



Attention Span and Tech Autonomy as Moral Goods and Societal Necessities

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Abstract

In this paper, we argue that attention span should be protected and cultivated as a societal and moral good and that individuals should have the autonomy to choose where they direct their attention without technological impediments. Attention span allows people to devote their attention to meaningful tasks and to focus on tasks or topics that require and deserve deeper concentration. Technology often diverts attention from the meaningful to the less so and changes how we cultivate attention span. We explore the concept of *distraction technology*, referring to technologies that divert attention and harm attention span. While recognizing the many benefits of information technology, it is important to be aware of and address the negative impacts of distraction technology on attention span and tech autonomy. Artificial intelligence has improved technology, enabling it to personalize and deliver information more likely to engage the user. Rather than giving in to technology that needlessly interrupts, scatters thoughts, and invades spaces where people once concentrated, we argue that there is a moral duty to protect attention span and tech autonomy. Apps, computers, and smartphones have allowed faster, efficient research and communication at the expense of some depth. Ethicists and the responsible tech ecosystem should support policies that preserve attention span and limit distraction. Technology developers should make design decisions that aim to keep people on task, rather than distracting them. Legislators, regulators, and the tech industry should work toward responsible technology that aligns with human interests.

Keywords Attention span · Autonomy · Distraction · Digital distraction · Tech ethics

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1 Introduction

Technology interrupts tasks, often diverts attention from the meaningful to the less so, and changes how we cultivate attention span. Attention span is the length of time that a person spends concentrating on an activity; attention requires some substantial degree of focus. Traditionally, attention span was fostered through education and viewed as a good. Long attention spans allow people to concentrate on topics that take time, require analysis, and have complexity. Paying attention also allows people to remember the steps of processes and complete tasks. Attention span is especially important in fields in which people must absorb, remember, and apply knowledge. Many necessary jobs rely on taking in data and contextualizing, analyzing, and applying it. Even to enjoy a long novel, one must concentrate enough to remember the plot and characters. From advertising to social media, technology distracts. This paper addresses distraction technology and an ethical imperative to protect and cultivate attention span as a social, educational, and moral good. In addition to addressing attention span, we argue that users should be free of technological impediments to choosing where to devote attention, i.e., they should have tech autonomy. Paying attention is meaningful and empowering whether the task is work, leisure, or education.

There is wide variation among apps and websites. Some post entire eBooks while social media apps encourage a person to tap on numerous “stories” (usually pictures with several words) often spending less than a second on each. The problem we investigate concerns the medium rather than the content. This paper does not aim to haggle over whether connecting with family is more meaningful than following an influencer’s TikTok account or whether scientific research is more meaningful than social media.

2 Distraction Technology

“...executive attention is a prerequisite for self-control; so how do we first break out of the vicious circle of distraction?” (Vallor, 2016, p. 171).

The attention economy refers to the system in which attention is a commodity. Apps and websites compete for attention, interrupting the tasks users set out to do. Once interrupted, many people find some apps difficult to put down. Notifications, pop-ups, and personalized advertising based on complex algorithms are responsible for some of the difficulties that people have controlling where they direct their attention. Advertisers rely on search history to constantly place tempting images or items for sale where those most likely to click on them see them. Social media websites are especially addictive; when the next post, picture, or video automatically repopulates and the scroll is infinite, users have trouble closing the app. Notifications and rewards drive users to check apps more frequently. Even eBooks and journal articles tend to use hyperlinks, have complex sidebars, or display ads that distract. We refer

to these technologies as *distraction technology*. While digital distraction refers to a *situation* in which people are distracted due to technology, distraction technology refers to the technology itself, including embedded algorithms. The same technology can serve a worthy purpose but also have some qualities that encourage distraction. Under our definition, distraction technology may be an algorithm that generates ads on the sidebar of a website or the entirety of a website or app.

