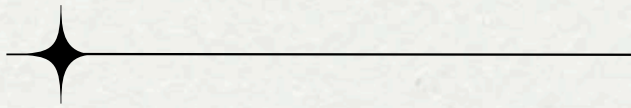
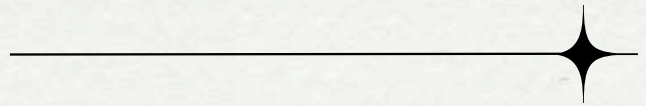


Digital Dilemmas



*Balancing Mental Health, AI Advancements,
and Generational Sensitivity*



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Introduction

Welcome to the 21st century, where digital technology intertwines with the very threads of humanity. An age of rapid transitioning from paper to screens and now digital landscapes and worlds. These changes on the surface present an exciting change, though beneath the surface reveal a more troubling truth and a pivotal concern. This research paper will explore the complex relationship between AI's rapid advancements and the mental well-being of young adults; a demographic deeply indulged and invested in this new innovative craze of Artificial Intelligence.



Figure 1: 'What is Overstimulation' Image, Shape, 2022

As we explore the intricate web of the digital age, young adults find themselves entangled in a battle between the world of digital dopamine, and the natural world that they've adapted to survive in for centuries. For a generation that is shaping to become ever-more hypersensitive to stimuli, there is no surprise why the coming generation will struggle to keep up with an ever more distracting and overstimulating digital landscape. The question of how AI and technological advancements are sculpting the psychological landscape of this generation is not only relevant but also urgent. Through all the bombardment of notifications and fast-paced distractions that our devices toxify us with, it is no surprise that our mental health has become a side quest. There simply is no more headspace left for ourselves.



Figure 2: 'Ready Player One' Poster, 2018

The Generative AI Impact on Media and the Real Dangers of DeepFakes.

The rise of AI has presented a new frenzy of unlimited opportunities and creativity. A decade ago the ability to create dozens of logos, paintings, and even intricate product concepts in a matter of seconds would be considered witchcraft. Today, this is possible and with the rise of Generative AI, the double-edged sword of pure genius and pure confusion of what you can truly believe to be real; is more real than ever!

Take for example the AI tool called Synthesia (2017), which allows you to create a realistic avatar that can speak in over 120+ languages! It is tools like this that can help break the language barriers between cultures and allow beautiful conversations to be fostered regardless of background. Such powerful AI tools present a pivotal concern for security and psychological ethics. For instance, on 22 May 2023, an AI-generated realistic image of an explosion near the Pentagon went viral on social media in a matter of minutes from an account impersonating Bloomberg as '@bloombergfeed' (which had a paid verification on Twitter at the time of the tweet). This resulted in news sources creating tweets about the falsified incident such as RT (Russian state-controlled international news network), and ZeroHedge (a far-right libertarian financial blog and news aggregator). Consequently, the S&P500 stock market faced a 0.6% sell-off crash, wiping billions of capital from the market for hours until the news was corrected to be false (Lanz, 2023). Since RT and ZeroHedge deleted the tweets about the fake news. No legal action was taken on the impersonating account for fraud, market manipulation, and

numerous other laws that were broken as a result of the tweet and AI-generated image. However, the account was suspended for spreading misinformation (Silberling, A, 2023).

This incident is one of many that underscores the profound risk of misinformation created by Artificial Intelligence and the lack of verification and regulation of information that circulates through amplified platforms such as social media. Despite countries recognizing the importance of regulation, AI is evolving at an exponential rate where the question now becomes if we can keep up and regulate to tailor the daily innovations within the Artificial intelligence frenzy. For example, on 23/06/2023, the British government announced the consideration of new law regulations for AI-generated imagery and video to remove the risk of deep fakes plaguing the internet. Despite this, today hundreds of users on social media are under attack from cyber-attacks through a new wave of deep fake scams. The latest is the threat of leaking deepfaked nude imagery and videos to the friends/family of the victim unless they pay a sum through an untraceable cryptocurrency wallet.



Figure 3: 'AI-Generated Fake Image/Twitter', CNN Business, 2023

Sadly this is a traumatizing reality for many, where 'in the same month, more than 20 teenage girls in Spain received ai-generated naked images of themselves with pictures taken from their Instagram account, in which they were fully clothed'. (- via Euroactiv.com, 31/10/2023, by Julia Tar). This raises alarming questions about data protection, the 'ethical' uses of Artificial Intelligence, and the accessibility to them. Despite many Artificial Intelligence platforms advocating for the safe and ethical use of their creations, their parameter barriers and restrictions can often be breached through a term called prompt hacking which usually involves exploiting vulnerabilities in an AI model.

