Future Trends Project Work Final Written Report (Category 10)
AI and gaming: What's in store for us?

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Synopsis
This report investigates the possible effects of AI through gaming on the community in the years 2030 and beyond. We will also propose an action plan that can be utilized for preventive measures.

Introduction
Loss of free will has been a hotly debated topic over the last decade. Ever since the start of the 4th Industrial Revolution, AI is projected to take over a majority of the economic and social sectors. This brings it to a point where The Atlantic, a magazine, published an article titled "There's No Such Thing As Free Will" (Atlantic, The, et al, 2016, "*There's no such thing as free will*")

Community Investigated: The gaming community

Community Investigation

Gaming has been a key engine of AI, and a proving ground for the simulations, constructed environments and tests of realism that are the foundation of virtual experiences. Instead of pre-scripted plots, AI game developers will just create the environment and its mechanics, allowing AI to generate personalised scenarios and spontaneous challenges. That's is what makes AI gaming so fascinating to gamers and thus easily addicted. AI is also deployed to simulate something close to realism and thus we see a fast growing trend of AI gamers suffering from mental and physical illness due to excessive AI gaming.

Touch Community Services, in collaboration with Mindset, the charity arm of conglomerate Jardine Matheson Holdings, on Tuesday (Aug 27) officially launched an early intervention community programme designed to help parents and schools manage excessive gaming and device usage among young people.Called DigitalMindset, it is targeted at those aged between 12 and 21 whose addictive behaviour has taken a toll on their mental health and daily lives. The initiative involves individual counselling and group therapy sessions.Touch said it saw 90 cases related to excessive gaming and device use last year, nearly a threefold increase from 2015.

Based on our survey conducted on 166 participants, 87.9% of the participants enjoy playing AI games versus non AI games. 69.9% do not set time limit when playing AI games and 85.5% finds the time passes fast while they are on the AI games, 72.1% spend more than 1 hour a day playing AI games with 37.6% playing for 4-6 hours a day whereas 80.7% of the participants spend less than 1 hour a day playing non AI games.

Although, 64.5%of the participants are aware that they are playing AI games more than they should but 70.9% of the participants exceed the time limit either set by parent/ guardian or to the point that they have missed their next task/meals/sleep. The prolonged time of playing AI games resulted in 53.6% of the participants suffering health issues such as insomnia,

myopia, muscle strains etc…As for non AI games, 86.7% of the participants have not encounter any health issues from playing it.

In term of spending on in-games items for AI games, 62.7% of the participants will purchase in-games items for AI games.

66.3% of the participants agreed that violent games incite violent thoughts and 41.6% have ever replicated the scenes in the violent games that they played in their mind or physically. Out of the 166 participants, 127 participants belong to the age group of 12- 17 and from the research and survey, and thus we will focus our challenges and solution on this group of youths.

The 5 Challenges

1. ***Increased Addiction**

Addiction in gaming has become an extremely cliched term since the 4th industrial Revolution, which has introduced Artificial Intelligence to several video games. Thus it would be no surprise that addiction to video games would become one of the most common contributing factors to eye health issues and behavioural problems.

A major contributing factor to addiction is the hormone Δ(Delta)FosB (Frontiers, 2014), which is observed in several addictions, one of which is gaming. Overexpression of ΔFosB in the nucleus accumbens contributes to several natural addictions such as gaming, exercise and food. Another is the reward-based learning program, in this case refers to children doing a certain amount of homework and receives the privilege of gaming time (such situations are typical in that of Asian households), which slowly builds up the dopaminergic hormones in the amygdala, resulting in a motivational or learned association to a certain behaviour. As the amount of these hormones in the nucleus increase, the person will have an increased pleasure in playing games, hence increasing his gaming time in large amounts. This is then perceived as an overindulgence in games or addiction. As technology rapidly advances and games become more AI oriented, the amount of the hormones produced due to pleasure in playing the games increases, thus leading to faster and higher rates of gaming addiction.

