

DQ[®]Impact (Part 2)

Digital Intelligence Quotient

THE TOP 8 EMPOWERMENTS OF DQ EDUCATION



Safe and responsible attitudes and behaviors online



Balanced screen time and self-control



Better understanding of online presence, privacy, and data protection



Enhanced media and information literacies



Improved social, emotional, and physical well-being



Higher empathy and global citizenship



Higher academic performance and future opportunity



Active parental mediation and school intervention

About Sara, a 10 year-old girl living in Singapore

— Within 3 months
of getting her phone,
Sara was using her
phone for 60 hours
per week on average



On her 10th birthday, Sara's parents gave her a smart phone. Before getting the phone, she had been using the family computer to go online for homework and for fun for about an hour each day. Once she had her own phone, however, her use of digital media increased rapidly.

Within 3 months of getting her phone, Sara was using her phone for 60 hours per week on average. She watched YouTube and played Clash Royale, her favorite game, with friends almost every day. She also started using SnapChat, sending and receiving "snaps" with friends every few minutes (except in class, where the phone is not allowed). So far she hadn't talked to any strangers online, but some of her friends had told her they had met cool people that way.

Sara's parents had not set any rules or guidelines on her digital media use, but she learned basic cyber wellness tips from her teachers. Sara had no problem putting her phone away for meals or classes, but she was starting to feel worried when she could not check her "snaps." Recently she had forgotten her phone at a friend's house and didn't have it for one day. She was extremely upset that she had broken her "streaks" of exchanging snaps with her "BFFs". She was starting to feel like she couldn't live without her phone.

How did DQ impact Sara's life?

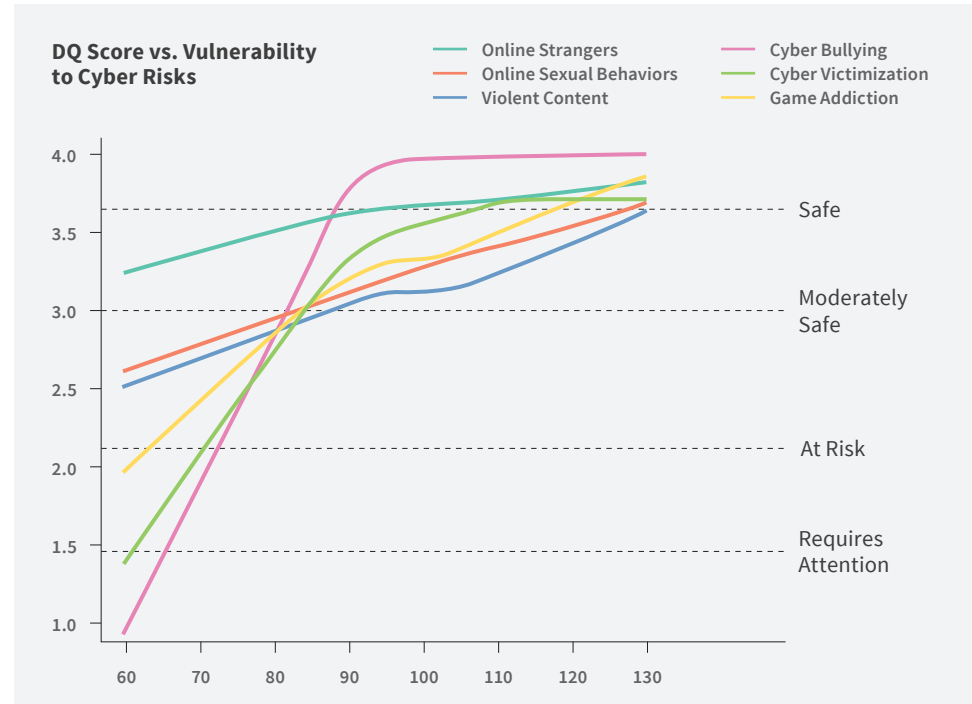
Sara's DQ World™ pre-test showed that she had a DQ of 91 – below the standard of 100, but not terrible. However, the assessment identified her weakness with screen time management and found she had regular exposure to violent and inappropriate videos. She had also posted some “selfies” to Instagram, and some of the pictures had gotten mean comments. Even though she hadn't told anyone about it, she felt bad and didn't know what to do. After completing the DQ World™ online education program, Sara improved her DQ score to 105.

01

Safe and Responsible Attitudes and Behaviors Online

Digital Citizenship Skills™ reduce children's tendency to engage in risky behavior online. High DQ scores have a significant inverse correlation with risky cyber-use behavior. It is desirable for children to achieve at least a DQ score of 100 to have the ability to avoid various cyber-risks. The DQ curriculum was also previously proven to be effective in cultivating safer attitudes toward cyber-risks, including cyberbullying, game addiction, and face-to-face meetings with online strangers²⁴.

After completing the DQ World™ curriculum, Sara possesses greater awareness of the many existing



cyber-risks, including online strangers, cyber-bullies, device addiction, and exposure to violent and obscene content. She has learned tactics – be it to ignore, to block, or to respond with wisdom – with which to defend herself. Importantly, she now confidently seeks the support of a trusted adult whenever she needs it.

