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ORIGINAL PAPER

Attention as Practice

Buddhist Ethics Responses to Persuasive Technologies

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Abstract
The "attention economy" refers to the tech industry's business model that treats human attention as a commodifiable resource. The libertarian critique of this model, dominant within tech and philosophical communities, claims that the persuasive technologies of the attention economy infringe on the individual user's autonomy and therefore the proposed solutions focus on safeguarding personal freedom through expanding individual control. While this push back is important, current societal debates on the ethics of persuasive technologies are informed by a particular understanding of attention, rarely posited explicitly yet assumed as the default. They share the same concept of attention, namely an individualistic and descriptive concept of attention that is a cognitive process, an expendable resource, something that one should control individually. We step away from a negative analysis in terms of external distractions and aim for positive answers, turning to Buddhist ethics to formulate a critique of persuasive technology from a genuinely ethical perspective. Buddhist ethics points at our attention's inescapable ethical and ontological embeddedness. Attention as practice requires "the right effort" to distinguish desirable and undesirable states, the "right concentration" to stop the flow we are caught in, and the "right mindfulness" to fortify the ability to attend to the present situation and keep in mind a general sense of life's direction. We offer input for further philosophical inquiry on attention as practice and attention ecology. We put forward comfort/effort and individualism/collectivism as two remaining central tensions in need of further research.

Keywords Attention · Practice · Attention economy · Persuasive technology · Buddhism · Attention ecology

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1 Introduction

Attention is a central topic of concern in societal debates about persuasive technologies such as smartphones, social media platforms, and various ways of gamification of users' experience whenever they interact with a digital screen. The influence of persuasive technologies on the quality of human attention is increasingly regarded as a cause for ethical concern, and appropriately so (Hershock 2021). Time and resources spent engaging with digital technologies are unprecedented. This is not merely due to the advantages digital technologies provide us with, but also to the deliberate efforts by tech companies to "get inside our heads" (Wu 2017) and "win the arms race for attention" (Harris 2021). It has become common practice in the tech industry to design devices and applications with the aim of maximizing 'screen time' and 'user engagement', defined as "a quality of user experience with technology characterized by the perceived usability and aesthetic appeal of the system, focused attention, novelty, felt involvement, and endurability" (O'Brien 2016: 3). Taking inspiration from the gambling industry, several built-in design features of digital devices, such as pull-to-refresh and infinite scrolling, serve as digital analogues of slot machines (Crawford 2015; Williams 2018). Social media companies render their platforms ever more addictive by exploiting cognitive biases and vulnerabilities, for instance by implementing algorithms that favor sensational and emotionally arousing content, gamification, or by tailor-made distraction through personalization and misinformation (Hanin 2021; Marin, 2021a, 2021b; Schüll 2012; Specker Sullivan & Reiner 2021).

Current societal debates on the ethics of persuasive technologies are informed by a particular understanding of attention, rarely posited explicitly yet assumed as the default. Mitcham (2020: 596) argues that philosophers "must unite [&] and reclaim not just their own interests but those of their non-philosopher companions in the terrestrial cosmopolis." In line with Buzzoni, we do not consider technology as something that can be tidily disconnected from the rest of human culture, but should be considered as a "methodological multiplicity of technology" (Buzzoni 2020), that other values of psychological, social and spiritual kind to make a global assessment (Agazzi 2020; Bombaerts et al., 2020b; Janssens et al., 2020). As we argue in this paper, the very concept of attention needs reframing in order to make possible a critique of persuasive technology from a genuinely ethical perspective.

Our aim in this paper is dual: first, to shed light on the operative concept of attention used in most philosophical critiques of persuasive technologies. By fleshing out this concept of attention that is at the basis of the attention economy, we show several of its limitations that make ethical critiques of persuasive technology lose its normative sting. In the second part of this paper, we propose a reframing of the concept of attention based on several insights from Buddhist ethics which, we show, has the capacity to address exactly those shortcomings of the standard concept of attention used in the attention economy. Thus, in the first part of the paper, we use the example of what we call libertarian critiques as the token example for why critiques of persuasive technologies lack a crucial dimension that would allow them to make an ethical argument. Briefly put, current libertarian critiques share the same concept of attention with the "attention economy" perspective, namely an individualistic concept of atten-

