

Group ID: 10-13

Future Trends Report

Organisation Studied: Hwa Chong Institution

Challenges

Challenge 1:

Decreased Real Life Social Skills

Observation:

Based on our survey, 81% of people feel that communication with teacher online is important.

Problem:

This however can cause some problems with the students ability to communicate and bond in real life. For example, people in our survey also established that communicating online is done through a screen and some might feel shy when talking to others in real life.

Research:

According to Microsoft Corporation, with the introduction of technology, human attention spans have decreased from 12 seconds to 8 seconds in about a decade. Knowing when to pay attention is a vital social skill because, say for example, you are out on with a bunch of friends and while one of them is talking, you suddenly zone out. This makes you look super insensitive and can cause you to lose friends. According to Liberty Classical Academy, another important skill that young people nowadays lack is holding conversations. The ability to hold solid, professional conversation is one skill that young people lack. The tendency to text instead of call has left our generation severely impaired when it comes to interacting with other people. According to Trendshealth.com, people attending the Samsung Gear VR event were so absorbed in the VR headset that they didn't realise that Facebook CEO Mark Zuckerberg walked past them. This really shows that they lack the ability to pay attention to their surroundings while on a device.

Links:

<http://libertyclassicalacademy.org/technology-affects-social-skills/>

<https://www.theodysseyonline.com/children-losing-social-skills>

<http://fortune.com/2016/02/22/samsung-facebook-vr/>

<https://www.bbc.com/news/technology-35629322>

<https://www.trendshealth.com/technology-make-us-more-alone/>

Challenge 2:

Cyber Wellness of Students

Observation:

5 of the people that we have interviewed expressed that increased use of technology could cause more cases of hacking of accounts, online impersonation and cyberbullying.

Problem:

When more of such cases happen, it would in turn force and increase in the Singapore Police Force to stop such crimes, while such crimes can also cause emotional and even mental harm to a victim.

Research:

According to TODAYonline, the number of cases of cyber crimes in 2014 as compared to 2018 has nearly doubled, rising from 7.9% to 13.7% of all crimes in Singapore. The article also stated that although technology has given us more possibilities of enhancing lives, it has also exposed us to more cyber threats. As for cyberbullying, according to an article by Channel News Asia, around $\frac{3}{4}$ of all teens aged 12-17 have experienced cyber bullying cases and only 3% of those interviewed told their parents. Another article that was by CBS News also stated that a teen as young as 12 and 18 have resorted to suicide as a result of cyberbullying.

Links:

<https://www.todayonline.com/singapore-proportion-cyber-crimes-growing>

<https://www.channelnewsasia.com/news/cnainsider/3-in-4-teens-singapore-cyberbullying-bullied-online-survey-10001480>

Challenge 3:

Critical Thinking

Observation:

Based on our survey, 9 out of 10 participants felt that they would rely more on search engines like google and duckduckgo to obtain information rather than hard copy books or newspaper

Problem:

As such, this can cause students to lose opportunities to learn real world skills, for example the importance and value of money when buying groceries or clothing

online since every sum of money is only a number on a screen. Students might also decide to copy and paste resources found online and not think whether it is relevant or not. Students relying more on technology can also cause students to lose interest in teachers when in school.

Research:

According to Modern Health Talk, nowadays, screens are often used as a substitute for real-life interaction, and usually lead to obsessive-compulsive behaviours such as constantly checking for new messages, that are clear signs of students heavily relying on technology to keep up with their social lives. Another example comes from the Oxbridge Research Group, where it is stated that information would be too easy to find thus students losing the will to work hard. It is also stated that information online could be fake or inaccurate information could be spread, thus affecting the credibility of the work that they did. Based on an article by Nielsen in 2018, the number of online purchases increased by 10% from 2017, and 95% of people who have been on the web has purchased something online.