Some distraction technology, like a dark pattern tricking people into doing something they otherwise would not, is deceptive (Raynes-Goldie, 2020) while some is not. Many technologies divert attention and can harm attention span as part of a business plan. We do not argue that most apps or tech creators are trying to hurt people's attention spans or to divert their attention in order to carry out a fraud. Nor do we assert that technology's negatives outweigh its many benefits. But technology capitalizes on users' weaknesses (Carr, 2010, pp. 233–234) and advertisers and apps prey on people's data and habits. Tech companies benefit immensely from clicks, likes, views, and time spent on websites, apps, games, and other media. Platforms that are free for users need people to stay longer. They make money through digital ads—the number of views of and clicks on an ad is crucial to their financial success. While their intent is to profit, they exhibit a *reckless disregard* for attention span and the personal prerogative to choose how to spend time. Distraction technology works in several ways: users may use multiple apps or services at once, in rapid succession, bounce back and forth between them, or spend time on one app or website that constantly presents changing screens, provides an infinite scroll, or has pop-up, sidebar, and hyperlinks that distract.

There is an important asymmetry: the tech industry is a powerful group of creators, developers, engineers, and coders, backed by investors, while each individual is fallible, prone to distraction (albeit in varying degrees), and often powerless to unplug (Hanin, 2021).

2.1 Paternalism and Autonomy

Tech consumes people's time, but its users should be able to consciously choose how to spend their time. Technology is arguably paternalistic, governing how we spend time without our noticing. Autonomy is self-direction and the ability to make decisions that comport with one's beliefs and priorities (Beauchamp & Childress, 2001). To exercise autonomy, people should have information. There is not a warning specific to the risk to attention span or the costs of the interruption itself—more hours to complete a task. There is always some sort of temptation hovering in the sidebar. The distraction represents an involuntary action rather than a choice made freely (Lodge & Harrison, 2019, p. 25). When we almost subconsciously click on anything that takes from the task we wish to accomplish or waste time scrolling when we intend to work, the technology is distracting us paternalistically—by assuming authority over our attention. For example, the decision to click on accepting any cookies so we can get to the website we want is almost instinctual. It is generally against our better judgment but something we do anyway. Nick Seaver argues

that the algorithms designed to recommend have become traps. Their purpose is to hook users. They are inescapable—some websites, like Netflix, are entirely dedicated to personalized recommendations. These may seem innocuous and even helpful, but they create an entire online ecosystem designed to entrap (Seaver, 2019).

We do not intend to absolve users of responsibility for their online actions. Users make choices that often lead them to online communities and enable them to prey on people or engage in malicious actions online.¹ The tech paternalism here is in the medium, and the control tech often wields can interfere with the individual decision to turn it off, stop scrolling, take measures to protect attention span, and direct attention meaningfully.

2.2 Falling for Distraction

“When we go online, we enter an environment that promotes cursory reading, hurried and distracted thinking, and superficial learning.” (Carr 2010, p. 116).

Distraction technology offers rewards: texts reward with texts, Snapchat with snaps, TikTok with short videos and numbers of views, and Instagram with photos and likes. News sites repopulate with clickbait. When we choose a document or website to explore (note we do not say read), the hyperlinks encourage us to click off the page we are on to satisfy an urge for more information that outweighs our desire for deeper or more complete information. The smartphone is “a “supernormal stimulus” that is able to “hijack” attention whenever it’s part of the surroundings” (Carr, 2010, p. 233 citing Ward, 2013). Our brains are exposed to stimuli that were non-existent a hundred years ago. We adapt to it, moving through apps, telling fingers to rapidly tap to see new Instagram stories, and thinking about the next headline before absorbing information from the current page. Distraction technology scatters thoughts rather than centering them on a single topic. Within any given medium, there is often a constantly changing screen, automatically, through the infinite scroll, or as a result of each click. Switching between apps makes it harder to complete even simple tasks (King’s College London, 2022). When we are consumed with tech, “The real world recedes as we process the flood of symbols and stimuli coming through our devices” (Carr, 2010, p. 118).