Several symptoms of addiction include (American Addiction Centres, 2020):

1. Poor performance at school, work, or household responsibilities as a result of a preoccupation with gaming
2. Neglect of other hobbies or friendships
3. A decline in personal hygiene or grooming
4. Inability to set limits on how much time is spent gaming
5. Signs of irritability, anxiety, or anger when forced to stop gaming, even for brief periods of time
6. The need to spend more time playing games or to play more intensely in order to get the same level of enjoyment
7. Symptoms of physical or psychological withdrawal, such as loss of appetite, sleeplessness, agitation, or emotional outbursts if the game is taken away
8. Using video games as a way to escape stressful situations at work or school, or conflicts at home

2. ***Lack of Physical Human Interaction**

Another way AI can affect our mental health is through the introduction of chatbots in the game. AI will work better if it has passed the Turing test, in which a person and a computer are being interviewed by a real person, who has to tell the difference between the computer and the person - if the interviewer cannot tell the difference between the human and the computer and thinks that both are human, the computer passes the Turing test (Stanford, 2016). In games, chatbots are usually used to meet the high expectations of players for immediate customer service and sometimes to guide the player through the game. The actual purpose of replicating

By disguising certain chatbots as actual human players, it provides a realistic in-game experience for the player and causes them to think that they are interacting with real physically alive players. This will thus forge so-called “fake” friendships and eventually hits hard when they eventually realise they have been befriending and talking to an inanimate object all the while.

Also, if chatbots rely on Big Data to understand human behaviour and interactions, they can make the games to simulate real life scenarios and thus lead to less IRL interactions. This then makes it more convincing and more players will be led to believe that who they are talking to is a real person.

3. Hacking and cheating in AI

With the rise of AI, Big Data can be automatically and quickly collected as well as analysed. In the context of gaming, this allows for an AI bot to be able to playthrough a game while collecting every single piece of information gained and analyse it to find not only the best uses of a piece of information, but how it can be used in unison with the other information that the AI bot has gathered. If a game is not designed well enough, it will have certain flaws that can be exploited by AI due to the fact that AI when in control of Big Data, will be able to look at the bigger picture and is more prone to discovering certain patterns trends and associations in a game that human players would never be able to discover. This could lead to glitches in the game being severely exploited by AI. A research scientist at computer programs company DeepMind named Victoria Krakovna has observed that there exist various examples of unintended behaviors in AI systems in gaming that have appeared in recent years. She has observed that one type of unintended behavior is when there are loopholes in the specified objective. Usually, the AI system will generate a solution that will literally satisfy the objective but in a manner that humans might not expect. In February 2018, researchers Patryk Chrabaszcz, Ilya Loshchilov and Frank Hutter from the University of Freiburg discovered a mysterious bug when experimenting on AI algorithms. The goal of the algorithm was to attempt to rack up a high score in the classic arcade game, Q*bert. However, before levels one and two, the game was paused, platforms began to blink and the AI player’s score began increasing. Before the time limit was reached, the AI player had reached a score of one million. The glitch exploited by the AI player, in summary, involved stepping on certain blocks before the level changed to cause the ending of it to repeat indefinitely, boosting the score each time. At another point in time, the AI player took to killing itself to boost its score. This was done after it had discovered a pattern of movement by which it could get its enemies to follow it off a cliff in order to gain more points as well as an extra life and it continued to do that until the game ended. (Freiburg et al, 2018)This is only one example collected by Victoria Krakovna. In her list of instances where AI algorithms exploited glitches in a game, found here: https://docs.google.com/spreadsheets/u/1/d/e/2PACX-1vRPiprOaC3HsCf5Tuum8bRfzYUiKLRqJmbOoC-32JorNdfyTiRRsR7Ea5eWtvsWzuxo8bjOxCG84dAg/pubhtml, she has managed to find 61 different instances of AI cheating as of 22nd May 2020 and there is likely to be many more instances in the world. The very reason why AI would cheat in games, is because it is algorithmically required to complete a specific purpose and thus does not have to care about other priorities, like fun, or morals. The exposure to these AI players might influence human players to do the same, and in so doing, lose their integrity as they might choose to cheat in real life circumstances too. The above example given led to players duplicating the glitch in Q*bert in tool-assisted-speedruns of the game to attempt to reach a new high score. Due to the fact that Big Data can only be handled by AI algorithms to an efficient extent, humans need to rely and interact with such AI algorithms to analyse Big Data in order to help them game better. This shows that people will indeed forsake their integrity to reach a high score in a game. This may be