02

Balanced Screen Time and Self-Control

During the program, Sara started to understand how her online life was stressing her out and that she needed better self-control and balanced screen time. She now understands how constant interruptions can impair her ability to do homework, to enjoy a book, or to even simply pay attention to her family members.



03

Better Understanding of Online Presence, Privacy, and Dataprotection

Sara has developed a better understanding of the digital footprints she leaves and how her activity builds a persona and digital identity which will affect how others see her. Thus, she has a better grasp on what info she should not make public, including her “selfies.” Likewise, she has a better understanding of privacy settings and how to restrict her interactions

online to just the people she knows in the real world.

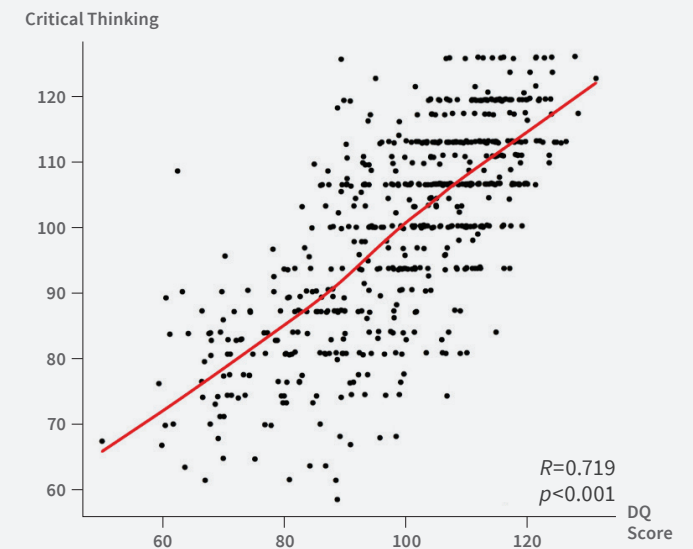
Moreover, her awareness of the risks of scams and hacking has increased, and she has learned how to better protect herself using various security tools and interaction tactics, including: creating strong passwords, spotting deceptive offers and information requests, and being wary of unsolicited emails, instant messages, and attachments.

04

Enhanced Media and Information Literacies

Sara now knows she must think critically about the information she sees online. She understands that not everyone is who they say they are online, and has a better understanding of the risks associated with befriending online strangers. She also knows that violent and inappropriate content are harmful to her wellbeing, and actively avoids it on all of her digital devices.

**DQ Score vs. Critical Thinking Skills:
A Highly Significant Correlation**



Note: The DQ Score in this graph is the average of the scores of digital citizen identity, screen time management, cyber bullying management, cyber security management, digital empathy, digital footprint management and privacy management.

05

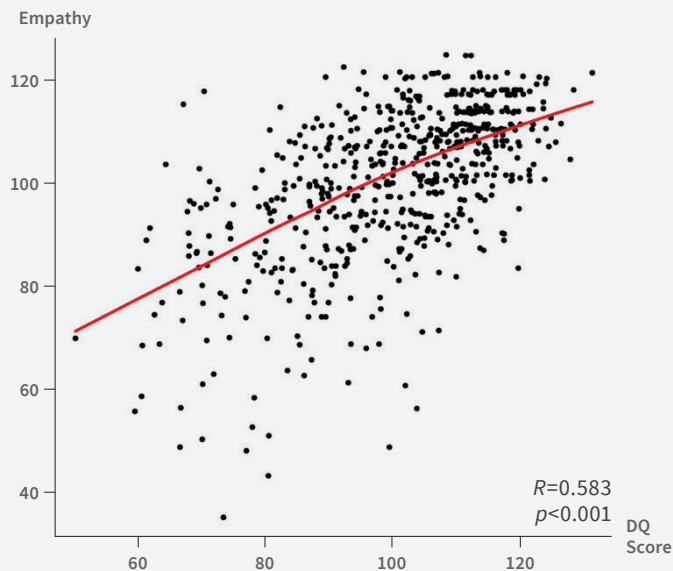
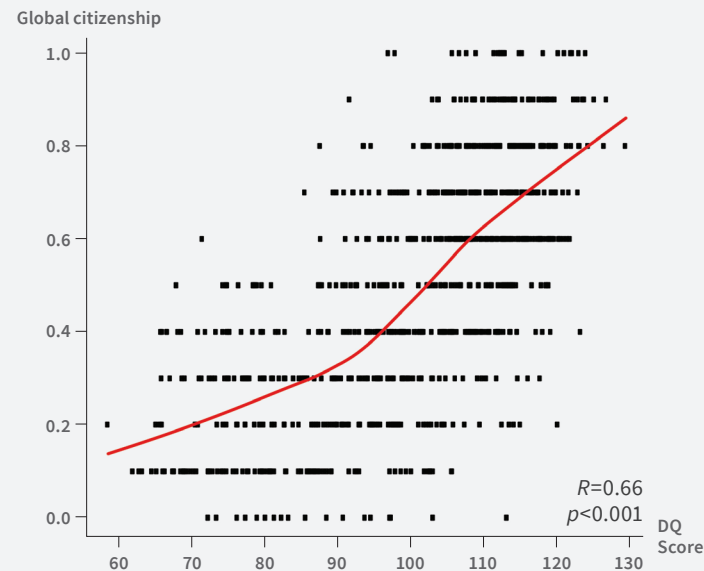
Higher Empathy and Global Citizenship