Seventy-five percent of content is viewed for less than a minute and people on average switch screens every 19 s. In a study, “Biological analysis demonstrated that participants experienced a neurological “high” whenever they switched — explaining why we feel driven to keep switching and underscoring how human biology makes us vulnerable to being manipulated by attention-extractive economies” (Center for Humane Technology, 2021) citing (Yeykelis et al., 2014). Whether the use of technology has the power to remodel the brain is the subject of scientific literature. While many studies have demonstrated that tech has a neuro-physical impact on the brain, some find that impact is nuanced and requires further study (Lodge

¹ Personal responsibility for specific actions like participating in underground markets for organ sales or sexual predation are outside the scope.

& Harrison, 2019). We are concerned with the behavioral, cognitive, and societal changes rather than the specific neuro-physical aspect. The associations between an addiction to social media and a potential decrease in work performance (Karaiskos et al., 2010) and educational productivity are widely noted (Paul et al., 2012).

Distraction technology causes accidents by distracting drivers, pedestrians, conductors, pilots, etc. The US Army noted a distraction problem among helicopter pilots but changed course by decreasing the volume of distracting cockpit technology. Car manufacturers however have ratcheted up the distractions, and distracted driving is implicated in many accidents (Mitchell, 2022). Diverting people's attention while they are driving is risky and reckless. Technology and cell phone use while driving split attention and make the distracted drivers more susceptible to errors and slower to hit their brakes in response to brake lights on the car in front of them (Watson et al., 2016). Ship operators have had accidents due to tech-based distractions. For example, when the *Ever Forward*, a 1095-foot ship, went aground in the Chesapeake Bay, the pilot had been texting, drafting an email, and making calls. The investigation found the cause to include "the failure to maintain situational awareness and attention while navigating." In response to the incident, the US Coast Guard called for restrictive cell phone policies (Walburn Viviano, 2022).

2.3 Obsolete Skills and Learning

As technology use grows, there is less need to rely on mental or hand-written calculations (Lodge & Harrison, 2019, p. 23) or memorize facts than can be easily searched. The skill of looking things up in an alphabetized dictionary is obsolete. We risk losing the skills we do not practice. Some skills are simply outdated: technology has replaced many needs and many skilled laborers. The obsolete skills may have had some value that is overlooked. Engaging in uninterrupted meaningful research, professional, or leisure tasks may prevent cognitive decline later, depending on the nature of the tasks and on how society defines cognitive decline. Performing mathematical operations (even simple ones like balancing check books or managing household budgets) and spending more time reading complete books or articles than headlines and tweets are ways to preserve cognitive capabilities, like the ability to stay on task and memory. Studies suggest that the internet has compromised memory (Carr, 2010, p. 235). When people sense they do not need to memorize, they do not engage with the material as deeply. A Daniel Wegner study showed that, when asked to enter a few sentences, people who thought the computer would save the data they typed in had less memory of the data than people who thought the computer would not save it (Carr, 2010, p. 235). Additionally, people who spend more time on social media in a day experience more memory failures the following day (Sharifian & Zahodne, 2019).

Reading books becomes harder; staying on task when the technology is not present can feel frustrating, challenging, or tiresome (Small & Vorgan, 2009). Reading stimulates the brain, improves imagination, and sparks people to envision what will come next. Reading and note-taking lead to better absorption of academic material and improve cognition (Rosenqvist, et al., 2016). People tend to be better at ignoring

interferences when they are reading than when they are watching videos. There is evidence that reading and comprehension are worse when people are multitasking (Junco & Cotten, 2012) and when people are using a digital rather than physical source (Delgado et al., 2018). Even being near your smartphone while trying to resist distraction decreases cognitive ability (Ward et al., 2017). Frequent reading can lower the risk of cognitive decline significantly (Wilson et al., 2013). People do intense research online and read long documents there. But the challenges are different and arguably even among people reading long pieces, there is some sacrifice of depth for breadth (Carr, 2010). Reading long books and articles should not become obsolete.