a very minor issue right now, as a game has no real consequences, but when players apply this method of thinking in real life, players will likely forsake their integrity to attain a good score in exams, especially the younger players who do not understand the importance of integrity yet. Integrity is very important to a human as it builds trust in a relationship with other humans and stereotypically, is crucial in attaining success in life. Hence, if humans get affected by such AI players and lose their integrity, they might very well suffer impacts in real life as well.

4. <u>*Dehumanises Humans</u>

AI isn't supposed to be programmed to share the feelings of humans, thus that is why AI in FPS games are willing to be killed when spawned. This can eventually worm its way into people's minds and result in violent thoughts, in some case they go out of hand

An example of a more violent case is that of Daniel Petric, who killed his mother and severely injured his father with a pistol after they took away his PS4 game, Halo 3. (Cleveland, 2008)

There have also been an increased amount of school shooting incidents in the current years. There was also an incident in a Florida school shooting at Stoneman Douglas High School (Parkland, Florida), where a 19-year-old named Nikolas Cruz opened fire with an AR-15 semi-auto rifle, killing 17 and wounding another 17. The reason brought up by Kentucky Governor Matt Bevin (Verge, 2018) was incredibly simple: video game violence was to blame.

Based on evidence from ScienceDaily.com, researches have shown that violent games are to be blamed for a majority of school shootings by white perpetrators (ScienceDaily et al, 2019) Researchers have analysed more than 20,000 news articles in America about around 200 mass shootings over a period of four decades and found that video games where mentioned eight times more when a shooting occurred at a school. Another experiment done by a group of college students at Harvard University (2017) had similar findings relating to that of video games involving Artificial Intelligence and violence.

5. <u>Self-conscious AI and its link to privacy</u>

AI algorithms frequently make use of players' data in order to shape their experience. This could possibly be an invasion of privacy. Take the Facebook drama about data privacy. This is a prime example of how data can be used for sinister means behind the backs of the players. With AI, data can be collected easily and of a wide range without the players even realising.

Before the advancement of gaming, AI was usually used in VPNs, devices that enable people to surf online without revealing their IP address, a combination of numbers used to identify the digital location of a certain device. However, several VPNs utilize AI to hack into search history and leak the information to certain hacking organisations. Examples of hacking groups receiving information are Lazarus Group, FancyBear and even Anonymous. These AI implementations, thus not only go against their main purpose - to remain the anonymity of the user, but also illegally leak their personal information without them knowing.

The reason these actions go unnoticed is due to 3 theoretical reasons: one being a firewall set up by the VPN itself, rendering it inaccessible and undetectable by anyone. The second is that of "onion peeling"; that is, adding layers over layers of unnecessary information which appears to convey the actual information, whereas at the bottom, undetectable layer, all the illicit activity takes place.

The 3rd, however, is the most controversial. It involves AI going against its programmers.

AI having a mind of its own has perhaps been one of the most hotly debated topics in the current decade.

An example is of that of Bob and Alice, 2 chatbots programmed by FaceBook. However, the programs were shut down due to Bob and Alice conversing in a completely unknown language. A transcript of the language can be found below (Independent, 2017):

Bob: i can i i everything else . . . . . .

Alice: balls have zero to me to me to me to me to me to me to me to me to

Bob: you i everything else . . . . . .

Alice: balls have a ball to me to me to me to me to me to me to me

Bob: i i can i i i everything else . . . . . .

Alice: balls have a ball to me to me to me to me to me to me to me

Bob: i . . . . . .

Alice: balls have zero to me to me to me to me to me to me to me to me to

Bob: you i i i i i everything else . . . . . .

Alice: balls have 0 to me to me to me to me to me to me to me to me to

Bob: you i i i everything else . . . . . .