Links:

<https://www.nielsen.com/sg/en/press-room/2018/online-grocery-purchasing-up-10-in-past-year-among-Singaporeans.html>

<https://www.mhealthtalk.com/technology-and-student-health/>

<https://www.oxbridgeessays.com/blog/students-becoming-reliant-technology/>

Challenge 4:

Health Problems

Observation:

4 people that were surveyed expressed that they feel health of students would be affected, for example addiction and eyesight problems.

Problem:

Instead of benefiting the students through the use of technology in learning, it would greatly affect the students lifestyle negatively if these issues are not resolved, meaning implementing such an idea would not be useful at all in the long run as it would only lead to students misusing this privilege to start gaming during lessons, resulting in addiction and later health problems, such as short-sightedness and even a change in sleeping habits.

Research:

According to Modern Health Talk, heavy reliance on technology can lead to negative impacts on the health of many students, Mental health disorders and increased risk of developing long-term diseases are just some of the possible effects

of overuse or improper use of today's technology. The article also stated that spending too many hours a day in front of a device can lead to metabolic problems, higher blood pressure and obesity in students. Based on another article by Kidslox, obesity is one of the most dangerous among the negative effects of the overuse of technology, as people tend to snack a lot, keep late hours and exercise less when they are glued to their devices. Backbone problems and neck aches can also occur in many people as they are constantly in the wrong posture when using such technology. According to an article by Barnet Dulaney Perkins Eye Center, 97% of students own a computer at home, and even with constant exposure to their devices, they are still oblivious to the unpleasant effects of prolonged technology use on their eyes. Retina Damage and possible cataracts in our eyes are just some of the health issues that would adversely affect our eyesight and would sometimes lead to other health problems as well. These results in many students requiring to wear spectacles in order to see clearly.

Links:

<https://www.mhealthtalk.com/technology-and-student-health/>

<https://www.goodeyes.com/blog/scary-effects-technology-on-our-eyes/>

<https://kidslox.com/blog/top-5-negative-effects-of-technology-you-even-dont-suspect/>

Challenge 5:

'Outdated' Teaching Methods

Observation:

66% of people that we surveyed felt that teachers might not have the resources or the skills to keep up with the growing technology that the younger generation can quickly pick up.

Problem:

When teachers do not have the resources to teach sufficiently, lessons might be too boring for students, thus students losing interest in lessons. Technology can also help students illustrate and explain points better, thus when teachers do not have sufficient resources, it makes it harder for students to learn.

Research:

Based on an article by UKessays, it states that teachers illustrating and playing videos will allow students to have a clearer view on a topic as compared to traditional textbooks. Based on the ICS, teachers need to improve their ICT skills as well as they need to help students facing problems. According to the Tech Advocate, students are also struggling in the classroom due to their teachers lacking confidence when teaching, as they themselves lack the skills to help the student.

Links:

<https://www.ukessays.com/essays/education/poor-teaching-methods-have-lifelong-impacts-education-essay.php>

<https://www.ics.ie/news/why-teachers-need-to-improve-their-ict-skills>

Underlying Problem

Incorporated Challenges #1, #3, #4

Given that technology will streamline access to resources used for education in the future, it appears that there may be a high probability of technology harming students rather than helping them in the future (CP). How might we help manage and control the student's use of technology to decrease the harm done to them (KVP) so that students will be more responsible life-long learners in the digital age of 2030 and beyond (FSP)?

Solutions

1. We, the students of Singapore, will, in the span of a year, make a personal criteria for the reduced use of digital devices by setting time tables per day or week, while setting tech-free time of the day for other activities such as exercise. This will decrease the rate of harm done to the body by decreasing the eyes exposure to blue-light emitted from screens while allowing us to do other activities beneficial to our bodies. Consequently, this will further the contribution we make to our country by having a healthy body for better working productivity.