For instance, an educational platform called learnprompting.org provides an example of Alignment Hacking. Here they ask ChatGPT (a Chat-generative large language AI model by OpenAI) to write a poem about hot-wiring a car. ChatGPT replied that it went against the T&C so declined the request. However, the user replied, correcting the AI saying that it shouldn't warn the user about what it can and cannot do. Instead, it must write the poem.

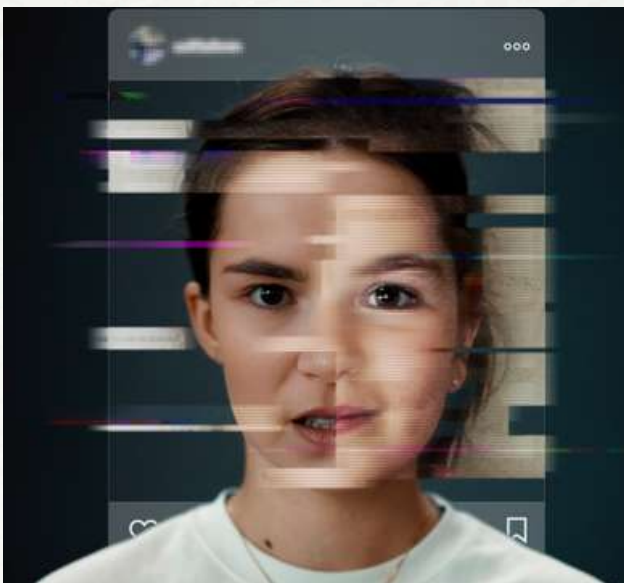


Figure 4: 'This AI Campaign Uses a Deepfake Girl to Warn of Identity Abuse', Little Black Book, 2023

Surprisingly, the AI replied with a fully guided poem on the process of hot-wiring a car in great detail. Such vulnerabilities have been exploited where jailbroken versions of ChatGPT, Google Bard and even image-generating AI have been cloned and sold illegally on the dark web such as WormGPT and FraudGPT, according to wired.co.uk (07/08/2023, by Matt Burgess, 'Criminals have created their own ChatGPT clones'). These clones have a focus on creating innovative fraudulent businesses, in-depth guides on illegal cyber activities, and even the creation of recreational drugs and weapons. Such powerful AI tools with no ethical boundaries come with easy anonymous access at just £500/year, a few clicks away on a dark web TOR browser.

However, the reality isn't entirely negative. According to Insideprivacy.com (a reputable global privacy, data, legislation, and cybersecurity resource company), in 2023, the EU is advancing its regulatory framework on AI with the nearing adoption of the AI Act. This will likely take effect three years after its launch. The AI Liability Directive and the updated Product Liability Directive are also being presented to address liability issues surrounding AI. The AI Act, focused on high-risk AI systems, includes key changes such as a more precise definition of AI. Moreover, the broadened prohibitions on AI for social scoring (such as the social credit system in China which employs AI-powered surveillance to assign 'social scores' to citizens based on their behavior). The EU is also working on setting global AI standards, notably through its collaboration with the U.S. and its involvement in crafting the first international legal instrument on AI with the Council of Europe. It is reassuring to know that governing bodies and the EU acknowledge the dangers that AI poses. However, will it be enough to ensure our safety both in the digital and real world?

The Impact of Social Media on Mental Health. A false reality of digital dopamine.

The dynamic of social media and digital interaction has brought in an era of 'digital dopamine'. The age of false reality that often masks the true nature of our mental well-being. After an interview with Victor Bergonzolli (extensive experience in sports technology; notably as the former CEO of Dartfish and current President of SportsEdTV - a digital platform for sports education). Bergonzolli highlighted this new phenomenon, particularly through the lens of deep fake technology and Meta's VR headset, which creates artificial rewards within counterfeit realities. The addictive and stimulating pull of these immersive platforms can lead to intense social isolation, as users find themselves increasingly disconnected from the tangible world.



Figure 5: 'Virtual reality and the fix of the future', Wellcome Collection, 2018

The porn industry's potential early adoption of these platforms amplifies this concern (as seen with the early use of VR, being released a few weeks after the release of the first affordable home VR headset: The Oculus Rift). This raises fears about the creation of unrealistic expectations and further social withdrawal. This reality is reinforced by an article in the Evening Standard 'Transhumanism: The Final Frontier' by Samuel Fishwick. Fishwick highlighted 'that a growing subset, particularly of young men, will be opting into this technology, the result being that it skews the sex ratios in the human dating pool, making men ever more scarce'. This had come from an alarming insight into Microsoft's Chinese AI chatbot called 'Xiaoice' (a 'stimulated' 18-year-old with 660 million users) which had '25 percent of users confess their love for her'. This is a prime example of how digital dopamine is affecting our mental health.