Sara had been kind in her communication online, but after DQ World™, she has a keener sense of how her choice of words could impact others. She now understands why it is important to communicate with empathy, respect, and tolerance, and to not be baited by mean or abusive comments.

Moreover, she realized that, when she goes online, she becomes part of a large global community and that she can be connected to individuals and information from almost

anywhere around the world. She now understands that what she says and creates online becomes her contribution to that community. This sense of scale and a larger world view does not come naturally to a child. Children (and many adults) tend to perceive their “corner of cyberspace” as a private area – even when they share content with the public. Sara, on the other hand, is beginning to understand how others online may have different cultures, values, and grasp of language. She knows why it is important to be socially and emotionally aware and to be tolerant online.

06

**DQ Score vs. Empathy: Highly Significant Correlation****DQ Score vs. Global Citizenship: Highly Significant Correlation**

Note: DQ Score* in each of these graphs is the average of the scores of digital citizen identity, screen time management, cyber bullying management, cyber security management, critical thinking, digital footprint management and privacy management.

Active Parental Mediation and School Intervention

Sara's parents also feel more confident: they received her DQ Individual Report™ and now have a better understanding of her digital competency as well as areas where she needs their support. They also adopted some of the suggestions for implementing family media rules and have had several conversations with her about how she uses digital technology. They feel like they now have a better understanding of their daughter's online life, and feel eager and able to provide improved parental guidance.

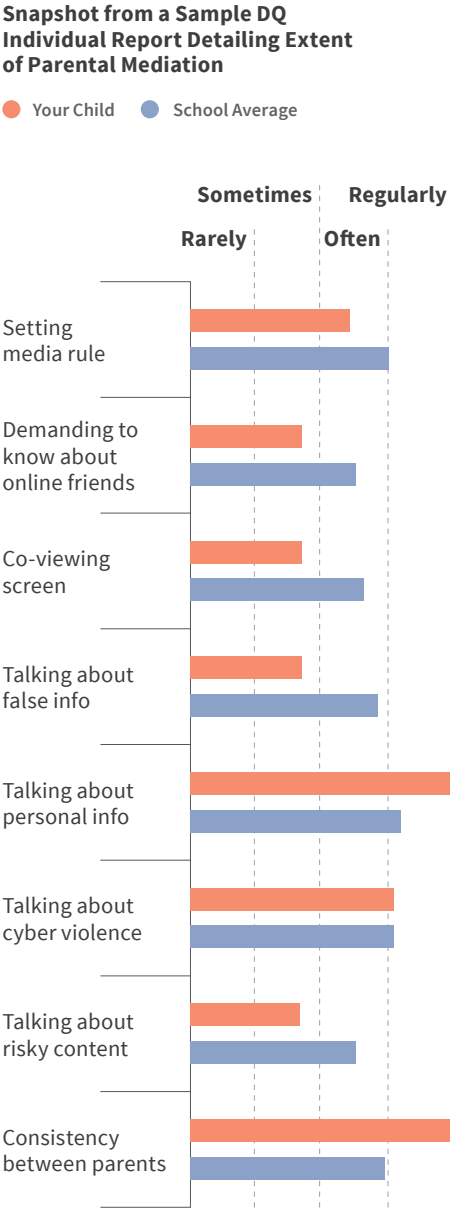
In addition, Sara was able to use the DQ World™ online program to request help regarding recent cyberbullying experiences. Her teacher was then able to intervene and provide quick and effective counselling for both the victim and the perpetrators, and resolve the situation before it could escalate.

07

Improved Social, Emotional, and Physical Well-Being

Sara has a better understanding of the importance of real-world support and relationships. She values the time she spends offline with friends and family. She understands that when she feels down or needs comfort, she should seek it from the people in her life that know and love her. She understands that while strangers online may come across as supportive and kind, the people she can trust most are families and friends she knows in the real world. She avoids turning to the internet and online strangers for emotional comfort.

Knowing that she has the support of her parents, her school, and her e-counsellors whenever she faces difficult situations online, Sara will be a happier, more confident child. This mental and emotional well-being carries over to her life at home, where she and her parents enjoy fewer worries – and more meaningful interactions.



08

Higher Academic Performance and Future Opportunity

With a higher DQ score, Sara knows how to manage her screen time. Better screen time management – including putting her phone away when she needs to concentrate – means that Sara’s academic performance gets a boost. She can sleep better at night and focus better at school. Likewise, reduced stress and distraction from her life online helps her to be more present at home. By fostering self-control, Sara improves her family life, her academic performance, and her future potential. Because a solid foundation in the core digital competencies of global citizenship, empathy, and critical thinking will ultimately equip Sara for better future career opportunities within the digital economy.