tion that is a cognitive process, an expendable resource, something that one should control individually. This is fundamentally a descriptive understanding of attention, influenced by psychological sciences and economics. In the second part of the paper, we bring forth insights from Buddhist ethics, that has a rich tradition of putting attention at the center of any human project of flourishing, and that has a fundamentally a normative understanding of attention. By fleshing out the normative dimensions of attention in Buddhist ethics, we show that these features of attention lack in the attention economy discourse on attention, yet these are needed for a genuine ethical critique. By mapping out the normative dimensions of the concept of attention, we aim to open a wider discussion of what we need to do with attention as a society. We propose to change the attention discourse from attention as commodity to what we will call attention as practice, and from an attention economy to what we will call an attention ecology. Our primary aim in this paper is conceptual clarification. We are not aiming for conceptual re-engineering, at least not in the sense of introducing a wholesale different notion of attention: the concept of attention in Buddhist ethics already has many of the normative dimensions needed for an ethics of attention. Yet it is still in need of a clear operationalizing of these normative dimensions. Our paper proposes such an operationalization of attention as a normative concept and provides insights that can be used in current debates to pose an ethical critique of attention-capturing technologies.

2 The Libertarian Critiques Of Persuasive Technologies Of The Attention Economy

Davenport and Beck (2001) defined the attention as the "focused mental engagement on a particular item of information. Items come into our awareness, we attend to a particular item, and then we decide whether to act." (p. 20) In the subsequent literature that has engaged with the attention economy, "attention" has frequently been characterized as a scarce resource, which tech companies seek to harvest. Software applications, such as social media, track users' behaviors, use analytics to design algorithms and apply persuasive technologies in ways that capture our attention.

The attention economy has shown to result in increased addiction (Ertemel and Aydın 2018) or adverse effects on our brain functioning (Carr 2020). The W.H.O. has recently included 'gaming disorder' as a behavioral addiction in its International Classification of Diseases. 'Design for addiction', moreover, is only one example of the 'ledger of harms' associated with contemporary digital technologies, extending also to amplified political polarization, increased risk-taking behavior, and diminished mental health (Center for Humane Technology 2021b). Members of modern society cannot reasonably avoid the persuasive digital interaction and have to comply with new norms as deviants are technically subjected to close attention (de Laat 2019). The persuasive technologies inescapably create sources of disvalue (Robson 2017). Technologies of the attention economy can thus be considered socially disruptive (Hopster, 2021), as they raise numerous interconnected political and ethical concerns (Schuurman 2010).

There are many legitimate perspectives from which to criticize the current state of affairs and a variety of proposed interventions or policy reforms that may address these concerns. However, a rather narrow strand of criticism and framing of the problem has come to dominate the discussion and debate at the expense of other ethical perspectives and at the expense of a more fundamental rethinking of the persuasive technologies of the attention economy. Critiques of persuasive technologies and digital platforms focus predominantly on privacy and data protection, whereas autonomy, human dignity and the balances of power are understudied (Royakkers et al. 2018). Unsurprisingly, this narrowing systematically undervalues perspectives from outside the predominant Western liberal perspectives, which not only limits the resources available for critique (and solutions), but also tends to diminish their ability to engage with people from those perspectives. Furthermore, existing critiques tend to assume an economistic understanding of attention as a currency and scarce resource, yet have little sensitivity for the ethical dimensions of attention. Our aim here, then, is to widen the scope of this critical engagement with technologies of the attention economy.

Let's call the narrow framing that has come to dominate the critical discourse of the attention economy the *libertarian critique*. A centerpiece of the libertarian critique, in line with Davenport's characterization of the attention economy, is an understanding of attention as a valuable and scarce commodity. Commercial parties fight to control this commodity and harness it to suit their purposes. In doing so, they infringe on the freedom of technology users to attend to whatever it is they want to attend to, and to pursue their own desires rather than being passively steered by algorithmic nudges and rewards. Hence, what is critically at stake is the threat to individuals' attentional control—*their* ability to decide where to look, what to choose, and how to realize their given preferences.

