

Skills 21 is held in the school and facilitated by the teachers. The teacher's role is to observe the class activity, rewarding displays of virtues (21st-century skills) with game points, and to facilitate reflective discussions.



Teacher Training, Kenya

Step 2: Online Learning

Students engage with weekly online modules that familiarise them with the 21 competencies of Skills 21. They complete the learning individually, typically at home, through reading and quizzes.

Repeat over
10 weeks

Step 4: Student Reflection

The second half of the class time is dedicated to in-depth reflection. The teacher will lead the group in reflecting back on the class activity and encourage each child to share their thoughts on the outcomes, behaviours, and how they can improve.



Skills 21 Class, Malaysia

Step 3: Class Activity

As a team, they must strategise to progress and win the game without teacher guidance or intervention. While the students are strategising the teacher observes their use of the 21 competencies learnt in step 2, awarding individual students with game points and badges when seen.

1.3 Competencies Nurtured: 21 Virtues

Creativity



Adaptive
Activator
Consistency
Courage
Discipline
Focus
Ideator
Learner
Activator

Collaboration



Adaptive
Activator
Collaborator
Compassion
Developer
Influencer
Includer

Critical Thinking



Adaptive
Analytical
Learner
Restorative
Strategic

Persistence



Adaptive
Achiever
Competitive
Consistency
Discipline
Focus
Positive

Communication



Adaptive
Activator
Communicator
Compassion
Includer
Influencer

Self-Management



Adaptive
Consistency
Discipline
Focus
Multitasker
Strategic

2. PEDAGOGY BASED OUTCOMES

2.1 Gamification

Although the gamification element of the programme encourages the development of particular skills including collaboration, problem-solving, and competitiveness; the most crucial role of the game is to create an immense level of engagement and emotional connection.

In all of the classes, we witnessed children develop a bond with the heroes and a dislike of the villain, whom they must defeat. This relationship with the fictional characters motivated the children to achieve and progress through the game, so in turn, learn more. In one case, a Dubai class was resistant towards taking a break because they needed to strategise.

"I enjoyed everything...especially the immense joy of dismantling Kaltron [villain] so quickly!"
Student, Dubai.

In a post-programme student survey, 85 percent of respondents said they prefer the elements of gamified learning over traditional learning. As well as 90 percent who thought the game immersed them in the learning.

The game narrative also provides a unique opportunity for the children to apply their knowledge to real situations while remaining in a safe environment that allows them to fail and try again.

"The students were able to take their knowledge and do something with it" Teacher, Dubai.



"I learnt a lot about how the real world works. In school, we don't know about the real world and how things happen...we learn biology, history, geography. But in Skills 21 we got to experience everything that happens outside."

Student, Dubai.

2.2 Student Led Activity (Immersion)

Students lead their learning, immersing themselves in the narrative and strategy of the programme without teacher intervention. Although this was a new learning method to the majority of the students, in the post-programme survey, 96 percent of student responders said they found this pedagogy engaging, and 70 percent said they would prefer teachers in their typical classes to observe and give feedback instead of instruction.

"I liked working at my own pace, as opposed to the teachers" Student, South Africa.

"We weren't given textbooks. Instead, we have to decide to collaborate as a team, which was great" Dubai, Student.

"It was so engaging" Student, Malaysia.

In Nigeria, it was reported the students would initially ask the teacher to help silence the room or seek advice on completing a task. *"Without answers being supplied or guided, you could begin to see their level of strategic and creative thinking increase."* Trainer, Nigeria.

In both Nigeria and Dubai, some classes deployed and maintained a 'talking stick' initiative (the person holding the nominated object is the only person who can speak at that time) to help control volume. This creative thinking was a result of being left to their own devices.

Image: Class, Dubai



What we noted in all countries was using this method helped to reveal the natural leaders in each class *"In the first few classes, only a few students took advantage of this learning style and rose up to become leaders. A position that likely came naturally to them"* Trainer, Malaysia.

The student-led activity was the catalyst for high levels of collaboration, one teacher in India commenting, *"I have never seen the students interact in such meaningful and effective ways"*.