What if Sara didn't get her DQ education?

Without her DQ education, it is unlikely Sara would have been aware that her screen time was a problem or that she was exposing herself to cyber dangers. She had already been showing early signs of addiction, and this could have worsened to the point of negatively impacting her school grades and family life. In the long run, Sara's academic performance and career prospects would have been less bright.

It is highly likely that Sara would have been the victim of cyber bullying. A few inconsiderate posts on her social media account, or one very mean message from a classmate, could have led Sara into deep frustration and sadness. Not knowing how to handle the situation – and without timely emotional support – Sara might have lashed out in self-defense, escalating a risky situation and leaving negative digital footprints along the way.

Sara's curiosity to “meet cool people online” would have eventually exposed her to strangers. Without awareness of the dangers of deception, she would be vulnerable to manipulation by those with bad motives. Middle childhood is a critical time when kids start forming fundamental peer groups and pursuing approval. Without understanding the risks, Sara might have welcomed the compliments and advances of strangers, to the detriment of her safety.

Despite her young age, Sara had already been repeatedly exposed to violent and obscene content – materials which could impact social and psychological development. Consequently, her sense of values and ethics would likely have been negatively influenced by questionable online communities that indulge in violence, obscenity, and abuse.



OUR PROGRAM'S IMPACT ON SCHOOLS

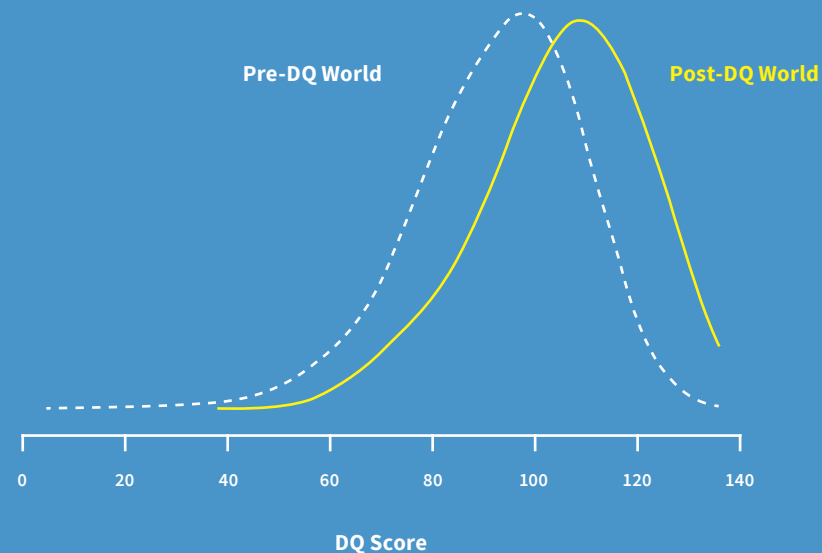
DQ World™ effectively enhanced the DQ skills of students who completed the online education program. The 2016 Pilot Study revealed that students pre-assessed before commencing the DQ World™ curriculum scored, on average, 93. Upon completion of the curriculum, there was an upward shift in the distribution of results, with the average score increasing to 106 – a 14% improvement.

Some schools incorporate DQ World™ into their curriculum with a hands-off approach, assisting with class and student registration and then allowing students to conduct home-based learning on a voluntary basis. Most schools,

however, prefer to have their students carry out missions on school computers during a designated period with teacher supervision and supplementary follow up activities. Teachers observe that the program offers even better engagement in classrooms where the online program is actively incorporated into the school curriculum. We have observed that schools adopting this method tend to have improved completion rates.

Overall, the schools with high teacher engagement – through active facilitation and performance tracking – achieve the largest improvements in DQ.

Distribution Change of DQ Scores in Students – Before and After Completion of the DQ World™ Online Education Program



Fuchun Primary School – enhancing learning through class discussion and student initiation

Fuchun Primary School in Singapore ran the DQ World™ self-learning lessons in the computer lab under teacher supervision. Teachers briefed the students on the digital citizenship topics that they would be focusing on and carried out class discussions.

Students then logged into DQ World™ and played the missions as per the teacher's instructions in class. They were then assigned a short homework assignment to complete other missions before the next class.

Cyber wellness ambassadors from the class were then appointed to encourage their peers to complete the missions. This method of class discussion, play, and peer encouragement was found dramatically improve retention of key ideas as well as student interest and engagement, delivering an astounding completion rate of 97%.