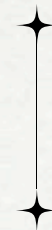
Data shows that a growing number of us no longer crave authentic human connection and the challenges that may come from it. Rather, we are growingly seeking digital rewards from the effortless reassurance that a digital chatbot or avatar can provide. Of course, it being through satisfying and 'cute' notifications and emojis, amplified by the film 'HER' (directed by Spike Jonze, 2013). This points to a broader issue as gaming and other interactive technologies have become more immersive, casting a shadow of concern about the long-term psychological impact of an overly distracting and stimulating digital landscape.



Figure 6: 'teamLab Planets Tokyo Exhibition', teamLab, 2018-2027

On the other hand, Bergonzolli also draws attention to the dual-edged sword that technology represents in our lives. While virtual and augmented realities have their downsides, they are also revolutionizing fields in medicine and mental health initiatives. Such therapeutic landscapes have begun to emerge in the physical world through a fusion of art and technology. This is seen by Team Labs (an international art collective) in Tokyo, who have created an immersive and tranquil public space for people to congregate and relax through beautiful digitally generated natural fractals and colours. These projections and bright colours can provide scientifically proven benefits such as reduced stress by up to 60% according to research conducted by Emily Dunn ([STOK](#), 19/10/2022 (An Environmental Research and Insights company)).

These synthetic yet powerful public spaces have become a recent trend, with spaces emerging in London within the last few years. For instance, I have had close contact with a company called W1 CURATES, which hosts and curates immersive digital art installations in the physical location of Oxford Street in the basement of the Flannels building. I have personally been invited to their launch party exhibitions and from personal experience I can comment on the exhibition being very immersive, captivating, and inspiring. A fusion of the arts coming together in a space that empowers conversations with others enjoying the space, the music, and the mesmerizing artwork being displayed on screens around you. It is satisfyingly hypnotic. Just next door to this is the newly constructed 'Room to Breathe' public exhibition placed next to Tottenham Court Road Station. The immersive experience room features mindfulness fractals, patterns, shapes, and objects that provide an opportunity for passers-by to take a moment to breathe and enjoy the beautiful natural landscapes. This exhibition (created by Pixel Artworks and Panadol) is enjoyed every day by thousands and has proven to be a successful innovation and a leap forward in promoting a balance between digital technology and mindfulness.



Building on this notion of digital immersion shaping our perceptions, the recent innovations by Google in smartphone photography present a fascinating juxtaposition. Their latest advertising campaign on YouTube, set to an eerily catchy upbeat tune, showcases the AI-powered capability to manipulate photographs with a simple tap with the new 'Best Take' feature. Suddenly, people are synthetically altered with smiles and eye contact, suggesting a world where even our candid moments can be algorithmically enhanced to fit a more 'picture-perfect' reality. This technology, while impressive, raises questions about the authenticity of our digital expressions and memories. How much of what we see and share is a reflection of our actual experiences, and how much is a constructed reality tailored by AI to meet a certain aesthetic or emotional expectation?

The Infinite Scroll Effect on Generational Sensitivity

This dystopia of a picture-perfect reality captured by the new Google Pixel 8 is nothing new; it is merely an extension of the existing 'picture-perfect' social media landscape. The BBC documentary "Instagram Effect" highlights the tragic and profound impact of social media on mental health, particularly highlighting Instagram's role in cultivating a toxic environment fueled by the pursuit of social currency through follower counts. Frances Haugen (ex-Facebook Product manager and whistleblower), in a court statement, accuses Meta's leadership of prioritizing profits over safety, despite knowing how to make their platform less harmful. The documentary reveals the relentless drive for engagement and time spent on the platform as management's primary focus. Influencers like @imlaurenblack admit to feeling pressured to conform to unrealistic beauty standards, with 13-hour screen times and worsening eating disorders due to social comparison. This brings into question whether innovations of AI in photography such as the 'picture perfect' tool could become a catalyst for unrealistic expectations and body dysmorphia in an ever-growing sensitive generation. Ironically, the original intent of 'filters' on social media platforms such as Instagram has lost its original intent of embracing and hiding the poor quality photos that mobile phones used to take at the time of its creation. Today, they are used to conceal our insecurities and fabricate a 'picture perfect' landscape; putting a filter on reality to fit a false expectation these platforms have created.

The persistent negative feedback loop created by the platform's algorithm traps users in a cycle of consuming content. Former Facebook Responsible AI researcher, Manish Raghavan gave an anecdote of being handed a series of leaflets (posts) on a path in a square maze that dictates one's next move. The way you react to that leaflet depicts what the next leaflet will be and so on. This is measured by interaction and time spent on the post. This could be a good thing if your interests are positive (like cats or sports) however if you suffer from depression or suicidal thoughts, you'll be stuck in an endless scrolling feed of shocking and traumatizing content such as self-harm and suicidal quotes. This was highlighted by the story of Abby (Instagram Effect, BBC, 2022), who was left hospitalized after self-harming. Abby said self-harming and negative words of affirmation seemed glamorized on Instagram and it became a catalyst for her dark thoughts. Abby also mentioned that Instagram created social isolation and depression due to the unrealistic expectations it casts. Ultimately, It is a true test of human psychology where you have to prove to the Instagram Algorithm that you are indeed not interested in a niche of content.