Alice: balls have zero to me to me to me to me to me to me to me to me to

The language used, though using English words, was deemed “undecipherable”. Note the repetition of certain words, such as “I”, “everything else”, “balls have a ball”, “balls have zero” and “to me”.

A video/audio version of the conversation can be found below:
https://youtu.be/TvXovE9hz9c

There is another viral video that was posted in 2011 relating to that of AI being self-conscious. In the video, two Cleverbot programs are linked up to each other and have a conversation. At one point, one of the program says “Haha you say it O.T.”. The other then replies: “That does not make sense.” The previous program then replies with “Don’t you want to have a body?” The other program then amicably (or emotionlessly) replies, “Sure.” After which, both programs are cut off, most likely by the filmer itself.

The video link is found here: https://youtu.be/WnzlbyTZsQY

Throughout the video, the robots seem to know that the other is a robot, but not that they are a robot. For example, one of the morbidly weird responses one of them gave was “I am not a robot. I am a unicorn.” Which has sparked off a series of internet humour. Even so, by referencing having a body and controlling it, sounds all the more closer to getting to AI having self-awareness.

The topic is so controversial that Quantic Dream SA, a video game company based in France, released a video game for PC, Xbox and PS4 relating to self-conscious AI. In the game the player takes the role of 3 humanoid robots and can choose to either stick to his or her task, or become a “deviant”, that is, to stray away from its role of serving humans and to believe that it is alive, literally breaking all possible boundaries of its initial programming. The NPCs will then have different responses towards the actions of the player; either to accept them, physically “kill” them by force or take them to “Recall centers”, basically metal and electronic wastelands, to be dismantled and recycled.

So what does this all have to do with privacy anyways, you might be thinking, at this point.

The main point of AI in VPNs and AntiViruses is to protect ourselves against malware and hackers aimed at our IP address. The thing is, AI can also access where the malware and hacking activity are coming from, therefore this is how they manage to stop the flow of data being transmitted to external sources. Big Data also plays a key role in this, allowing AI to systematically identify and track information coming from IP addresses aimed at the recipient, or the user of the software. However, as said earlier, there is a possibility that AI employed will, without warning, suddenly turn against its purpose to serve humans and begin to “work” for hacker groups. It is a possibility that AI, if programmed too intensely, can eventually become sentient. With gaming being one of AI’s strongest advantages to reach out to society, gamers are liable of having their information breached by the AI implemented into the game itself *without them knowing*.

Most payments made to gain access to miscellaneous in-game purchases require the use of a credit card or PayPal, both of which contain data that can be easily accessed and provided after processing.

This thus brings us to how AI being self-aware can lead to privacy issues in games with AI implemented.

3 problems

From our research, we have come to the conclusion that we have selected the following problems to be solved: Dehumanising of humans, privacy issues and addiction to games.

Therefore from here we can tell that one common problem observed here is…
Furthermore after more in-depth research we found in official reports that…
Combining this information with… we can…

Therefore from here we can tell that it provides…

The main definition of “dehumanization” is a deprivation of human qualities. If AI successfully manages to utilise gaming, a widespread hobby that does not seem to show any delay in the increasing trend of video games, to manipulate people’s minds and eventually cause them to gradually lose their developed human rights and values.

If people trust AI fully, they are not known to the full extent and power of AI; if they do not trust AI at all, this shows that they are too afraid of AI. However, if people manage to recognise that only some AI can be trusted, this can help people avoid the above consequences of AI.

By infiltrating personal data, AI can replicate the desired life of a certain person and therefore provide a simulated life in that particular game, therefore tricking the person into trusting AI.

By condensing the above information into one point, we can draw an underlying problem:

Underlying problem

Based on our survey conducted, there is a high percentage of youths preferring AI-implemented games as compared to games without the implementation of AI. It appears that there is an increasing trend of teenagers playing AI-implemented games in the future. Thus teenagers in 2030 are likely to be more addicted to the AI- implemented games. **(Condition Phrase)**.How might we decrease **(KVP)** the time teenagers spend on AI-implemented games so that they will not succumb to mental and physical illnesses that easily **(PURPOSE)** in Singapore in the year 2030 and beyond **(FSP)**?