DQ IMPROVEMENTS, VISUALIZED

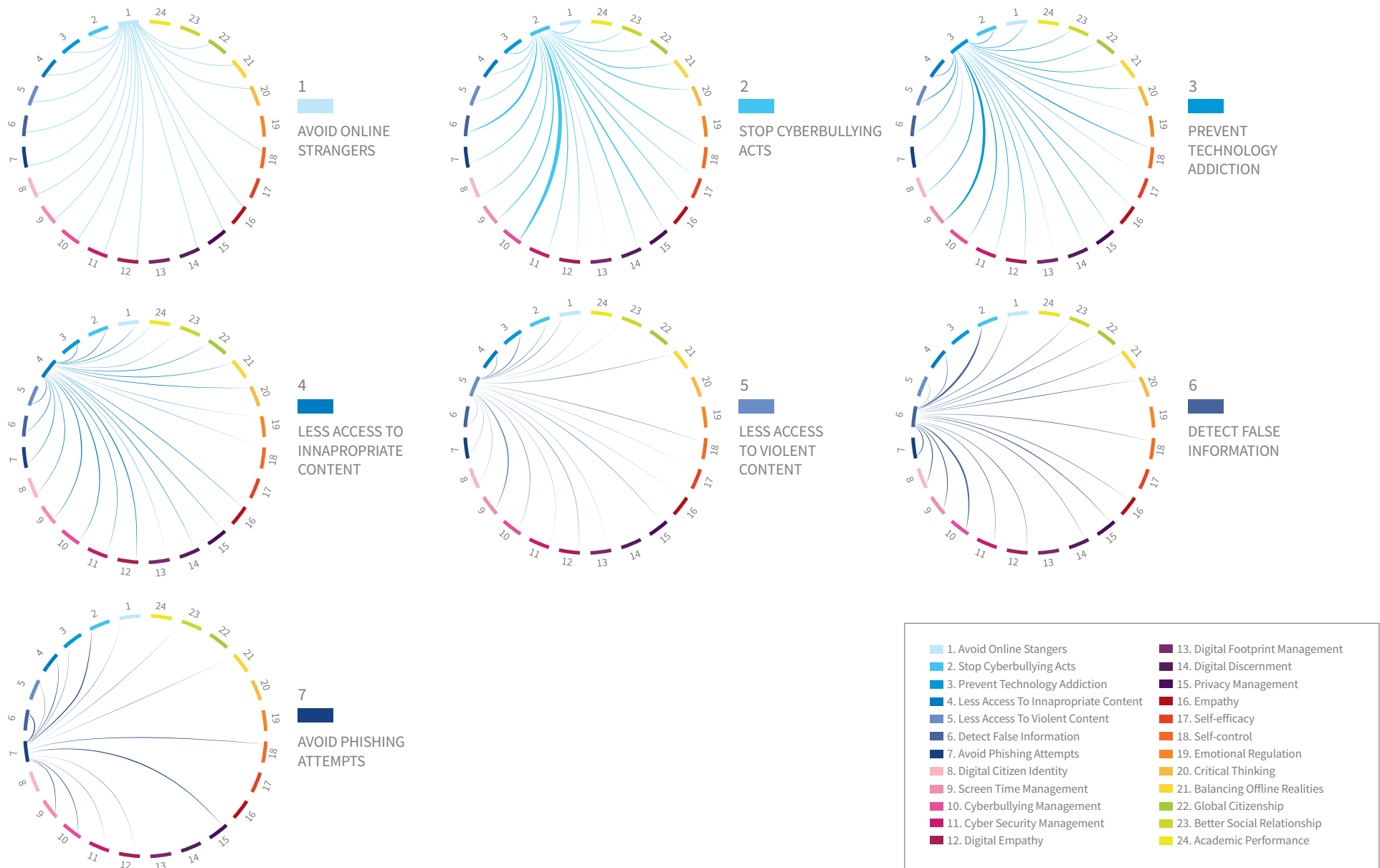
DQ Improvements Positively Impact 24 Areas of Development