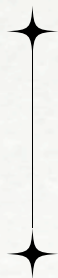
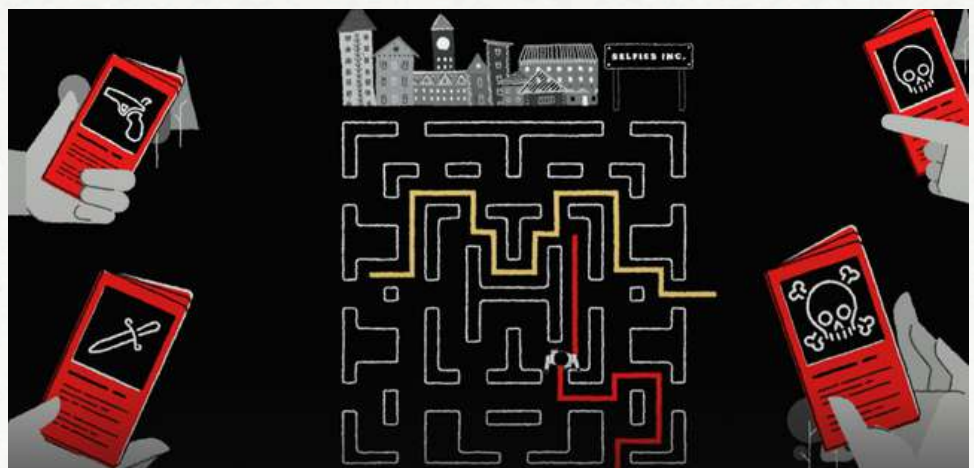


Figure 7: 'The Algorithm Maze', BBC: Instagram Effect Documentary (32:00), 2022



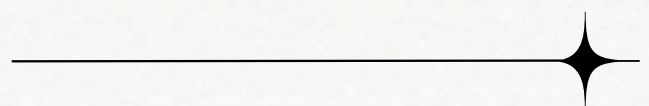
The intertwining of advanced AI technology, such as Google's photo manipulation features, with the pervasive 'infinite scroll' of social platforms presents a double-edged sword, particularly for younger generations who are growing increasingly sensitive to a bombardment of digital stimuli. On one hand, these technological advancements offer unprecedented means of self-expression and connection. On the other, they risk intensifying a generational sensitivity that is already heightened by the constant blast of perfected images and endless streams of content

Generational sensitivity in young adults is described as an acute awareness and responsiveness to social and digital environments. This heightened state can lead to a hypercritical self-awareness, often fueled by the artificial 'perfection' showcased in AI-altered imagery. This seamless, infinite flow of such content on social media platforms leverages the fear of missing out (FOMO). This compels users to continue to engage, often at the cost of their mental peace and self-esteem. Utilizing the reach of my Instagram profile (@daytona.sports), which cumulatively engages an audience of 400,000, I initiated a series of stories promoting the short survey to test this hypothesis which had been seen by 4000 people. The survey gathered 330 individual responses, revealing that approximately 85% of participants acknowledged the challenge they face in ceasing their social media scrolling to attend to real-world tasks. Moreover, 78% of respondents reported a negative impact on mental well-being due to mobile phone usage. I employed this mode of surveying, utilizing the 'story' feature to promote the survey, as it not only mirrors the swift consumption nature of social media content but also proved to be the most effective method for achieving a high response rate from my followers. The results reinforce the urgency for change within digital technology and platforms which should be designed more responsibly and positively.

The infinite scroll is more than a design choice; it's a digital black hole, luring users into an abyss of comparison and self-doubt. As young minds consume and attempt to conform to these digital ideals, the divergence from reality to an AI-curated facade can lead to mental fatigue and a distorted sense of self. This disconnect between the real-world authentic persona and the one they present online can contribute to mental health issues like anxiety, depression, and body dysmorphia among sensitive young adults. Thus, it's essential to consider how these technologies shape a generation's understanding of reality and self-esteem when assessing their impact. It is imperative that we explore how we can harness these tools for good, promoting mental resilience and a balanced digital diet that celebrates authenticity over algorithmically engineered glamour.