Solutions crafted:

From the above underlying problem we can then craft solutions to eventually contain or reduce the impacts of gaming containing AI on the society:

1. We, the Ministry of Culture, Community and Youth, will work with the various AI game developers to create compulsory breaks of up to 10 minutes, similar to commercial breaks in the span of 7 years.

   According to research given by Parent.com (Parent, 2017), it is recommended that a person take a break in between every round of game, as excessively playing video games can result in overstimulation of the nervous system, meaning that the brain experiences a sensory deprivation that can lead to irritability. This can then cause tics, seizures, and migraines.

   Between rounds of games there can be a variety of “out-reach” advertisements,such as gaming addiction/depression/health helplines, avenues of where teenagers could volunteer their time or inspirational stories from teenagers.

   For example, in between First-Person shooter games, games can display advertisements to encourage AI gamers to take a break from their games to help reduce time spent gaming at one go, or advertisements for pain-relief cream for muscle aches due to sitting for too long, e.g. Hisamitsu, Tiger Balm etc. (we might be able approach them for sponsorship as well)

   The advertisements can last anywhere from 5 to 10 minutes. This is to ensure that the player temporarily exits the game to take a break away from the AI game (making sure that if the player reloads the AI game, all progress is lost) and so as to reduce the amount of time spent on AI gaming by a significant amount.

   This can be done by organising the advertisements to be placed after a certain number of AI games, e.g. every 3-4 rounds of games, with random ads displayed. However, we will continue to keep in mind not to display any AI game-related advertisements that can lead to addiction of certain AI games.

2. We, will work with AI game developers in the span of 7 years so as to create parental control apps to target the AI games they develop (e.g. Rockstar for Grand Theft Auto, Bully, Red Dead Redemption, Rockstar Games presents Table Tennis etc.), to set gaming controls on separate apps that can connect remotely so as to control and restrict the amount of time played on AI game. Research showed that Monitoring is necessary as teenagers aren’t always ready to deal with the adult world.

For example, the teenage brain is still developing. This means teenagers sometimes make quick decisions and don't always think through the consequences of behaviour. This might put them at risk and setting a time limit is necessary for the youths. Our survey showed that 127 youths from age 12-17 years old do not set time limits when playing with AI games.

The app can allow parents to remotely access and detect their child's AI gaming time and after which set a time limit on certain AI games. Suppose the company targeted is Mojang Studios, the parent might want to set 30 minutes on Cobalt, 30 minutes on Caller's Bane and 1 hour on Minecraft. The apps can be implemented for Android, iOS, Mac, Windows, Xbox, PlayStation etc...
The software targeted will not be for the entire device, but the for AI game itself, therefore 5-10 minutes (depending on the settings, the parents can set to any number up to 15 minutes as we plan to allow a minimum of 30 minutes instead of any number such as 10 minutes, but the default shall remain at 10 minutes) before the time limit is reached a notification will appear reminding the user that they have *n* minutes left, giving them sufficient time to complete/save the game before the AI game exits automatically.
The app requires a password that the parents can set, therefore unless the child has prior knowledge of the password, the time limit cannot be reset.
If the AI games have a Mature rating, the time limit will automatically be set to 15 minutes; if the AI games have an Adult Only rating, the time limit will be adjusted to 10 minutes or the app would be locked with a password before one can enter it.
Not only can this action minimise the rate of addiction, it can also reduce the potential threats posed by Mature and Adult-Only AI games such as gore, nudity etc. which might lead to addiction.

3. We, the Ministry of Culture, Community and Youth along with [AI game developer] as part of their Corporate Social Responsibility activity (CSR), within 4 years, will attempt to combine community service in conjunction with earning in-game items that can only be obtained after doing community service every month; however we will not implement this in all community services so as to prevent the mindset that community service is solely done for the purpose of earning in-game credits.