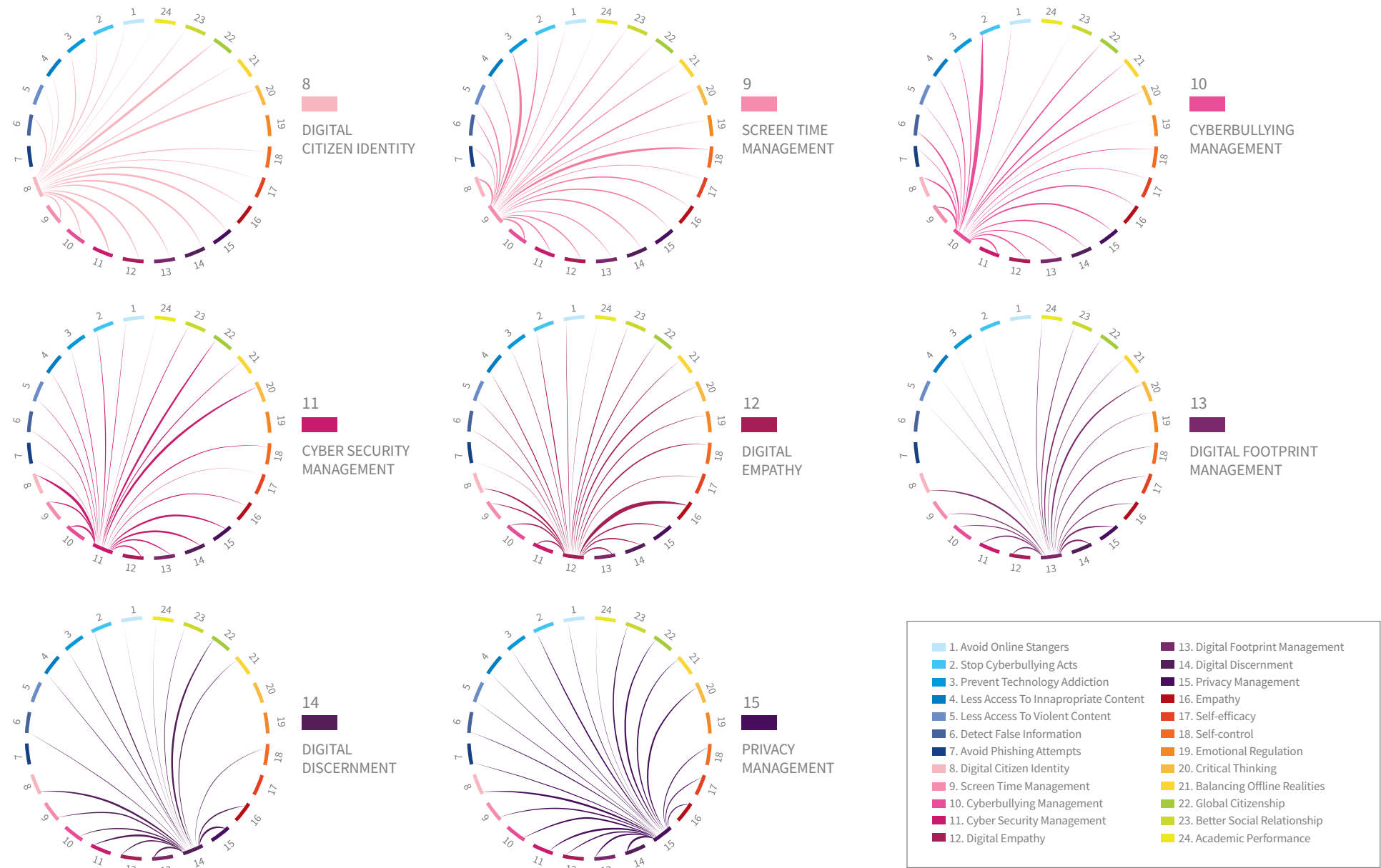
Greater DQ Citizenship Skills™ can enhance psychological strength, cognitive and social development, and safe and responsible online behavior

The Pilot Study revealed a highly significant positive correlation between DQ Citizenship Skills™ and the following psychological strengths, cognitive and social development, as well as safe and responsible online behaviors.