Cultivating an attention span—like building a muscle—requires exercise, a healthy diet (Hyman, 2008), and practicing paying attention. Reading, puzzles, problem solving, and memorizing are attention-related tasks. Many cognition-enhancing tools are online and practicing puzzles or even reading long passages online would likely be effective if people can avoid the temptation to click around and go off task. In a study of children with autism, attention span improved with an intervention that combined improved listening with touch therapy (Navidad et al., 2013). Attention span is ever-changing, and many studies suggest it can be both hurt and improved.

“A Pew internet survey of nearly 2,500 teachers finds that 87% believe new technologies are creating an “easily distracted generation with short attention spans” and 64% say today’s digital technologies “do more to distract students than to help them academically.” (Graber, 2014).

Studies of people who meet the criteria for attention-deficit/hyperactivity disorder (ADHD) show they have significantly worse attention spans if they are engaged in problematic digital media use, defined as uncontrolled use that impacts daily functioning (Shuai et al., 2021). Other studies implicate digital media including social media in exacerbating ADHD symptoms (Ra et al., 2018). ADHD is correlated with addictive Facebook use, and the use of Facebook affects the perception of time among those with ADHD (Settanni et al., 2018). Distraction technology hurts the attention spans of those with and without a determination of ADHD, and it exacerbates ADHD symptoms, which hurts academic performance.

Exercise is linked to a better attention span. Some people might increase movement because of music and exercise apps, a positive effect of technology. But they may be more sedentary when they fall victim to distraction technology. And being on screens takes time that could be spent exercising (Verburch et al., 2016). This issue relates to attention because each distraction can pull a person off their task and lengthen the time spent on a computer or phone, which may increase sedentariness.

2.4 New Skills

New skills are necessary to combat distraction technology: acknowledging the need to make decisions constantly, honing the ability to do so, and gradually succeeding in routinely ignoring the pop-ups, distractions, sidebar, notifications, rewards, and ads. But most people do not have those skills yet, and it so far appears that the

generation growing up with distraction technology has not been able to cope with distraction any more successfully than those people exposed to it at an older age. Even deciding to accept or reject cookies should require thought. Genuinely choosing the best option and then moving on to the website is a skill many have not yet honed. Although they could help limit the effects of distraction, individual skills in dealing with technology should not alleviate tech companies of their ethical obligations (discussed later). To us, the tech companies should be held to ethical standards that prevent them from providing so much distraction, especially to children.

2.5 A Need for Depth in Higher Education

Society will always need deep thinkers (Carr, 2010). From national defense to medicine, people must be able to absorb large amounts of information, analyze it, and work with it to create solutions to global problems. The practical reasons for valuing attention are obvious. Attention is a tool that can lead to higher education, more career choices, and more ways to make life deep and meaningful. Multitasking is often expected and rewarded, but depth of knowledge, insights, and observations require attention.

There has been a shift from learning a lot about a narrow topic to learning a little (or a lot) about many topics. When researching using a computer, distractions like hyperlinks can lead to a flood of sources. This has huge advantages. First, using physical books was time consuming. If a library did not have a source, the inter-library loan might take weeks to provide it. Now, millions of journal articles are online, and a few clicks lead to huge swaths of information in a format sorted by date or relevance and ready to read, at least for people who pay or have access to the ones behind a paywall. This is undoubtedly an improvement even for people who value books, the Dewey decimal system, and the feel of the traditional library. Secondary research takes less time, and finding information is easier than ever. (Misinformation is not part of this paper, but certainly, the internet often makes false claims seem legitimate). Yet the hyperlinks in an article and the links to similar articles that academic journals often have in the sidebar are both distracting. Technology provides access to long journal articles and eBooks, but the distractions persistently pose challenges to attention.

Being a generalist as opposed to a specialist is possible despite a categorical preference for specialists in many sectors. Being a generalist has many advantages (Mansharamani, 2020). Also, it is now easier to have multiple specialties. But as education changes to suit short attention spans, there are operational negative effects. Not every industry can adapt to purported experts who have shallow rather than deep knowledge. Additionally, those achieving depth are sometimes taking longer to do so with much of their online time being spent off-task. This makes education costlier and more time consuming, and employers often pay for time spent off-task.