In all country reports, collaboration was the first and most clearly observed skill the children developed in Skills 21. In Nigeria, one school blended senior and junior learners to form one class. *"At the beginning they were quite untrusting of each other, spending the majority of the class time working in their peer groups. Of course, they realised this strategy was not working, so they started to collaborate"* (Trainer). Over time it could be observed that the class no longer regarded each other as junior or senior students, but instead one team.

In South Africa, many students increased their levels of collaboration and communication; which both teachers and parents remarked had begun to trickle into their life outside of the Skills 21 class.

"I am usually the sort of person who would sit back and do what the teacher told me, and now I have realised I have a voice as well" Student, South Africa.

2.3 Reflection



Reflection cements the learning through facilitator lead questioning and introspection. Although the majority of children were not used to this type of exercise, all countries reported that very open, honest, and sincere discussions took place during this time.

“Once they knew what it was to reflect, they were very positive and engaged”. Teacher, Kenya.

In Dubai, it was reported that the level of discussions and introspection by the students increased dramatically as the weeks progressed.

In Nigeria they found at the beginning of the programme students were more likely to place blame on others or situations. *“Over time they started to talk about themselves instead. Remarking on their actions, and how they could change or influence outcomes through their behaviours.”* Trainer, Nigeria.

“It helped me to realise things aren’t black and white...the world has shades of grey” Student, Dubai.

“I have become more mindful, sensitive, and aware of the people around me” Student, South Africa.

In Kenya, the teachers felt the reflection was the most crucial part of the sessions because *“it reinforced behaviours and skills, strengthening the learning opportunities and awareness of how the kids can adjust their reactions, plans, and thoughts next time.”* Teacher, Kenya.

As the programme progressed over the weeks and the children’s ability to deeply reflect increased, we started to notice new and unfamiliar competencies being displayed by the students. *“This reflective learning style was a new dynamic for the children. At first, it didn’t come naturally, but as each session progressed they synchronised as a team, meaning they felt comfortable to explore other competencies like influencing, strategising, and leading”* Trainer, Malaysia.

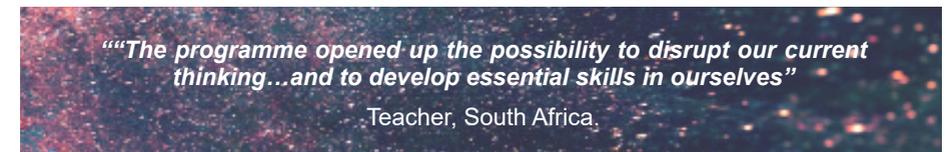
Over the duration of Skills 21, all global reports remarked on noticeable changes to the students in a range of skills, including communication, self-management, persistence, and compassion. Learners in India *“became more self-aware of their strengths and how to use them in effective ways”* (Teacher). In Kenya, some students stated they felt more confident to stand and pursue leadership roles in school, like student council, because *“I now know I have it within me”* (Student).

2.4 Teachers

During the classes, we were able to witness growth in the teachers, as they adapted to the new pedagogies, as well as new technology.

“As a science/maths person the soft skills did not really form part of my education and, I had to read up on my own over the years. I now realise [after facilitating the class] how important the development of these skills are and the significance of this course and teaching style for my students and me.” Teacher, South Africa.

Initially, many teachers struggled to hand over 100 percent of the class, waiting to quieten the noise or assist the children in finding solutions.



With the mandate to observe and reward only, teachers had time to watch behaviours in the children they would not otherwise.

“When you are only the observer, you are stepping back and are able to pick up behaviour patterns [in the children] I would not have been able to see otherwise. Especially the quieter students” Teacher, South Africa.

“I now have a more holistic understanding of their [students] capabilities, strengths, weaknesses, and character.” Teacher, Dubai.

Teachers in South Africa, Dubai, Malaysia, and Nigeria commented that they particularly enjoyed the chance to observe the evolution of shy introverted students.

“Before going through the programme one student would usually come to me [the teacher] for help, but now she has more confidence to try to solve problems by herself or with her peers.” Teacher, Nigeria.