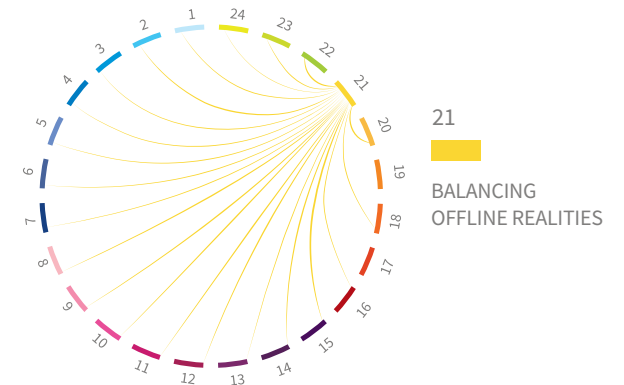
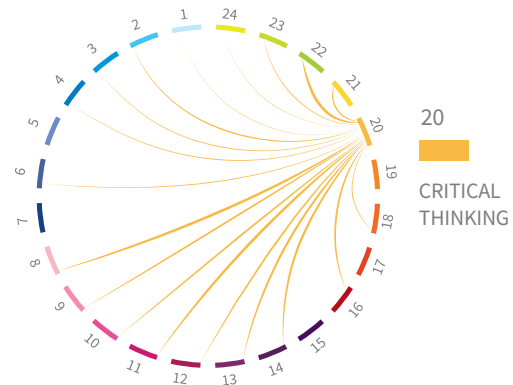
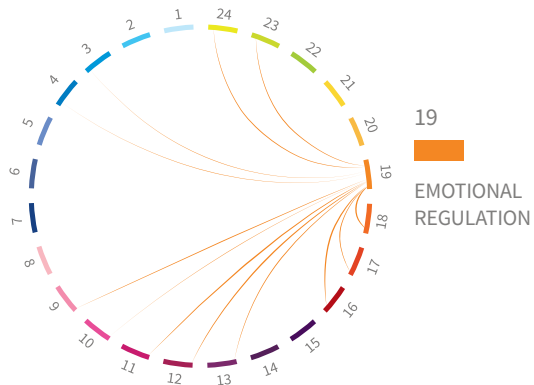
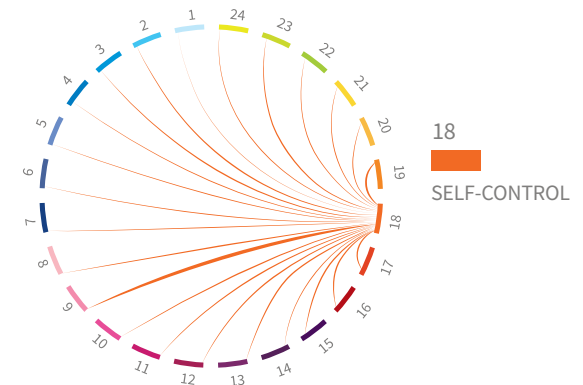
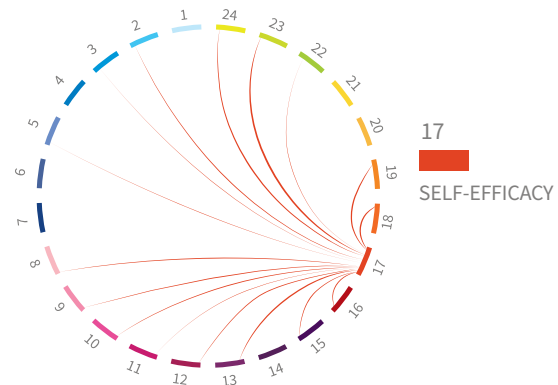
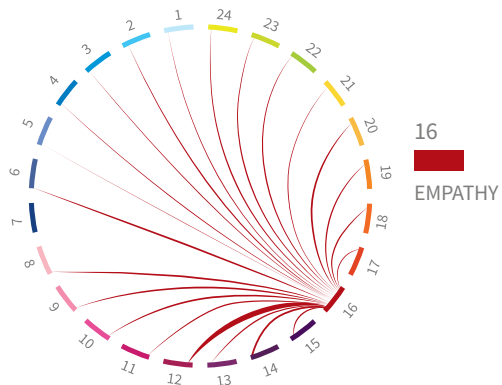
ONLINE BEHAVIOUR AGAINST CYBER RISKS



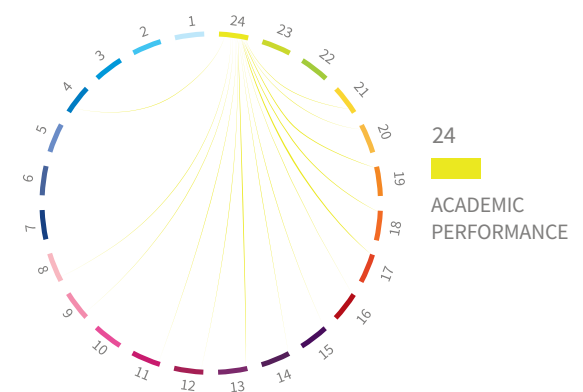
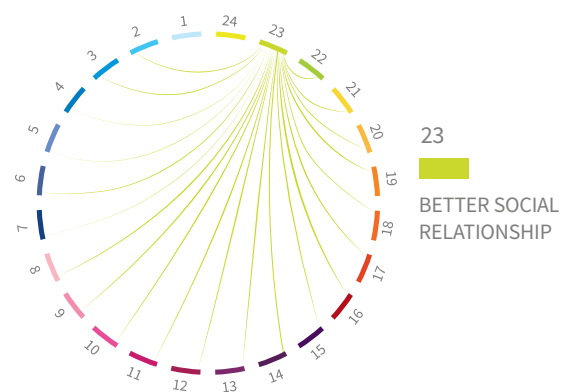
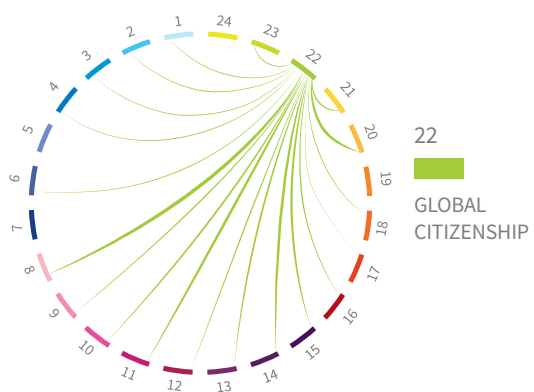
DQ SKILLS



PSYCHOLOGICAL STRENGTH



COGNITIVE & SOCIAL DEVELOPMENT



IMPLICATIONS FOR GOVERNMENTS

1. Children Need to Receive Digital Citizenship Education at the Start of Their Digital Lives

Since the development of personal computing in the 1980s, computers have been embraced as an opportunity to enhance and transform education with new tools. Traditionally, this has meant teaching computing as a technical skill (coding, use of software, etc.) which was considered sufficient to master the technology.