We need to maintain depth if we value knowledge. Knowledge itself is being reworked. Nicholas Carr describes a change: now knowledge is conceived as something we “swim through and consume”, but it used to be an “ideal” (Carr, 2010, p. 235). People gained knowledge through a combination of experiences, with facts,

observations, information, and ideas weaving together. Knowledge made people who they are and was fundamental to their professional and social relationships. There is moral value in seeking the old kind of knowledge, the kind that is retained and shapes character and the future. Developing that type of knowledge requires an attention span. Over time and with the incorporation of prior experiences, knowledge becomes wisdom.

2.6 A New Style of Communication

To attract readers, people have adapted their writing styles. For example, cell phone novels that use short sentences and have little depth of character or plot became popular in Japan (Carr, 2010, pp. 104–105). Some eBooks embed videos; other actual print books are centered around “standalone pages” like webpages that can be read alone out of context rather than “sustained narratives” (Carr, 2010, p. 105). Opponents of abbreviated documentation sometimes characterize those in favor as anti-academic. There are deep issues about how academia is changing and whether infographics can supplant long texts effectively. Furthermore, works have become much more fluid. If an online book is not also published in print, it can be altered, updated, and new editions can be produced easily. Online, people can interact with the source of information whether news media story, social media post, magazine article, etc. Live chats or comments are now a part of the process by which people take in and take part in learning news (Anderson, et al., 2014).

The widespread use of emojis in texts, email, and social media demonstrates that emojis are language (McCulloch, 2019). While there is undoubtedly some benefit to an abbreviated language based on emojis and internet speak like lol and omg, some depth is sacrificed. The new abbreviated style of communication affects attention span by providing snippets that supplant long texts. For some learners, the availability of infographics, abbreviations, emojis, and embedded videos in eBooks takes away the motivation to cultivate long attention spans through reading.

2.7 Friendship and Social Connection

Like writing, conversations have changed. Conversations are an opportunity for a listener to make a speaker feel heard and understood even if the listener disagrees. Listening is a skill that can be cultivated and improved (Holba, 2019). Interrupting is a common issue. Often children are taught not to interrupt people when they are speaking. While some conversations are more conducive to fast-paced banter than others, staying on the topic used to be generally expected. Now, abbreviations have infiltrated speech, and speech is often rushed because the speaker expects the listener to have a short attention span. And parents, bosses, and friends feel like they are interrupting when they talk to a person who is engaged with their phone or computer.

While tech provides a larger audience, distraction technology may be hurting personal interactions among close confidants, friends, or relatives. A purported listener may simply not be listening, absorbing information, or focusing on the meaning of

the words. Listening is intricately associated with attention. The conversational listening span is a growing part of the study of listening (Janusik, 2007). Attentive listening requires concentration and a search for meaning in what the speaker says (Dalha, 2017). Listening has a moral aspect: it is a tool to provide friendship, support, and even much-needed services, like health care. While tools like a telephone or computer help provide those things as well, personal attention is crucial. Listening without the impulse to check a smartphone is a way in which a person can provide community, friendship, and professional advice. Distracted listening can undermine trust and threaten relationships. If a person is distracted by social media while engaging in conversation, she may miss important bits, like that a friend is needing to be heard, in crisis, or experiencing a trauma.

Digital friendship has some benefits (Denworth, 2020). It may be that technology connects people as well as disconnects them. Many argue there is no substitute for in-person friendship, but technology can help people forge and maintain friendships. During the COVID-19 pandemic, technology helped people maintain vital friendships and connections. Digital friends range from acquaintances to close confidants. A lack of attention may not hurt a digital friendship in the same way it can hurt a live friendship. Multitasking is built in, and a need for listening is not as prevalent in social media relationships. But there is evidence that people who personally know and have live friendships with their social media connections have less depression than those who lack real-life closeness in their friendships (Denworth, 2020, p. 179). It is possible that the attention people pay each other in person strengthens the digital relationship.