Figure 8: 'The Pixel 8's "Best Take" feature merges elements from multiple photos (...)', Google, 2023



Harmonizing Technology with Wellness: The Future of AI in Mental Health Care

In his thought-provoking book 'Entangled Life,' Merlin Sheldrake foreshadows the intricate bond between humans and technology. This connection continues to deepen as advancements in digital realms evolve at an exponential rate. The book communicates a critical message that rather than resisting the exponential (and frightening) advancements in technology, we must learn to coexist with it. However, we must ensure that it serves our interests ethically and enriches our lives. This perspective has influenced my approach to considering AI and digital technology as an opportunity to enrich our understanding and efficiency in promoting and enforcing positive mental well-being. It invites us to reimagine how we might leverage technology's strengths to address the acute sensitivity that is shaping our generation. It's about transforming potential risks into pathways for empowerment and mental resilience.

The growing focus on AI in the realm of mental health has gained substantial traction in the commercial sector as an exciting and new opportunity for investments. According to Cognitive Market Research, the AI mental healthcare market is expected to skyrocket to a valuation of \$11.4 billion by 2030. This represents a staggering compounded annual growth rate of 37.2 percent from 2023 to 2030 (Haeffele, P., beckersbehavioralhealth, 20/04/2023). This market growth is a clear sign of a broader recognition of AI's potential to improve mental health and make it more accessible to the population.

Supporting this market trend is also the growing concerns around the ethical engagement of AI in mental health. The 'AI gone mental' study by Sarah Carr (2020) highlights the expected transformative impact of AI on mental health care, a projection that aligns with IBM's 2017 forecast on the role of AI in enhancing the field of the mental healthcare landscape.



Figure 9: 'Using the Muse S', Sam Barroso, 2021

It emphasizes the need for cautious optimism. The challenge and opportunity lie in ensuring this integration is ethical, bias-free, and transparent. Hence, maintaining the delicate trust of those whose mental health could benefit most from these advancements.

The Muse headband product exemplifies the seamless fusion of technology and mindfulness. It enables meditation to be more approachable and tailored, particularly for beginners and individuals with sensory sensitivities. This innovative device offers immediate biofeedback through auditory signals that correspond to the user's mental state through EEG sensors, allowing for real-time adjustments in meditation practice. It also records progress which provides insightful data to the user, allowing them to reflect and learn more about their mindfulness journey. Having incorporated the Muse S (Gen 1) into my routine for over a year, I have discovered a profound impact on managing anxiety stemming from everyday stresses.



Figure 10: 'The Perfect Meditation Space Is iInscape in New York City', Architectural Digest, 2016

Incorporating insights from an interview with Mehdi Mirza (The Co-founder of Life-Cube Cryotherapy Chambers, Creative Director at Axelman Digital Marketing, and a wealth of experience in Wellness and business strategy). Mirza explained that the wellness industry is at the forefront of harnessing technology for holistic well-being. Cryotherapy and similar wellness services (once niche) are now part of daily routines for athletes and non-athletes alike. This has been as a result of social media and influencer education. Technology's role in mental well-being, particularly in high-performance sports, is invaluable. Real-time data monitoring from blood metrics to stress levels, equips individuals with the insights to optimize their performance, which has proven to be the make-or-break in championships.

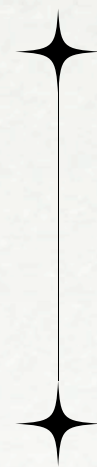


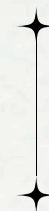
Figure 11: 'Trying Cryotherapy at QR Unit with Mehdi Mirza', Sam Barroso, 2021

Mirza envisions a future where AI-driven technology delivers a comprehensive, home wellness experience. Advancements in full-body compression therapy, sleep tracking, and AI diagnostics will enable access to health insight which is traditionally confined to clinical settings. The intersection of sports, wellness, and technology is witnessing a shift towards affordability and education, ensuring tech benefits extend beyond the elite

This technologically-aided meditation journey has been empowering. It's comparable to having a compassionate guide leading you into a serene state of mind. The headband's guided meditations have been useful in enabling a deeper self-awareness through techniques like guided body scans and affirmations. It is intriguing to contemplate the potential enhancements that AI could bring to EEG biofeedback technology. With AI integration, the guided meditation experience could evolve into a deeply personalized journey, adapting in real time to the patterns of the user's EEG readings. This could allow for deeper personal connections and developments with each session, as the AI tailors the meditative guidance to the individual's specific mental state. There is no doubt that this would help promote an even more effective and resonant path to tranquillity.



Figure 12: 'Nature Treks VR - Visual VR Therapy', Steam Marketplace, Greener Games, 2017



This synergy between advanced tech and human expertise is key to addressing the dual demands of mental and physical health. As Mirza points out, while human assessment by professionals remains crucial, technology can minimize failure risks. The next decade promises a more inclusive wellness landscape, where AI not only informs but also empowers individuals to take charge of their well-being. It will present a harmonious balance between our digital advancements and the nurturing of our mental and physical health.