The libertarian critique constitutes a distinct and relevant voice in the recent critical discourse of the attention economy. However, it is too limited to serve as the dominant voice in the ethical debate as it offers an incomplete moral assessment. It rests on a particular view about the core values implicated in the attention. The emphasis on these values is culturally specific and overlooks criticisms that are rooted in a different set of values and rely on a broader conception of the value of attention. For one, the libertarian critique is heavily individualistic: it foregrounds an individualistic conception of attentional control and assumes an atomistic notion of individual preference formation, which should be shielded from outside influences. In this view, the problems lie entirely outside the self, in external coercive forces. Additionally, the framing of attention as a scarce commodity invites a market-economistic appraisal of the value of attention. As Anderson notices in life-engineering that "the good life is defined to be one in which the minimum requirements are met and then performance is good, no attempt is made to define what is good" (Anderson 2022: 1169), we also notice that the libertarian critique offers little by way of a positive account of why attention might be *ethically* valuable, apart from being an instrument to facilitate individual goal pursuit.

3 The Need for Widening the Concept of Attention in Persuasive Technologies

An alternative ethical critique of the attention economy – which, as we will argue in the next section, can be grounded in Buddhist ethics – holds that what is called for in response to the attentional push-and-pull baked into current technological design is not a mere safeguarding of attention as a private resource, but a renewing of practices and appreciation of *processes of attending*. What needs to be highlighted is that objects of attention are not merely pre-given preferences that should be revealed and satisfied, but that they may need to be transformed by our engagement with them, individually and jointly. Rather than understanding attention as a resource, we will argue that being attentive can be understood as *practice*, which is instrumental to our development as a person and as a society, and which may be valuable in its own right. Rather than regarding perpetual distraction as a feature that only stems from technology design, we will argue that craving and dissatisfaction are deep-seated characteristics of human nature itself – a predicament that may not be resolved, but that we can learn to cope with increasingly well, both through individual practice with technology and by redesigning our technological ecosystems in more humane ways.

To be sure, our point is not to disparage criticism of patterns of domination, predation, and manipulation that can be found in the attention economy. Rather we insist that the rhetoric of "taking back control" (Center for Humane Technology 2021a) needs to be set in a wider philosophical frame, which can provide additional conceptual resources for understanding the problems of the attention economy and foster a more thorough understanding and positive appreciation of practices of attention.

Before we turn to a Buddhist perspective on the attention economy, it is important to briefly clarify the phenomenon at issue: the nature of attention. Attention has different faces: it manifests itself, for instance, in momentary awareness, in concentrated task performance, or in practices of attending. In the case of human-technology interaction, we can distinguish different phases in which our attention is implicated. Prior to engagement, digital devices and applications interrupt tasks and activities in order to grab our attention, which affects our capacity to concentrate and focus on these tasks. During engagement, we are absorbed by our digital activities. We remain attached and immersed in digital interactions for prolonged periods of time, paying less attention to our non-digital surroundings. Furthermore, digital activities are addictive: we habitually return to them and increasingly prioritize digital activities over other, less dopamine-activating activities (Greenfield 2021).

Where do such processes and attention practices derive their ethical significance from? As a first pass of outlining a more fully fledged ethical analysis of the value of attention, we follow the classification that James Williams develops in his critique of the attention economy (Williams 2018). He distinguishes three types of distraction that are ethically problematic: functional, existential, and epistemic. First, functional distraction implicates the 'spotlight' of our attention, i.e., our moment-to-moment awareness, which we use when acting in a given task domain. Persuasive technologies enable us (not) to do what we want to do. Second, existential distraction implicates our endorsed goals and desires. Persuasive technologies tend to "privilege our impulses over our intentions", guiding us towards low-level, short-term goals, rather

than our deeply-held values, invoke pettiness and fragmentation. They influence us in our being who we want to be. Third, epistemic distraction implicates the underlying capacity to reflect on our deeply held goals and desires. Persuasive technologies diminish our capacities for reflection, memory and reasoning, making it more difficult to figure out what it is that we want to want.

Already here, we can see how Williams' conceptualization of attitude-related threats expands the ethical lens to include more than just issues of interference with given preferences. His characterization highlights the ways in which attention is not merely a resource, but a mode in which we ascertain values and make judgments of worth. Attention becomes a matter of practice and can be seen as requiring cultivation. Moreover, when cultivated, attention allows aspects of the good to come into view. Williams' work aligns with our approach, in particular as it questions the conception of attention that is at heart of the libertarian critique. The socially disruptive technologies of the attention economy prompt us to rethink this conception, and pay closer scrutiny to the ethical significance of attention. Going beyond Williams, we propose that such a reconceptualization benefits not only from focusing on the distractions of the attention economy, but also articulating a positive account of the ethical value of attention. This will aid us in formulating constructive, solution-centered answers to the challenges of the attention economy.