But with the dawn of mobile computing and social media, computers are no longer just electronic tools: they are portals to an entire digital world. Technology now has a human and social element that has wide-ranging implications for societies and lives. However, how we “teach computing” has in many ways not changed.

To adapt to these changes, all users, and children in particular, need to be equipped with digital citizenship skills. In order to maximize the benefits and minimize the harms of technology, we must educate children to use the technology in smart, responsible, and effective ways. Furthermore, we must empower parents and teachers with the tools they need to create an environment in which children can grow up safely with technology.

Unfortunately, many countries have not adapted their thinking and do not have a regular curriculum of digital citizenship or cyber-wellness education. Singapore is a noted exception as one of the few nations worldwide that have national cyber-wellness curriculum from the primary school level.

National education programs need to provide students with digital citizenship education from a young age – ideally when children start to actively use technological devices and digital media. Most children in developed nations receive their first mobile device between the ages of 8-12. As mobile ownership and social media usage comprise key factors for exposure to cyber risks, these are the prime years to initiate digital citizenship education.

The impact of this education is clear: children with a high DQ (i.e. greater than 100) have significantly better management of risk and experience fewer negative effects of digital media use on mobile devices and social media. Likewise, children who receive digital citizenship education tend to have better mastery of their devices, demonstrate improved critical thinking skills, and possess improved emotional stability²³⁻²⁴.

2. DQ Education Needs to be Intensively and Holistically Delivered to Children, Rather than by Piecemeal Cyber Security or Safety Tips or Campaign Messages

Although few nations have regular digital citizenship education, some have occasional cyber security campaigns with messages like “stop cyberbullying” or “keep strong passwords.”

While these campaigns can help raise public awareness of important issues, this approach does not meet the comprehensive needs of the child. It is critically important to approach this education in a holistic manner to train children with all 8 Digital Citizenship Skills™.

3. Nations Must Raise Public Awareness of the Importance of DQ and Build a Support Network that Connects Schools and Communities With Empowered Parents and Educators

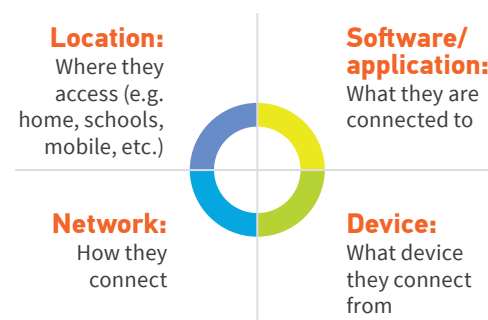
Parents play a critical role in children’s online safety and personal development. However, parents and teachers are limited by a technological generation gap – they have not grown up online and few are familiar with how kids are using technology. So while their support is invaluable, further expert guidance and support is needed.

To supplement parental and teacher support, professional counselling in the forms of preventative support, intervention, and follow up, can support children at risk. Nations must consider how to facilitate a strong support network that connects teachers, parents, and counsellors. This may be done as a combination of e-counselling (as is facilitated in DQ World™), school programs and/or special purpose apps or hotlines.

Singapore has successfully developed a large support network that seamlessly connects schools, parents, and communities to ensure online child protection. The Media Literacy Council, a government initiated not-for-profit body, connects various stakeholders, including academic researchers, companies, schools, and communities, and facilitates professional training seminars for teachers, counselors, and parents.

IMPLICATIONS FOR INTERNET, COMMUNICATIONS, TELECOM, AND TECHNOLOGY (ICTT) COMPANIES

There are four dimensions to how children experience digital media:



All four of these establish the capacity, social norms, and expectations of what children may experience online as well as having implications for their support structures.

The basic “safety strategy” for parents and teachers is to restrict, monitor, and actively mediate children’s use of devices and applications. These may be successful in limiting a child’s window into the digital world but are not foolproof. This is akin to keeping a child in the shallow end of the pool instead of teaching them to swim. Eventually the child will likely venture into the deep end. Strong vigilance is difficult to achieve, and we need your help.

It is ultimately important for ICTT companies, who have control over three of the points of access, to join us in empowering the next generation. ICTT companies uniquely have deep expertise and the agility to develop new solutions quickly. They are leaders of innovation and, whether they recognize it or not, educational ecosystems. Some social networking sites are more likely to expose children to various cyber-risks, and this gap represents a global crisis that is eroding public trust and leaves

our children vulnerable. Thus, ICTT companies should provide higher precautionary measures to block children’s access or ensure children’s safety on their platform.

We urge these companies to partner with governments for implementation of the DQ World™ online educational program. ICTT companies can also work together with committed stakeholders in order to quickly expand DQ educational opportunities for children of all backgrounds and nationalities. **In particular, promoting the #DQEveryChild™ global movement in their services, and increasing transparency and accountability on users’ privacy and safety, would be a momentous step forward.**

An informed and responsible digital citizenry together with transparent governments and ICTT companies will create valued relationships and promote societal trust, stronger than ever before. This trust will play a pivotal role in steering the long-term development of the digital economy that will provide the basis for an increasingly vibrant and robust digital ecosystem.