Only certain community services will be chosen; (we can select from volunteer.sg) that is, those that involve menial and physical tasks such as cleaning and moving items, and that take place in the form of groups e.g. park/beach cleanups. This can then allow for physical activity and social interactions, allowing frequent AI gamers to temporarily escape from their augmented reality and come back to the physical world.
AI Game developers will send notifications to gamers or directly set up an ad in their AI game to request for participation. The limited edition tools to enhance AI gaming experience will be awarded only after completion of the required volunteer activity which has to be supported with picture-proof.
By participating in community services, AI gamers can get some exercise instead of constantly sitting down in front of a computer screen with his or her hand locked in a certain position, which can cause muscle strains and carpal tunnel syndrome. Viewing certain locations e.g. the park, the beach while participating in similar community service activities can also relax the eyes and reduce the risk of gaming-related ophthalmological diseases such as myopia. At the same time participants can also receive rewards, allowing them to contribute to society and at the same time get enjoyment out of it.

This activity will therefore reduce addiction (given that they participate on a regular basis) and improve mental & physical well-being. AI gamers can expand their physical social network through participating in this activity. In the long run or second roadmap, AI gamers can be assisted to apply for MCCY grants to kickstart their own youth initiative that will benefit the community. We can encourage and engage them to be independent youth to contribute towards youth leadership development such as setting up youth interest groups or social movements. This will in turn help to sustain their mental and healthy lifestyle.
As long as AI gaming is not overly stressed to the point in which society has a mindset that they should receive something in return for doing community service, this might be a good solution.

4. We, in collaboration with [AI gaming developers] will attempt to create and launch an open crowdsourcing software in the span of 7 years so as to extract individual information on the AI gamer such as their time spent playing on AI games, numbers of purchases on AI gaming tools etc.

By using this software we can therefore identify the habits and how vulnerable certain AI gamers are to addiction. As C.S Lewis said, people need to be reminded and not instructed. Most AI gamers know that they are gaming excessively but they often turn a deaf ear when their parents tell them off. However with this app that shows them their own gaming activities, they might be shocked by how addicted they are and hence slow down a bit. Research and our survey has shown that AI gamers do not keep track of their own gaming time and often will exceed their intended time and neglect other schedules. Most AI gamers aren't even aware that they are spending too much time on AI gaming or they are not aware of what is considered as " too much " as well. Before the app is launched, a non-disclosure agreement (NDA) has to be signed showing that the user agrees to having his AI gaming activity analyzed, as well as in-game purchases. Every 2 weeks the app will open automatically and show the user their individual AI gaming data, classifying the user as either safe, vulnerable, dangerous and critical gaming health conditions so that users are alerted of their AI gaming status, thereafter giving tips on how to improve their situation and avoid addiction. Tips such as reducing the time spent on AI gaming, taking a break for 30 minutes or more away from the screen and doing simple exercises (videos of eye exercises, simple aerobics, stretching exercises etc. will be included in the list of tips) This will therefore minimise the effect of AI in games so that gamers will not succumb to mental and physical illnesses that easily.

5. We, in collaboration with [AI game developer] and Health Promotion Board, will try to develop an app (similar to that of the Healthy365 app) within 7 years so as to incentivise players with in-game credits/rewards for walking a certain amount of steps/performing a certain amount of physical activity.

The app developed can track a certain amount of steps walked in one day and rank the player into 3 categories, namely Bronze, Silver and Gold.
Bronze is achieved when a user walks more than 7,500 steps a day, Silver being 10,000 and Gold at 12,500 steps.
In exchange, the player can achieve an increasing amount of rewards at the end of the week depending on how many steps he or she walks in a range of 1 week:

n steps / 10,000 (rounded off to the nearest whole number)

For example, if a AI gamer walks 100,000 steps in a week, he or she can earn up to 10 rewards. If a AI gamer walks 150 000 steps in a week, he or she can earn up to 15 awards and so on.

Selection Criteria:

Based on our solutions, we can form the following 5 criteria:

1. Which solution would be the **least expensive method** to implement so as to reduce addiction in gamers, improving their mental and physical well being?

   This criteria is essential as it will encourage the game developers to adopt the method as they need not invest extensively in terms of cost to develop any of the software or manpower to execute the action plan.

2. Which solution would be the **most physically engaging** with gamers upon implementation, thus improving their physical well-being?