As the libertarian critique revolves around protecting individual freedom based on individual preferences as a fixed and stable given, we reach out to ethical theories with a fundamentally different starting point. In line with current pleas to incorporate non-Western philosophies in socio-technical issues (e.g.: Bombaerts et al., 2020a; Lenk 2020), we will argue in the next section that Buddhist ethics is particularly well suited to elaborate an ethical advancement of the attention frame and attention as practice. Traditional Western philosophies on attention, such as Iris Murdoch (2001) and Simone Weil (1997), aptly point at the necessity of ethics, but are far less focused on the practice of attention compared to Buddhist ethics. As attention as practice is our focal point, we turn here exclusively to Buddhist ethics. Buddhist ethics can be understood as aiming for a transformation of experience (Garfield 2021). This is not only a matter of attention practices in the strict sense - like concentration or mindfulness exercises. The transformative quality of 'bare attention' is inextricably connected with an ethical and existential transformation. Diverging from the individualism of the libertarian critique, Buddhists assume a decentered view, devoid of a fixed self, yet with great emphasis on consciously cultivated attentional practice. How we attend to our surroundings is fundamentally co-dependent on the ways we experience our surroundings, including what we deem to be of value (Hannes & Bombaerts, In press). Not only the virtuous life, but also our virtuous responses – spontaneously doing the right thing in ever-changing and perpetually emerging situations – essentially relies on how we attend, as the Buddhist perspective brings out.

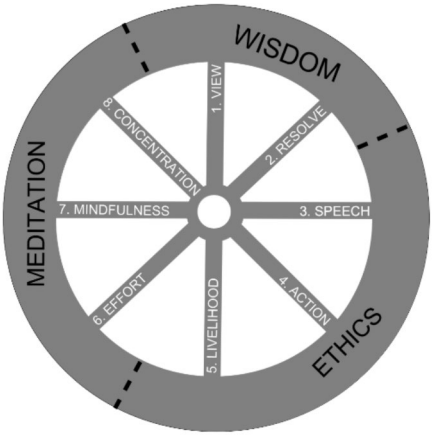

Fig. 1 The noble eightfold path (right view, right resolve, right speech, right action, right livelihood, right effort, right mindfulness, right concentration) and the three cultivations (wisdom, ethics and meditation)

4 Attention as Practice in Buddhism

4.1 Attention in The Noble Eightfold Path

In the Western world, the practice of attention or mindfulness has come to be seen as a near synonym of Buddhist practice. The popular Mindfulness-Based Stress Reduction program singles out attention as the active ingredient in terms of "attention on purpose, in the present moment, nonjudgmentally" (Kabat-Zinn 1994: 4) or "non-elaborative, nonjudgmental, present-centered awareness in which each thought, feeling, or sensation that arises in the attentional field is acknowledged and accepted as it is." (Bishop et al. 2004) Yet in the *Dhammacakkappavattana Sutta* (Thanissario 1993) mindfulness is squarely embedded in a philosophical and ethical framework, summarized as the eightfold path, which in itself is the final of the four noble truths, the Buddhist existential analysis of the human condition. This heterogeneous view on attention need not be an impediment to discuss it. In fact, it forms the very condition for being able to discuss Buddhist attention and by extension any kind of attention as *invariably* intertwined with philosophical views and ethical motives.

The *Dhammacakkappavattana Sutta* presents attention (mindfulness) as the seventh domain of the eightfold path: "*right view, right resolve, right speech, right action, right livelihood, right effort, right mindfulness, right concentration"* (Thanissario 1993). Yet reading it like this may be an all too linear approach to a practice in which the eight domains are in fact intimately interdependent. We will discuss this in three steps. First, we will look into the meaning of "right" in right attention. Then we will show how all eight domains of the path support and even co-create each other. Lastly, we will discuss how the three paths of the meditation subgroup (right effort, right mindfulness and right concentration) portray attention as practice.