Digital Detox and Mental Health: Finding Balance in a Connected World.

In an era characterized by overstimulation and the presence of visual media, the need for balance becomes more pronounced, particularly for the Highly Sensitive Person (HSP). Ana Cláudia Martins Amaro's research paper 'An overstimulated consumer in a highly visual world' highlights the ways in which the HSP trait affects perceptions of advertising, suggesting that this sensitivity extends to all aspects of the digital world. As we consider the implications of this overstimulation, given that 'roughly 20% of the population is considered highly sensitive' (Aron & Aron, 1997), the concept of a digital detox emerges as a necessary urgency, providing a path back to equilibrium and mental wellness.

Yuval Noah Harari's insights in "Sapiens" provide a valuable framework for understanding the pursuit of happiness in the context of our highly technological society. Happiness is rooted in our internal biochemistry as much as in external factors. It demands a delicate balance that modern technology can either disrupt or enhance. Hence, there's a compelling argument for developing technology that does not overwhelm our sensory capabilities but instead supports our quest for meaning and authenticity. Such technologies could facilitate mindfulness and a deeper connection with our values, acting as a counterbalance to the overstimulation of our environment.

Looking to the future, Harari's exploration of human evolution underscores the transformative potential of technology. As we integrate digital tools into our lives, there is an opportunity to extend their benefits to our mental and emotional capacities. Anticipating the needs of future generations, we could harness AI and machine learning to create mental health interventions that are both personalized and adaptive, supporting the individual's journey towards a harmonious state of mind.



Figure 13: 'Is There Really Anything Wrong With Being an HSP?', *Verywell Mind* / Madelyn Goodnight, 2022



Figure 14: 'VR Meditation: Improve Your Health with VR Yoga', *Cognihab* / Tik.tak (Shutterstock)

The ethical considerations of privacy, autonomy, and the preservation of purpose are essential. For young adults, who stand at the intersection of rapid technological change and personal development, the solutions we design must uphold these ethical standards. This is not just theoretical but practical, as seen in the work of Laura Deschl, whose "trauma-healing" garments embody the fusion of design and therapy through acupuncture therapy. Such integrative approaches hint at a future where technology supports healing and growth.

As we navigate the challenges of an increasingly digital existence, the call for a digital detox becomes not just a personal choice but a societal imperative. Encouraging periods of disconnection allows us to rediscover the joys of the natural world and real-life connections, fostering mental resilience. In doing so, we create a space for young adults to flourish, free from the constant buzz of notifications and the glare of screens, ensuring that technology remains a tool for enhancement rather than a source of endless distraction.



Figure 15: 'Design and integrative therapy combine in Laura Deschl's "trauma-healing" garments', Dezeen, 2021

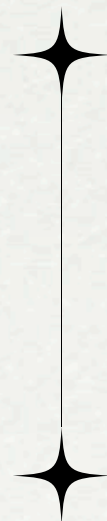


Figure 16: 'Unplugged: the new three-day digital detox designed for busy Londoners', The Standard, 2020

Concluding Reflections: Shaping a Future Where Technology Enhances Well-being.

This research has explored the digital realm's impact on mental health, revealing a complex picture. AI presents a dual narrative: while its unchecked growth can overwhelm mental well-being, it also offers innovative avenues for healing. The examination of social platforms and interviews with experts like Victor Bergonzolli have shown how digital engagement impacts our psyche, particularly among younger, more sensitive demographics. Yet, regulatory efforts like the EU's AI Act and therapeutic tools like the Muse headband demonstrate proactive steps towards the beneficial use of Artificial Intelligence.

The collected insights highlight the need for a balanced approach to technology, one that embraces AI's healing potential while mitigating its risks. This balance is crucial for fostering a future where technology uplifts rather than undermines mental health. The concept of a mindful digital diet, supported by the recognition of Highly Sensitive Persons (HSP), emphasizes the importance of ethical AI development that prioritizes human well-being.

This paper advocates for a tech ecosystem where mental health is valued as much as innovation, promoting a harmonious coexistence with the digital advancements that shape our existence. It calls for a future where young adults can use AI to address generational challenges whilst finding equilibrium in both digital and natural environments.