3 Attention Span as a Moral Good

The *Onlife Manifesto* considers the protection of attentional capabilities a guiding principle. The document says that attentional capabilities are “a finite, precious, and rare asset” and that “the ability and the right to focus our own attention is a critical and necessary condition for autonomy, responsibility, reflexivity, plurality, engaged presence, and a sense of meaning” (Floridi, 2015). We argue that due to their many direct benefits, role as a precursor to other individual and societal goods, and contribution to what comprises the self and the moral self, attention span and the ability to direct attention freely belong in the moral realm as moral goods. The *Onlife Manifesto* supports our claim that attention has moral value.

3.1 What Makes Something Moral as Opposed to Merely Practical

Morality speaks to right and wrong and what one ought or ought not do. Moral goods, as opposed to natural goods, concern the conduct of people and often cover what should be provided, protected, or even banned. For example, in bioethics, we often look to certain public goods as having moral significance. Many consider health care a moral good, especially in the context of human rights (Timimi, 2012).

In medicine, morality is sometimes challenged by commodification. In environmental ethics, there are many moral arguments to protect the earth, ecosystems, and species. For example, biodiversity is expressed as a moral good ((Oksanen, 1997) (reviewing theories of moral claims about biodiversity)).

3.2 Individual Attention

Some may think that paying attention is trivial or that attention span does not have moral significance. It is even likely that some people prefer life without spending long periods of time paying attention to others. They can enjoy many tasks without deeply committing to anyone. Viewing attention span as trivial may be akin to arguing ignorance is bliss. While sometimes the failure to pay attention can allow for a shallower, less stressful experience, an inability to pay attention can harm relationships, careers, and leisure activities and impede safety. Having the ability to pay attention to other people and to topics and tasks deeply impacts relationships, careers, and activities that contribute to meaningfulness. While in the present, we do prefer comfort over discomfort, we also prefer our life to feel meaningful in retrospect (Kahneman & Riis, 2005). Unlike a shallow bliss, the overcoming of challenges and deeper experiences positively contributes to overall life satisfaction. In harried times, people may not realize how distraction impacts them, but it is likely at some point most will deeply benefit from preserving their attention span.

The time we spend and the areas to which we devote attention arguably impact the moral quality of our lives. Attention span is a moral good because many factors or topics of ethical relevance are complex and require deep focus and deliberation. Living an examined life, according to Socrates, requires that some time is dedicated to close reflection. To Socrates, seeking wisdom and knowledge was key to the good life (Navia, 2007).

“If you are perpetually angry, depressed, confused, and unloving, or your attention is elsewhere, it won’t matter how successful you become or who is in your life – you won’t enjoy any of it.” (Harris, 2014).

While this may be an overstatement, the targets and limits of our attention dictate fundamental aspects of ethical life. Finding a way to improve attention individually or societally—or at least not to squander or truncate it—is a moral good. Among those with good intentions, distraction technology can cause an inability to pay requisite attention and undercut ethical actions, making it harder to live a good life.

3.3 Society and the Collective Impact of Attention Span

The future of society arguably has moral worth or can be expressed in moral terms. People who think for themselves, read and comprehend long texts, and develop a baseline knowledge of complex subjects will continue to contribute to society in ways that may be outcome determinative. The continuation and improvement of society are ongoing moral tasks.

One could argue that knowledge is a tool to prevent catastrophic losses to society, like human extinction, extreme climate change, and mass violence. We assume that goods like public safety, democracy, and environmental responsibility are social goods worth pursuing and that the continuation of the human population is of utmost importance. We recognize the people-centric bent of our argument. One counterargument to this assertion is that human extinction could benefit the planet. Arguably, as a species with the faculty for the focused attention required for scientific problem solving, humans can be a net positive for the biosphere. Successful stewardship requires proper allocation of attention.