Bhikkhu Thanissaro describes right mindfulness as involving the capacity to maintain a focused state that is deprived of confusion and attachment (Thanissario 1993). This qualification is a compact indication of the degree to which mindfulness is defined by the other seven factors of the eightfold path. Stating that right mindful-

ness is "deprived of confusion" reveals a link to the first path: right view, or the cultivation of a correct philosophical understanding of the world. And if mindfulness is only right when "deprived of attachment", this implies a whole ethical outlook aimed at cooling down desires that cause the kind of existential suffering that Buddhism claims to alleviate.

The early Buddhist icon of the path as an eight-spoked wheel highlights the interdependency of each domain. (see Fig. 1) For a wheel to turn properly, all spokes have to be complete and well established, as well as attuned to each other. So do the eight domains of Buddhist practice. A somewhat later traditional depiction of the eightfold path summarizes it as a threefold training or cultivation (*tisikkha)*: wisdom *(panna)*, ethics *(sila)* and meditation *(samadhi)* (Gombrich 2009). In its traditional categorization wisdom covers the first two paths: view and resolve. Ethical cultivation unites speech, action and livelihood. The cultivation of meditation gathers the remaining three paths: effort, mindfulness and concentration. But upon closer inspection, the three groups are anything but neatly separated. They conspicuously leak into each other. In the cultivation of wisdom, right view presents an outlook on phenomenal reality as co-dependently arising (*paticca samupada*), and right resolve is about cultivating compassion (*karuna*), the great desire to alleviate suffering in the world (Anālayo 2020: 108). Although the latter path is considered to be part of the cultivation of wisdom, it is blatantly ethical in nature. In the cultivation of right resolve, wisdom leaks into ethics (the third to fifth paths) and vice versa.

The cultivation of meditation is leaky as well. It is no surprise to find concentration and mindfulness here, as they feature in what we normally think of as attention practices. Yet the threefold cultivation explicitly starts off meditation with right effort. This is all the more remarkable when we see that the Pali Canon defines right effort as the practice of doing away with *unwholesome* mental states and cultivating *wholesome* mental states (Bodhi 2010). So right effort requires (if not equals) a constant ethical monitoring. This is in stark contrast with Kabat-Zinn's "nonjudgmental" attention. Its function is to distinguish between wholesome and unwholesome states. So right effort serves little else than to judge in explicitly ethical terms, which in turn only makes sense in the light of the cultivation of wisdom. For how else to decide what is wholesome and what isn't? Thus, as part of meditative attention, effort consists in the constant cultivation of questions spanning the domains of attention, ethics and wisdom. What is the state I am in right now? Is this state wholesome for awakening lucidity and arousing compassion, or not? If so, how can I develop it? If not, how do I drop it?

In brief: it is impossible to conceive of *right* attention, let alone practice it, without referring to ethical and wisdom cultivation. This has profound effects on how to understand the word 'meditation' in the third subgroup of the eightfold path. Meditation does not only refer to cross-legged sitting, but to a practiced attention in all situations (Anālayo 2004: 136). In this sense we could refer to the meditation group as "the cultivation of attention".

This last move is helpful for seeing Davenport and Beck's take on attention in a broader light. As we have discussed above, they describe the attention-process as follows: "Items come into our awareness, we attend to a particular item, and then we decide whether to act." (2001: 20) That is: things hit our awareness, we select parts

by judging them, and on the basis of that judgment we get into action (or not). Yet what we are aware of in the first step is not merely a matter of what hits our sense organs. Our willingness and even our ability for being aware of a figure is linked to a pre-given background that structures our world, a certain understanding of our world and what is proper to attend to in this world. Davenport and Beck's second step entails focused attention, which is a matter of selecting (i.e. grabbing or rejecting) some of these discernible elements. But this selection too is done on the basis of our worldview and values that inform and guide our attention. Thirdly, charged with the information of the two former steps, we perceive a situation as something to engage with, or not. If we translate this process in Buddhist terms, we could say that we start from what we consider as wisdom (a general view and resolve), then estimate the current situation on the basis of that wisdom to decide whether it is desirable or not (the judgmental function of right effort) and then we act upon it. Our 'initial' attention for the world is already informed by what we imagine being proper to attend to, an unquestioned "view" that may or may not be "right" in a Buddhist sense. Davenport's attention-economical scheme takes for granted our unspoken views and resolves as fixed givens, so that the whole process appears as a simple and unproblematic flow. Whereas in reality cultural and economic backgrounds, such as consumerism and the market ideology of the attention economy, reside in the very first step, tempting the user to go for an uncritical free-flow experience. The problem therefore is not only that attention economy intrudes on our personal desires, but also that we are made oblivious of ethical and philosophical assumptions that inform what we resolve to attend to and what we deem valuable to cultivate.