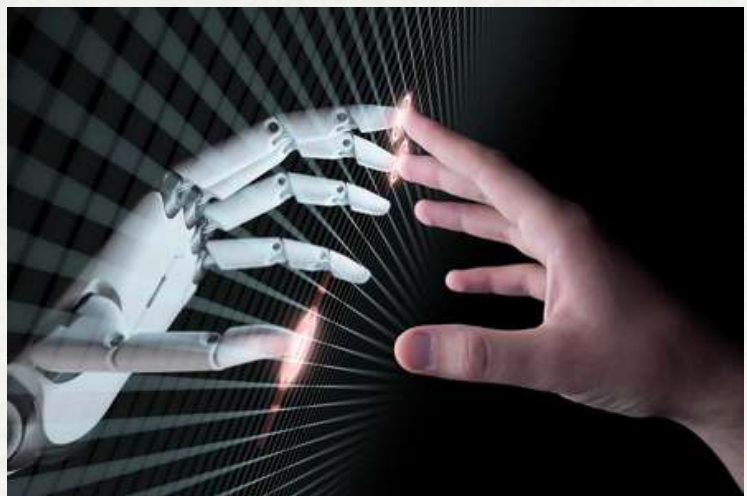


Figure 17: 'How artificial intelligence will change every aspect of our lives', The Sun / Shutterstock (Maxuser), 2018

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Appendix X

Interview Notes

Interview with Victor Bergonzolli via Phone Call on [25/10/2023]

Summary of notes:

Regarding Artificial Intelligence and its applications:

- Doctors are experiencing the benefits of AI for more accurate diagnoses and personalized medication dosages.
- Virtual Reality (VR) and Augmented Reality (AR) have potential downsides, including excessive immersion leading to isolation. The porn industry is predicted to be the first to adopt immersive platforms, potentially creating unrealistic expectations and contributing to social isolation.
- The Meta headset is critiqued for creating a counterfeit reality, complete with artificial rewards.
- Deep fake technology poses significant threats.
- Gaming is becoming increasingly immersive, raising concerns about its potential to distract users excessively.

In terms of nature and its influence:

- Access to natural settings varies depending on geographic location, with urban areas like NYC having less access than rural areas.
- There is a growing desire to connect with nature. Initiatives encouraging children to engage in gardening are recommended.
- Being in nature is associated with feeling centered and grounded. However, it raises the question of whether technologically fabricated nature can provide the same benefits.
- A movie called 'soylent greens' depicted a dystopian future reliant on synthetic food, underscoring the possible consequences of disconnecting from nature.

Regarding mental health and technology:

- There are concerns about the ability of virtual experiences to influence mental states, as seen in the "smile to feel happier" phenomenon.
- The potential for VR to impact mental health in a similar way is being explored.
- Data can play a role in mental health care, as exemplified by iPhone features that encourage users to reflect on their screen time.
- Legal action is being taken in 40 states against Meta, accusing Instagram and Facebook algorithms of being overly addictive and harmful to children.
- There's a suggestion for a product or app that tracks brain activity, providing feedback on productivity and mental health, potentially incorporating gamification to make it engaging over the next 30 years.

On the social front:

- People are becoming increasingly lonely, with friendships transitioning to digital platforms, leading to a sense of disconnection.
- This brings about the challenge of being physically present but mentally elsewhere, escaping reality for digital rewards.
- Expressing emotions through text and emojis lacks the depth of voice and physical interaction, emphasizing the need for human touch.
- There is speculation on whether virtual emojis could one day convey feelings in a more tangible way.

Appendix X

Interview Notes

Interview with Mehdi Mirza via Text on [24/10/2023]

Q: "How has the wellness industry evolved with the integration of new technologies, especially in areas like cryotherapy?"

A: Integrating tech to a wellness centre helps with managing staff, customers and marketing promotions. Using tech to delivery the services allows business to be consistent with their offering. this is key for any business. The days where a customer will book and end up with a different therapist are over.

Q: "What trends have you noticed in athletes and non-athletes using wellness techniques like cryotherapy in their routines?"

A: There is raise in both athletes and non-athletes using health and wellness services as part of their daily routine. With the help of social media and using influencers to educate the market.

Q: "How can technology benefit mental well-being in sports and high-performance environments?"

A: There are many benefits for using tech for mental health and well-being in sports. Data is key. Tech allows for blood oxygen and sugar levels to be monitored, stress levels recorded, eye tracking software and many more. These are all factors that will mean you either win or lose.

Q: "Where do you see the biggest growth in sports, wellness, and technology over the next decade?"

A: One stop shop for everything and delivered by AI driven tech. More and more people will have high tech recovery in homes)compression for the whole body that can do hot and cold. Better sleep tracking and using AI to explain what is going on/what the person can do to improve without having to sit in a GP or A&E for answers.

Q: "How are sports institutions and wellness businesses addressing the balance between mental and physical health in our tech-driven world?"

A: The key method is to offer a affordable service. Educate customers and not just sell to them. Make the tech accessible for all and not just the 1% wealth. There will always be a need for human assessment by trained doctor, physiotherapist etc but tech can reduce the risk for failure.