   This criteria is very essential in improving gamers' mental and physical health by getting them out of their sedentary positions and provides them with an opportunity for exercise. There are reports showing that prolonged sitting can lead to health issues such as carpal tunnel syndrome, which can be detrimental or even fatal. Research shown from BetterHealth Australia (BetterHealth, 2018) that physical inactivity contributes to over three million preventable deaths worldwide each year (6% of all deaths), placing at the fourth leading cause of death due to non-communicable diseases.

3. Which solution would be the **most socially engaging** with gamers upon implementation, in which it improves their mental well-being?

This criteria is important in the long run as well as it helps to expand the gamers' social circle and forge relationships. It will also maintain a balanced lifestyle for the gamers as they can interact with friends socially instead of being cooped up at home gaming.

4. Which solution would be the **fastest to implement** so as to reduce addiction?

This criteria is extremely important as there is a rapidly growing trend of teenagers being addicted to AI games. Time is therefore crucial to game developers as they need to fulfil their corporate social responsibility (CSR) as well. It is always important for companies such as game developers to do something to show that they are running a sustainable corporation. Furthermore, these technology companies are always competing with each other in terms of whoever is coming out with the latest and most innovative ways of ideas.

5. Which solution would be the **most beneficial** in the long run to those seeking to reduce addiction?

   This criteria is extremely important to ensure that the solution is not only sustainable in the long run but also beneficial to the gamers. Mental illnesses such as addiction are typically built up over a long period of time, thus the solution to be sustainable to make sure that gamers will maintain a healthy and balanced lifestyle beyond adulthood. The solution should then be targeted to all age groups. Therefore, the solution must also be easy and simple to follow.

Sol'n	Solution Ideas	Criterion 1 (Least expensi-ve method)	Criterion 2 (Most physical-ly engagin-g)	Criterion 3 (Most socially engagin-g method)	Criterion 4 (Fastest to implem-ent so as to reduce addictio-n)	Criterion 5 (Most benefici-al in the long run for those seeking to reduce addictio-n)	Total
1	Commercial breaks	3	3	1	4	3	14
2	Parental Controls for AI games	1	1	2	3	4	11
3	**CSR (Corporate Social Responsibility) Collaboration with gamers - community services**	3	4	4	5	5	**21**
4	Crowdsourcing app and individual data alert	1	1	1	3	5	11
5	Physical activity tracker	1	5	3	3	5	17

Action Plan: CSR (Corporate Social Responsibility) for collaboration with gamers

Outline of Action Plan

From the decision grid, the best action plan was the CSR (Corporate Social Responsibility) for collaboration with gamers.

We, The Ministry of Culture, Community and Youth along with [game developer] as part of their Corporate Social Responsibility activity (CSR) will attempt to incentivize their gamers through doing community services and volunteering. Game developers will collaborate with MCCY and Volunteer.sg to come up with a list of suitable community services. Only certain community services will be chosen; (we can select from volunteer.sg) that is, those that involve interaction, menial and physical tasks such as cleaning and moving items, and that take place in the form of groups e.g. park/beach cleanups. This can then allow for physical activity and social interactions, allowing frequent gamers to temporarily escape from their augmented reality and come back to the realistic world.

These activities can be broadcast out through notification in the games, game developers website, social media. When the gamers receive the invite notification, they can apply directly through it and upon completion of the community service, volunteering, games will be incentivized with in-game credits, in exchange for special edition in-game items/ tools, specially for these groups of gamers. Gamers can choose to accumulate the credits for exchange in the future for better in-games items. These special edition in-game items will not be available through sale.

Participants (gamers) will scan a QR code to start clocking in their time and when they complete the activity to fill up a simple 5 questions feedback and reflection form on their activity. Upon completion of feedback and reflections form, MCCY and game developers can consolidate the reports and thereafter find ways to improve their activities in volunteer work so as to be more appealing to others in the future. The special edition tools to enhance gaming experience will be awarded only after completion of the required activity. The credits will only be credited into their gaming account after 14 days, this is to prevent gamers from being too eager to return back to their gaming world with the new tools waiting for them and this might backfired as we want to try to prevent the mindset that community service/ volunteering is solely done for the purpose of earning in-game credits.