The early Buddhist threefold cultivation of meditation offers a better general model for attention to begin with. By qualifying "right" effort, "right" mindfulness and "right" concentration it also presents a more particular aim, which is nonetheless quite relevant to us: a practice for becoming more lucid, calm and content.

4.2 Right Effort

We saw that right effort is defined as the practice of doing away with *unwholesome* mental states and cultivating *wholesome* mental states (Bodhi 2010), a practice that involves constant ethical monitoring. We need to learn to see the invisible: our patterns and their background we take for granted. We also need to distinguish their harmful (unwholesome) characteristics, even though they are perceived as neutral or even desirable. We then need to visualize an alternative philosophical background, a "better view" that guides our practices of attending more wisely. Lastly, we need to transform our active and perceptive lives accordingly. The amount of constant effort this requires runs counter to the very promise the attention economy holds for us: a Cockaigne-like life effortlessly satisfying all our desires, which in practice is as disappointing as it is toxic and addictive. As we cannot imagine the whole world leading the Buddha's Iron age mendicant lifestyle, the qualifiers 'wholesome' and 'unwholesome' are to be explained in new, clear, demanding yet motivating terms for a contemporary audience. It is not enough to express our distrust in the attention economy's promises of easy satisfaction as the hallmark of a free-flowing and autonomous life. Sustainable motivation needs a positive ethical outlook, a clear indica-

tion of the good to strive for. Only then the practical ethics of speech (third path), right actions (fourth path) and meaningful jobs and suitable work floor conditions (fifth path) can be determined and realized. A plausible conception and motivational formulation of this positive outlook is traditionally the domain of wisdom, and is therefore not tackled in this article on attention. But it is a viable and even urgent point of further research.

4.3 Right Concentration

The second aspect of the Buddhist cultivation of attention is concentration. In Davenport and Beck's attention-scheme this refers to the ability to focus on a target until it is reached. Again, here it is assumed that the target is a proper one and that concentration is merely a means of enhancing the flow of our active lives. Corporate workshops on how to improve our focus feed on this view on concentration. Even though such training programs might offer helpful insight, what is called "right concentration" in the early Buddhist frame is something quite different, as it intends to *stop* the spell of flow. Commonly, this is done by sitting down motionlessly and redirecting the focus to a non-goal inducing object, e.g. the breath.

In the *Dhammacakkappavattana Sutta* this 'stop' is set in the basic Buddhist analysis of the human condition: the four noble truths. The first truth is the acknowledgement that there is suffering or discontent (*dukkha*) in the world and in our lives. The second truth is the acknowledgment that our own cravings (*tanha*) are a major cause (*samudaya*) of our suffering. Third is the acknowledgment that our cravings can be stopped (*nirodha*). And fourth this stop can inspire us to follow an alternative way (*magga*), the eightfold path. The first two truths interlock: the more we suffer, the more we believe that following our cravings is going to offer us a way out. And the more we think so, the more we continue suffering. This vicious circle could be seen as a representation of the attention economy and its consumerist dynamics. The third and fourth noble truths interlock as well: as we catch our breath, we may get a glimpse of an alternative life that is not lived in terms of chasing hormonal scores behind a screen. We are offered a window of opportunity to live our lives differently, partly by cultivating our ability to interrupt cravings. The clearer the overall picture of that alternative lifestyle is (the eightfold path), the easier it is to stop our cravings here and now (the eighth path). The vicious circle of the first two truths is thus transformed into a virtuous circle.