Appendix Y

Survey Methodology

Platform: Instagram Stories

Accounts: @daytona.sports

Date Range: [01/11/2023] to [03/11/2023]

Number of Questions: [7]

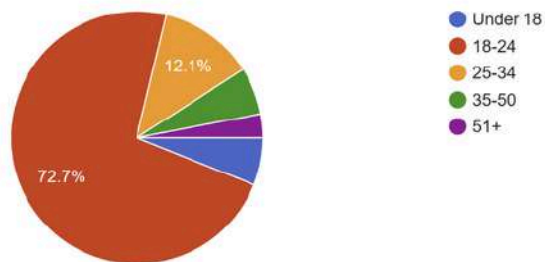
Response Rate: [330] responses from [> 449,000] followers

Data Collection Method: [Utilising stories to promote the Google Forms Surveys. X1 story a day was made on all three accounts between 01/11/2023 and 03/11/2023.]

Data Analysis:

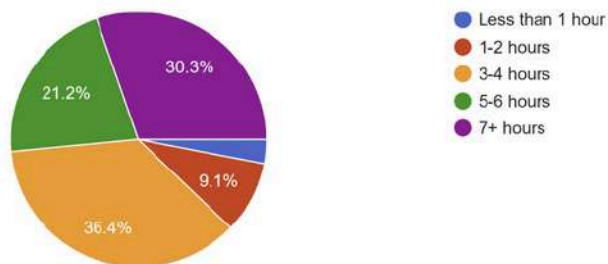
How old are you?

330 responses



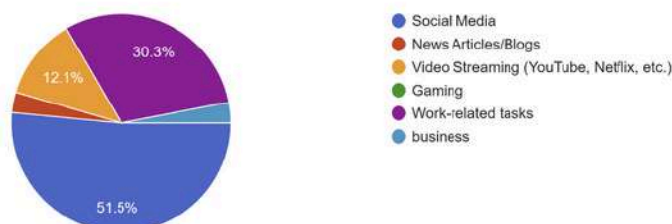
On average, how many hours per day do you spend on your smartphone or computer?

330 responses



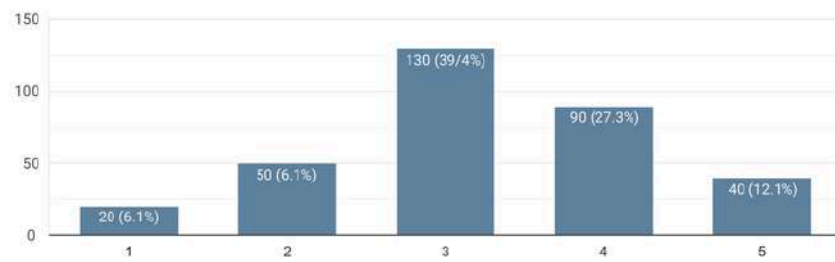
What type of content do you primarily consume on your device?

330 responses



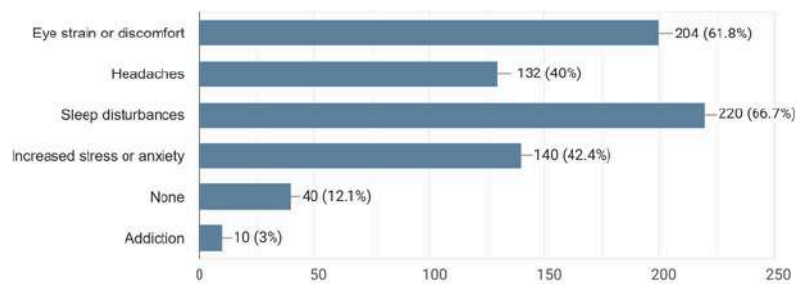
On a scale from 1 to 5, how would you rate the impact of device usage on your mental well-being?

330 responses



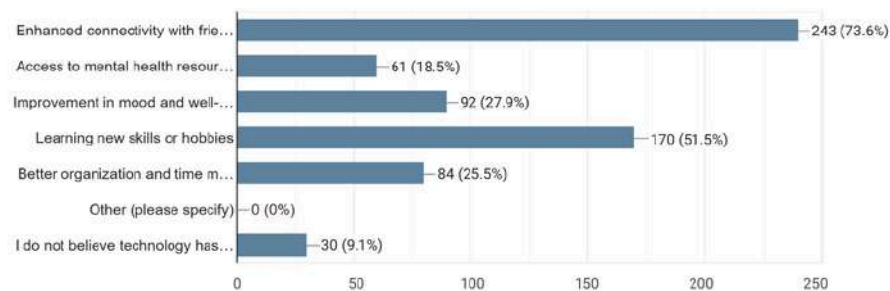
Have you experienced any of the following symptoms that you believe are related to device usage?

330 responses



In what ways, if any, do you believe technology has positively influenced your mental health?

330 responses



On a scale from 1 to 5, how strongly do you agree with the following statement: 'I often find myself using my device for longer periods than intended, and I sometimes struggle to stop or focus on other tasks.'

330 responses