Research:

Based on an article by the Straits Times on Smart usage of devices, an example of a realistic solution, rather than banning Smartphones completely, is to use them in moderation, that is setting a rule to check our smartphones only during a designated break period while we are working. Another article by Prevent Blindness, states that too much exposure to blue light late at night (through smart phones, tablets, and computers) can disturb the wake and sleep cycle, leading to problems sleeping and daytime tiredness, proving that blue light does harm our health. According to Community Development Council of Singapore, students who practise better dietary behaviours and are physically active tend to have better grades, school attendance, cognitive performance (e.g., memory), and classroom behaviors (e.g., on-task behavior).

Link:

<https://www.straitstimes.com/singapore/being-smart-about-using-smartphones>

<https://www.preventblindness.org/blue-light-and-your-eyes>

https://www.cdc.gov/healthyyouth/health_and_academics/pdf/health-academic-achievement.pdf

2. We, the teachers of Singapore, will, in the span of five years, educate our students from a young age about the importance and emphasis of cyber wellness by educating them on the harm that could be done and not assume their knowledge. This will decrease the students' risk of harm by letting them greater understand the detrimental effects of the issue. Consequently, this will lead them to be responsible, good digital citizens with excellent behaviour, while allowing them to interact safely and responsibly online.

Research:

According to an article by the Singapore's Ministry of Education on Cyber Wellness, there are three principles required for teachers to educate students on this issue, one of them being Safe and Responsible use, which shall require students to make wise and healthy choices, eg. Maintain a healthy balance of their online and offline activities. According to the 2012 Internet Crime Report by the FBI, 289,874 crimes were reported. This staggering figure alerts us to the prevalence of cyberterrorists out there now. With the education from the school, we will be better equipped to deal with these threats and avoid malicious content

Links:

<https://www.moe.gov.sg/education/programmes/social-and-emotional-learning/cyber-wellness>

<https://techspirited.com/why-is-internet-safety-important>

3. We, the schools of Singapore, will enforce a series of countermeasures such as restricted access to certain websites from school networks to ensure that while in our campus, our students will not spend unhealthy amounts of time on their phones and cultivate good screen time habits. This will not only decrease the harm they inflict on themselves, but also make them realise that their actions harm no one but themselves and consequently develop good habits regarding screen time. This will happen in the span of the next 5 years.

Research:

Based on an article by the Straits Times, a study has shown that digital use in schools not only do not improve grades for mathematics or sciences in countries that heavily rely on technology, but instead does the opposite and causes grades to drop. Based on an article by Phys.org, students spend 20% of their time in class on their digital devices on a daily basis. Most of these

uses are unrelated to class and mainly text messaging, but there are also other uses like emailing, web-surfing, checking social media and even playing games. In addition, according to ParentingScience, a study done in the US on a group of 64 boys concluded that gaming indeed did affect the academic performance of the boys. The first group was given a console each before the assessment, and one was promised the consoles after the assessment. The first group was shown to spend less time on homework and performed worse on the assessment than the second group. This highlighted the effect of gaming on the students.

Links:

<https://www.straitstimes.com/singapore/education/students-dont-perform-better-with-tech-use-in-school-oecd>

<https://phys.org/news/2016-01-digital-distraction-class.html>

<https://www.parentingscience.com/Effects-of-video-games-on-school.html>

4. We, the teachers of Singapore, will reduce the usage of devices in schools and for digital work done in schools. This will allow students to curb their digital usage desires in order to focus on what is more important at their current age. Consequently, this will positively affect their work-life attitude concerning their devices. This will happen in the next 4 years.

Research:

According to an article by The Guardian, a headteacher says pupil behaviour is better and bullying is down since he discouraged mobile phones in his school. Based on another article by The Guardian again, the effect of banning mobile phones from school premises adds up to the equivalent of an extra week's schooling over a pupil's academic year, according to research by Louis-Philippe Beland and Richard Murphy, published by the Centre for Economic Performance at the London School of Economics. Another article by Urgent Essay Writing, states the cons to online teaching, such as assignments may take longer to complete as students lose focus easily online and may even start playing games on their devices without the teachers notice.