3. IMPACT OF THE PROGRAMME

- 1.** The programme was deployed in nine different countries, each diverse in culture, economy and education standards. Despite these differences, all students in every class and every country successfully understood and developed new competencies. This demonstrates that one 21st-century skills programme can be deployed internationally, blurring global boundaries, much like the working world.
- 2.** Virtues were rewarded by the teacher as they observed the children displaying and using competencies in the class. This method created a unique process to measure the development of each child at an individual level and heighten the teacher's awareness of their strengths and abilities.
- 3.** Classes were mixed including ages, academic ability, and educational needs. The programme was able to remove any previous stigmas and categorisation, placing each student on equal grounds. *"It taught me to talk to some students I don't usually talk to, and be more open with them too"* Student, South Africa. The programme exposes children to critical skills for our globalised world, like compassion, inclusiveness, and understanding.
- 4.** The student-led learning and structure of the game meant they could develop and display skills that were natural to their values and character. Unlike traditional academics where the curriculum requires all students to learn a particular set of knowledge, Skills 21 personalised the learning to their strengths. The results being, 100 percent of student respondents stated in a post-programme survey that they felt like they learnt something new about themselves and acquired new skills. *"Before Skills 21, I had no idea I had these virtues within me"* Student, Dubai. Skills 21 is not designed to have children develop all virtues. Instead, it grows skills unique to that child; we found on average a child would develop 8-12 virtues each. By having teacher's reward virtues based only on demonstrable use in class, it helps students understand what skills come naturally to their character. Going forward students can use this understanding to grow weaker skills and further develop strengths.
- 5.** The skills developed in the programme transcended into the child's wider world. We received comments from teachers who witnessed a positive change in their students in others classes, as well as feedback from parents who were seeing growth in their children at home. *"Upon enrolling my daughter in Skills21, I wasn't exactly sure what it involved or what to expect.....but what I can tell you, is that in the three weeks of the course, my daughter has blossomed before my eyes! Her confidence, questioning and overall demeanour, has lifted completely"* Parent, South Africa.

4. ENDNOTE

Skills 21 is an example of a 21st-century skills programme that successfully meets the criteria of effectiveness and accessibility, achieved through the integration of teacher training and use of modern pedagogies and technology. The game platform engages the students, removing distractions and immersing them deeply in the learning. It also places them in a shared situation, where every student's contribution is required, meaning they soon forgot about their differences and came together for a common cause.

These results support the notion that one programme can be globally effective, and as 21st-century skills are a global necessity, it is encouraging news for our children.



APPENDIX

The Research

The model of teaching that prevails in education is 'transmission' or lecture. However, all research studies on the matter of 21st-century skills, agree learners are more successful at acquiring these skills through pedagogies such as reflection, teamwork, technology, self-learning, creativity, and the integration of new ideas to their already existing knowledge/environment.

World Economic Forum, 14 Strategies For Creating a 21st-Century Learning Environment

Through their research, The World Economic Forum (WEF) has identified 14 strategies to create an environment conducive to developing competencies and skills:

1. Encourage play-based learning
2. Break down learning into smaller, coordinated pieces
3. Create a safe environment for learning
4. Develop a growth mindset
5. Foster nurturing relationships
6. Allow time to focus
7. Foster reflective reasoning and analysis
8. Offer appropriate praise
9. Guide a child's discovery of topics
10. Help children take advantage of their personality and strengths
11. Provide appropriate challenges
12. Offer engaged caregiving
13. Provide clear learning objectives targeting explicit skills
14. Use a hands-on approach

In the 2016 paper, *'New Vision for Education: Fostering Social and Emotional Learning through Technology'*, WEF argues that these listed 14 strategies help to foster an environment that encourages children to challenge their existing knowledge and confidently develop and explore a holistic set of new skills.

The paper explains a key component is the development of a child's "growth mindset", a term coined by Carol Dweck and her team at Stanford University. Her research found people adhere to two mindsets, fixed and growth. Those with a fixed mindset accepts that their intelligence and skills are fixed. Therefore they do not seek to develop themselves as they believe their talent alone can lead to success. Whereas, those with a growth mindset believe they can improve their intelligence and skills with effort. They will have a love for learning and have greater resilience, improving their chances of success in the workplace. In order to shift a student's mindset from fixed to growth, schools need to give them the opportunity to explore without restrictions, fear of failure, and pressure. WEF suggests teaching practices, such as project-based learning, inquiry-based learning and group class discussions can be effective in achieving this goal.