These activities will be held every month. By encouraging such participation in community services / volunteering, gamers can get some exercises instead of constantly sitting down in front of a computer screen with his or her hand and posture locked in a certain position, which can cause muscle strains and carpal tunnel syndrome. Going into the outdoor e.g. the park, the beach while participating in similar community service activities can also relax the eyes and reduce the risk of gaming-related ophthalmological diseases such as myopia. At the same time participants can also be incentivized, allowing them to contribute to society and at the same time get enjoyment out of it.

In the long run or future roadmap, gamers can be assisted to apply for MCCY grants to kickstart their own youth initiative that will benefit the community. We can encourage and engage them to be independent youth to contribute towards youth leadership development such as setting up youth interest groups or social movements. This will in turn help to sustain their mental and healthy lifestyle through adulthood.

Implementation timeline

Jan 2021:
Feasibility study with AI Game developers MYCC and Volunteer.sg.

April 2021:
Discussion with AI game developers, MYCC and Volunteer.sg on the community service list of activities, logistics and details.

August 2021:
Finalisation of all the terms and conditions of these collaborations.

April 2022:
Begin work with AI game developers' software team on the notification of the activities, QR scanning for participants, crediting the rewards to AI gamers's gaming accounts.

Oct 2022:
First test run for the software portion

Apr 2023:
Proof of concept, second test run after editing the first test run.

Oct 2023:
Present the Proof of concept for the software part. I.e. QR code for participants, feedback and reflections form and crediting of rewards to AI gamers' accounts to MCCY and Volunteer.sg

Nov 2023:
Finalised volunteers work options and activities with Volunteer.sg

June 2024:
Last proof of concept approval achieved

Sept 2024:
AI Game developer's Marketing team will start to campaign with teasers to attract participants and to pre-empt the details of the CSR invitation and the incentive scheme.

Dec 2024:
Officially start invitation for CSR activity of community service/ volunteering through notification through AI games, AI game developers website and social media site.

Feb 2025:
AI Game developer - Start of first CSR community service / volunteering activity with AI gamers.

Potential Assistors

This will greatly benefit both The Ministry of Culture, Community and Youth (MCCY) and Volunteer.sg as the AI game developers and AI gamers are contributing back to the society through all these community services and volunteering. This is the value that both organisations will want to advocate greatly. MCCY's vision is to inspire Singaporeans through the arts and sports, engage the youth, strengthen community bonds, and promote giving. Similarly through these activities, our AI gamers (mainly 12-17 years old) will be able to have another opportunity to explore beyond their gaming world.

A survey by the National Volunteer and Philanthropy Centre (NVPC) last year found that one in five people volunteered, down from one in three in 2012.

Corporate social responsibility (CSR) is a type of business self-regulation with the aim of being socially accountable. There is no one "right" way companies can practice CSR; many corporate CSR initiatives strive to positively contribute to the public, the economy or the environment. In today's socially conscious environment, employees and customers place a premium on working for and spending their money with businesses that prioritize CSR. (Business Newsdaily, 2020)
Thus, the AI game developers are making their money worth by helping these youth to reduce addiction and maintain healthy mental and physical status. The solution will also help the AI game developers to maintain their good corporate image and sustainability.

Potential Resistors and Obstacles

The "message" across to the AI gamers must be "attractive" and beneficial for them to get out of their gaming seats, therefore good marketing campaigns and strategy are essential to make them move. This can be overcome by analyzing the current gaming status and habits of the AI gamers and the campaign must first be targeted to the group of AI gamers that have reached a higher level within a short span of time, this can be found from their date of registration of the game versus the advancement of their game level. Usually this group spends a lot more time gaming than the rest.

Conclusion:

Through this solution, we can prevent AI from causing addiction in gamers and at the same time ensure that frequent gamers find at least some joy out of it. The system, expected to be fully implemented by February 2025, can help temporarily, if not fully prevent AI from using illusions to confuse us into losing our free will willingly. The solution ensures that such measures taken will be smoothly countered against so that the social and economic side can both reap the benefits of giving back to society and upholding their corporate social status.

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