4.4 Sati: Mindfulness and Memory

The third aspect of attention is right mindfulness (*samma sati*). In early Buddhist texts, the function of concentration is to calm down the mind by being single-minded, while sati is more panoramic (Anālayo 2004: 64; Thanissaro B 1997). It "can be understood to represent the ability to simultaneously maintain in one's mind the various elements and facets of a particular situation." (Anālayo 2004: 49). The cultivation of this kind of attention in a meditative setting, while not engaged in an impulse-driven action, fortifies our ability to attend to our present situation, beyond our natural inclinations. Not only while seated in formal meditation, but also during our active lives. (Anālayo

2004: 136). Even though it is right to describe sati as a non-judgmental panoramic attention practice, it also contains a strong subversive flavor. Originally, the meaning of sati was not so much linked to bare attention but to the "practice of remembering", i.e. of not losing sight of what the whole practice is about (Anālayo 2004: 46). As such, the final domains of the eightfold path bring us back to the first ones: right view (co-dependence) and right resolve (compassion). This is the framework we have to keep in mind while practicing "nonjudgmental" mindfulness *in a social world that tends not to be organized in terms of right view and resolve.* Sati is practiced in stark opposition to our natural inclinations and to the power structures of our societies, e.g. the attention economy.

The panoramic non-judgmental attention serves as the observation of a perceptual space for the practitioner to notice a lot more in the situation at hand than an untrained mind. By embodying receptive and perceptive space, the practitioner becomes aware of patterns that normally hide in the background: habits, fixed ideas, fears, expectations& In order to be able to practice the right effort, we need to see our current state to begin with (sati as bare attention), before we can judge them as wholesome or unwholesome. But we also need a yardstick by which to evaluate them (sati as keeping in mind the wisdom aspect of Buddhism). In short: there is not really a beginning in the practice of attention. It is literally a virtuous circle. Sati (keeping in mind the philosophical background we aim for), enables the effort to make a distinction in the phenomena that our sati (bare attention) permits us to see, so that we can inhibit the unwanted patterns here and now (focus as stop) and cultivate the wanted patterns (focus as single-minded engagement in a task). This does not only entail attending to our own individual patterns but also checking on our broad cultural, societal and even biological characteristics, goals, temptations, weaknesses and strengths.

5 From Attention Economy Towards An Attention Ecology

The magnitude of the task to change the disruptiveness of the attention economy calls for a more than individualistic practice. Graziano argued in general for neuroeconomics as "a science pledged to tracing the neurobiological correlates involved in decision-making, especially in the case of economic decisions" that can "provide new and useful insights to the established knowledge of standard economics" (Graziano 2019: 237).

In a way classical Buddhism can be seen as offering an individualist practice in the sense that awakening is done by the practitioner. The Buddha does not awaken anybody, he can only show the way (Thanissaro B 1997). There is no ritual or practice for communities to be awakened collectively. Yet, in spite of its individualist soteriology, as a practical path Buddhism hammers on the importance of community. For instance, in what is called the "three jewels" in which a Buddhist practitioner takes refuge. The first jewel is *Buddha*: the ideal of an awakening lifestyle. The second is *dhamma*: the teachings that help the practitioners on their path. And thirdly there is *sangha*: the community of practitioners supporting and inspiring each other, creating what we might call an attention *ecology*. Whereas the attention economy aims at maximizing profit by reducing attention to a commodity, an attention ecology aims

at building a shared environment, based on interlocking wisdom, ethics and attention practices. This is just another manifestation of the fundamental Buddhist outlook: the co-dependent nature of existence. Toxic physical or virtual environments are the ones that do not support the kind of concentration that allows us to take a break, breathe, press the reset button; or that facilitate the monitoring effort to judge our mental state as proper or improper in the light of a philosophical and ethical background aimed at a plausible and caring outlook. Inversely, whole physical or virtual environments are the ones that allow or actively support this concentration, effort and mindfulness.

Buddhist ethics allows us to reconceptualize what attention is and how we should think of its main normative dimensions. The libertarian critique shares with attention economy a conceptualization of attention as primarily a cognitive process (something "in our heads"), a limited resource that is already given to us, and an individual dimension of our consciousness. These features make attention primarily a descriptive concept and this framing hinders any critiques of persuasive technology from an ethical perspective. The Buddhist ethical framing of attention allows us to speak of attention as something we do in the world, a practice rather than a resource, something that is embodied and enacted by us, something effortful that we get better at, and a collective value that we need to attend to mindfully.