Another counterargument is that so far, many problems persist despite loads of attention to them. The role of attention span in problem solving is not a panacea. We do not suggest that attention span alone will resolve the world's woes. And certainly, some solutions come to people when they are not deeply engaged in thinking over the problem.

4 Recommendations

"Cars will soon have the Internet on the dashboard. I worry that this will distract me from my texting."- *Andy Borowitz*

New skills are necessary to combat distraction technology: acknowledging the need to make decisions constantly, honing the ability to do so, and gradually succeeding in routinely ignoring the distraction technology. Although they could help limit the effects of distraction, individual skills in dealing with technology should not alleviate tech companies of their ethical obligations. Tech companies should be held to ethical standards that prevent them from providing so much distraction, especially to children.

4.1 Product Changes

Tech companies could alter distraction technology, making information technology more beneficial to learning, research, and wellbeing. Tech creators should give moral consideration to the technology they create (Ratti & Graves, 2021). Some tech companies so far do not seem well equipped or motivated to care about user wellbeing. Observers attribute this to an educational deficit (most coding and computer science programs do not train people to care about societal wellbeing) (Van Noppen, 2021) or lack of knowhow. However, ethicists are flowing into the tech space in droves. Many non-profit organizations strive to connect stakeholders in the tech space and push for ethics (Hickok, 2022). And universities offer classes in tech ethics through many departments. Despite the vast opportunities to learn about tech ethics, applying the knowledge in a meaningful way within the industry would require aligned interests. That is, tech companies will likely engage in ethical practices (beyond those required by law) that either increase their customer base, make their app or product more valuable and increase advertising or user-driven revenue,

improve their reputation and goodwill meaningfully, or reduce the ethical risk that could damage their reputation or cost them money. While tech companies can evaluate their ethical risk, most of the pressure to align interests with the priorities of humanity comes from the outside. Tech companies do address privacy, cybersecurity, and compliance, all areas where regulation or fear of legal consequences or reputational damage enforce the ethical behavior.

Some tech companies are distinctly engaged in producing tech that is ethical in nature. Tech can help people achieve healthy lifestyles, improve access to education, host doctor's appointments, and improve the experience of human migration. User wellness tends to be aligned with those companies' financial goals even if ads distract. Similarly, tech companies continue to provide cognition-enhancing tools and games that foster thinking and problem solving.

User experiences are considered frictionless when no impediments slow them down. Impediments can include slow experiences, pop-ups, and broken links. While developers strive for frictionless online experiences, ethicists question that ideal (Tomalin, 2022). To be ethical, developers could add friction strategically to lessen distraction and enhance users' ability to devote attention to their chosen meaningful activities. Social media websites should remove infinite scroll and have a maximum number of posts per online session, after which the user would need to perform an action like reloading the page or re-entering a password. Developers also could create user interface features that slow down the scroll. By creating a forced "conscious break" for the user, developers could discourage users from continuing to scroll subconsciously. Having the user solve a brief 30-s puzzle after a certain amount of time could be even more beneficial. Removing features like auto-play or suggesters on Netflix or YouTube, or at the very least ensuring they are not selected by default, would also break frictionless interaction or create friction rather than supplanting their thought process with the next video in the line-up. In some arenas, frictionless experiences benefit users by making tasks like online shopping faster. Arguably, people do want menial transactions to go by faster so they can devote more time to meaningful activities, on or offline.

Social media companies can change the rewards landscape. If likes were seen only by the person who posted, the motivation to gather likes would change. Currently, people feel both rewarded and validated, so they continue to post and to check their posts for rewards. If the reward structure disappeared or its scale was reduced by making it inaccessible to others, social media might not lead to the short-term satisfaction that keeps people checking it.

Decreasing notifications would also help people avoid the temptation of social media or news. Apple currently has a "Scheduled Summary" feature in its notification settings. The feature allows time-sensitive notifications to go through as they arise, but holds non-urgent notifications, releasing them in a summary at selected times (Butler, 2022). All apps could adhere to this protocol (Shah, 2022). Dedicating time slots for social media would reduce distraction and may have positive effects on attention span.