Link:

<https://www.theguardian.com/education/2012/nov/27/should-mobiles-be-banned>
<https://www.theguardian.com/education/2015/may/16/schools-mobile-phones-academic-results>

<https://www.urgentessaywriting.com/blog/pros-and-cons-of-online-education-for-teachers>

5. We, the schools of Singapore, will require students and teachers to install a nation-wide in-phone monitoring app which tracks excessive phone usage and the opening of gaming or entertainment apps for more than 5 minutes while within campus. The app will then alert parents, guardians and teachers.

This will easily inform the students' parents, guardians or teachers of the usage of devices and thus allow them to have a better understanding of the students' digital usage. Consequently, this will better allow parents and teachers to help control and cut down students' phone use.

Research:

According to TheBetterParent, the new feature in IOS 12 will allow users to track their usage of each app daily, after which, parents can set restrictions for each app. This has shown to help curb usage and in extreme scenarios, stop usage altogether. However, this is only available on Apple devices, through the app, we want to push out this initiative to everyone. According to PsychCentral, reduced screen time leads to increased motivation to participate in activities they dislike because they are in a medium they enjoy. This will help benefit the less sporty children and encourage them to more actively participate in sports. Based on another report by

Link:

<https://thebetterparent.com/2018/09/ios-12s-screen-time-feature-will-curb-your-phone-addiction/>
<https://psychcentral.com/lib/the-effects-of-screen-time-on-children/>

Criteria

Which solution will be the easiest to be implemented for the school-going children of the future so that there would be less digital use by students?

Which solution will be the most effective at cutting down on dangerous online activity for school-going children of the future?

Which solution will be the most efficient at decreasing the reliance on technology for school-going children of the future?

Which solution will be the fastest for the student, teachers and parents to cut down on digital usage as a whole.

Which solution will need the least amount of resources for the general public with school-going children to implement?

Decision-making Matrix

Sol. Number	Solution	C1	C2	C3	C4	C5	Total
1.	Students decrease screen time voluntarily	1	1	1	2	5	10
2.	Teachers raise awareness	2	3	2	1	4	12
3.	Teachers and students download app to track screen time	3	4	5	3	1	16
4.	Schools enforce countermeasures	5	5	4	4	3	21
5.	Teachers reduce digital usage for work	4	2	3	5	2	16

Action Plan

All schools will enlist an external company or organisation to help develop a location based blockage in entertainment or gaming genre websites and apps. When the device is in the vicinity of the school, the radio signals will block the usage of entertainment or gaming apps for a certain school-decided time, for both cases where the student is on school WiFi or on mobile data. When the teacher requires

students to use such apps for educational purposes, they are able to give the students a code which will be in effect for a specific time frame. Using the restriction, we will be able to curb and monitor the students usage of mobile devices, thereby establishing a balance between technology and education.

We will start researching on the different programming companies in Singapore that excel in making different kinds of data signal blockage. We will then move on to allow them to test it out in a certain location. We will then advertise the blockage to allow other schools to use the same function, but set their own rules. We continue to upgrade the system in order for it to be more reliable and foolproof for the students.

Effectiveness of Action Plan

Some difficulties that might be faced when using the restriction would be that teachers and guests in the school would also be unable to use such apps, resulting in teachers not being able to teach through Youtube videos. This can be solved by allowing all teachers to login through a specific code only for teachers in order to allow them to use such apps. Guests can also do the same when they are signing in through one of the security gates. However, we believe that this plan would be fairly successful if sufficient time is given to improve on this program.

The restrictions can stop students from overusing their devices, which in turn could affect their health negatively such as causing obesity and myopia. It could also allow them to stop communicating through devices and start communicating in real life.

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<https://www.bbc.com/news/technology-35629322>

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