Attention reconceptualized as practice is therefore so much more than merely resisting the technological nudges of the attention economy. It requires the effort to make a distinction between what actually contributes to a good life and what impedes it. Which in turn requires attending to our philosophical and ethical background in a double sense. First: what is the background we all take for granted? And second: what do we want instead? How do we express these ambitions? How do we build a community, an attention ecology, around those shared values, e.g. by attending to the ways in which digital media affect our attention practices? Which persuasive technologies do we consider sufficiently supporting our attention ecology?

6 Conclusion. Rethinking the Concept of Attention

We argued that the libertarian push back is an important response to the attention economy's socially disruptive effects. At the same time, we see it as an incomplete moral assessment as it focuses too singularly on individual freedom and control and that it offers a too narrow a standpoint for discussing the broad ethical nature of attention. The libertarian critique is also too bent on analyzing external distractions and it lacks a sufficiently elaborated solution-centered constructive answer. To overcome this limited perspective, we approached attention not as commodity but as practice. We looked at the role of attention in Buddhism, revealing it as a notion integral to human moral and social life. In particular, we looked at how "right attention" is embedded in Buddhist ethics and ontology. Attention as practice requires right effort to monitor our states, right concentration to stop the flow we are caught in, and right mindfulness to fortify the ability to attend to the present situation. This approach led to our plea to move from the attention economy to an attention ecology. By contrast from this individual-focused approach, we mean to refer to a community with attention as practice and co-dependence as central tenets.

We concluded that attention as practice provides a fundamentally different approach to attention that can support designers to come up with new applications of attention. It is beyond the scope of this article to consider *how* attention as practice can move us out of a socially disruptive attention economy and into an attention supportive ecology, as this requires a change in many building blocks of our economies, policies and societies at large. James Williams' proposed interventions - such as considering advertisement, changing the upstream (economic) determinants of design, measuring what we value and reconsidering the language of persuasive design (Williams 2018) should be seen in this light.

Our elaboration raised the question whether and how these and other interventions can support attention as practice. A design intervention sensitive to libertarian values is difficult to realize but can build in individual controls and opt-out functions. Design aiming to support "the self as a developmental process in which distractions can be overcome by practice and by improvement of perceptual faculties" and "right effort, right concentration and right mindfulness" while keeping in mind "the embeddedness of the attention as practice in ethics and ontology" is, of course, a task with a far broader scope. However, just as meditation centers where several-days trainings are designed to maximize the success of minimizing distractions and taking practitioners away from their habitual patterns, apps and devices might be able to provide a digital environment supportive for attention as practice. Mindfulness apps might be a part of this setting, although it seems to us that on their own, they lack the leverage for supporting a modern version of a "threefold training or cultivation of wisdom, ethics and practice". Therefore, any genuine solution for building attention as a practice will have to consider technological as well as non-technological aspects in combination with societal debates concerning what is at stake in a very broad sense. To us, the implicit attention economy's outlook of effortless comfort as the ideal to be pursued will probably be one of the most difficult hurdles to overcome, as comfort is very central to our current lives. Attention as practice requires right effort, which remains effort after all, and any technology aiming to relieve users of the right effort, will fail by design to contribute to an attention ecology.

We illustrated that attention as practice refers to a complex dynamic. The approach that downgrades attention to its commodity aspects is too reductionist. When specifying the quality of attention as practice, one could stress many different aspects, that is that practices should be seen as: embedded in ethics and ontology, focused on skill development, embodied, transformative, and so forth.

The instantiation of attention as practice in persuasive technologies will inevitably lead to a diversification of practices. As Buddhist ethics comes in many flavors, they will put forward different practices. We do not see this as a counterargument of our elaboration. On the contrary, we consider this to be in line with the idea that attention as practice is linked with people's own ethics and views of the world. We therefore do not talk about "attention as a practice", as this could suggest the existence of a uniform practice to solve all problems, but as attention as practice.

In all the different instantiations of attention as practice, individualism is probably one of the biggest common challenges. As we said, arguing for attention as practice will require a societal discussion of how "we" see society.

As such, we offered input for further philosophical inquiry on attention ecology as a community of and for attention as practice in persuasive technologies. We put forward comfort/effort and individualism/collectivism as two remaining central tensions in need of further research.

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