Tech companies should end the practice of using algorithms driven by online activity or habits that users would reasonably expect to be private. Privacy is outside the scope here, but the wealth of data to which tech companies have access fuels the

algorithms directing the distractions. Tech companies should change the ecosystem of entrapment. Tech companies should address the psychological draw of tech. In a survey study about distraction, Koessmeier and Büttner noted two main reasons why our attention is drawn to social media (2021): first is the wish to stay connected and the fear of missing out; and second is the wish to avoid unpleasant tasks, situations, or thoughts. Managing a need for affiliation or a fear of missing out may require an individual approach that is beyond our scope. But tech should protect and connect people, foster welcome engagement rather than exclusivity, and decrease the social pressure to collect likes or engagement.

4.2 Legislation

Legislation to reduce distractions would preserve deliberate decision making and the autonomy of tech users. Principles like putting people first and approaching technology from the standpoint of society rather than seeing all tech users merely as customers would help elucidate proper policy. The Kids Internet Design and Safety Act (the “KIDS Act”), introduced in the US Senate, would ban auto-play of additional videos, push-alerts that draw people to an app or platform when they are not using it, displaying likes or other positive encouragement from other users, and features that encourage users to submit more content, spend more time, or spend money (17th Congress, 2021). The KIDS Act would be beneficial to attention spans and would improve the ability to devote attention to meaningful tasks with less distraction. It addresses distraction technology and tasks tech companies with making changes. The age-appropriate design code by the UK Information Commissioner’s Office requires developers to consider the best interests of children (Information Commissioner’s Office, 2022). It is important to change apps for the sake of adult memory, attention, and wellbeing as well. It is not only children that have the propensity to be distracted easily. (King’s College London, 2022).

The value of human life and respect for victims of accidents justify changes to the technology designed for use in cars and by those entrusted with transporting others.

Regulating tech companies will be necessary because their interests do not align with preserving attention span: their profits depend on distraction from tasks and competing apps and websites. The argument for regulation is further justified by the indispensability of technology (Hanin, 2021). It is a condition of participation in employment and socializing, and part of who we are and how we express ourselves, live, and interact. Technology’s power—seen in its benefits and its propensity to cause harm—calls for additional government oversight. Self-regulation and internal review boards will likely not be enough.

Regulation itself could benefit creative tech developers who can adapt or create new technologies to meet the requirements. Rather than stifle innovation, regulation could direct it to products that are better aligned with societal interests.

Tech industry power and political donations undermine the ability of legislators to reel in big tech. Many lawmakers have financial conflicts of interest due to accepting tech industry money. Lawsuits may become a better way to hold tech companies

responsible. Caselaw could then govern the space if legislators do not step in and regulate.

5 Conclusion

Attention span is critical to many meaningful experiences. The ability to devote attention to a desired task is a precursor to flourishing. Technology has provided huge benefits across many industries and within education and academics. Breadth is itself good for education, research, and building knowledge. Being a generalist is perhaps easier than ever, so is being an expert on several things rather than on one narrow topic. Looking up simple facts and connecting with friends have distinct benefits. Technology has advanced education and society exponentially and opened doors to opportunity for many people, connecting older adults to long-lost friends, keeping families close, and allowing people to perform intensive research from home during a pandemic.

But caution is needed: seemingly obsolete tasks may have meaningful future benefits. We should preserve skills that impact memory, cognition, social engagement, and meaningful experiences. Users should devote time to the new skills needed to resist distraction technology. And the tech industry should design technology that keeps people on task rather than distracting them. The benefits of tech can continue to grow while tech companies better align their missions with human interests, whether through regulation, consumer pressure, or their own good will. The moral value of attention span and tech autonomy is a starting point from which legislators and the tech industry should shape responsible technology.

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Declarations

Consent to Participate No research subjects were used for our paper.

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