Saavedra and Opfer, 9 Principles for Teaching 21st Century Skills

In the paper *"Teaching and Learning 21st Century Skills: Lessons from the Learning Sciences"*, Saavedra and Opfer conducted decades of empirical research on the best ways to teach 21st-century skills to summarise nine principles for teaching 21st-century skills. These are:

1. Make the learning relevant to the student's life
2. Teachers explicitly define 21st Century Learning objectives when teaching through disciplines
3. Develop higher and lower order thinking through reflection to understand the reason why not just how.
4. Encourage transfer of learning to other areas of the student's life – subjects and social situations
5. Teach students how to learn on their own ("learn-to-learn")
6. Address misunderstandings to deepen understanding
7. Promote teamwork
8. Exploit technology to aid and enhance learning
9. Foster and celebrate students creativity

Saavedra and Opfer's principles highlight a necessary, and often overlooked, need for professional development in teacher's. Without confident command of the skills themselves, how can we expect teachers to teach these disciplines to others? Saavedra and Opfer state "the most critical area to invest in is high-quality professional development" (p. 22). Therefore, teachers need to use the same process as students to develop, reflect, absorb, discuss, and practice this new knowledge.

Another important principle discovered by Saavedra and Opfer is explicit learning of 21st-century skills. Some skills and competencies are part of current teaching or school curriculum, most commonly communication and leadership. However, they are often taught 'by accident' rather than part of a comprehensive plan for learning. According to Saavedra and Opfer (2012) developing 21st-century competencies and skills has to be explicitly taught to students. Researchers agree that purposeful learning aids students in connecting the skills to the wider picture of their life and why there are important to learn.

Cisco Systems, 4 Main Parts of 21st Century Pedagogy

In the White Paper *"Equipping Every Learning for the 21st Century"* by Cisco Systems (2009), they conclude that pedagogy for the 21st century should comprise of four main interwoven parts:

1. The learner to be at the centre
2. The teacher to call upon a repertoire of strategies and skills beyond lecturing and instruction
3. Work will be interdisciplinary and project-based
4. Real life experiences and situations should be used to create authenticity

In this paper, Cisco argues that traditional classroom instruction is no longer able to engage or inspire students because life outside class has dramatically evolved, due to the rise of the internet (Web 2.0). The Web 2.0 has opened doors to industries and careers previously notoriously difficult to break (e.g. filmmaking, design, and publishing). However, there are still limited cases of leveraging these creative and collaborative capabilities in the class (Cisco Systems, p.6). They found the best educators around the world utilise technology to encourage learners to work in teams, solve problems and deepen their understanding of various concepts. However, there are few examples of excellence that also makes 21st-century learning available to all, not just the elite (p.8).

Project-based Learning

A growing body of research and studies validates the notion that students have greater levels of engagement, understanding, and implantation skills when students are required to apply classroom gathered knowledge to real-world problems through engaging projects; referred to as Project Based Learning. (Barron and Darling, 2008). Project Based Learning essentially involves:

1. Students have control over their learning
2. Teacher take the role of observer during activity and coach during reflection
3. Students are faced with real problems to solve as they would in the real world

This type of pedagogy is effective at teaching 21st-century skills as it engages students in creating, questioning, and revising knowledge while developing their skills in critical thinking, collaboration, communication, reasoning, synthesis, and resilience (Barron & Darling-Hammond, 2008).

Supporting the notion by Barron & Darling-Hammond, a 2016 Lucas Education Research literature review found that the design principles most commonly used in Project Based Learning reflect the goals of preparing students for deeper learning, higher-level thinking skills, and social skills (Condliffe et al., 2016).

Game-based Learning

Game-Based Learning, or Gamification, is such a popular word that it even featured in the Oxford Dictionary "Word of the Year" US list in 2011. The purpose of game-based learning is to provide scheduled time to explore without restrictions, rules or pressure – a central component of a creative and active learning process. A 2016 Learning Theories article (David. L), listed eight elements for successful gamification:

1. Narrative
2. Player control
3. Immediate feedback
4. Fun
5. "Scaffolded learning" with challenges that increase
6. Social connection
7. Mastery (one example is levelling up)
8. Progress indicators (examples: points/badges/leaderboards)

If teachers desire to gamify their class, they should include most, if not all, of these elements. By doing this, teachers will motivate and inspire all of their students.

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