

The Ethical Use of Persuasive Technologies In Education and Training

Authored by Jamaal Fort
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MISSION:

Our mission is to develop hybrid immersive systems, networks, and applications that are committed to the global distribution of educational and therapeutic content.



MISSION:

At Flowlab Morild, our mission is to develop hybrid educational content and simulation networks that deliver a greater sense of presence and ensure greater comprehension and engagement for trainees and operators. These VR and AR-enabled systems provide 24/7 access to operators, which prevents skill decay and ensures operational readiness.

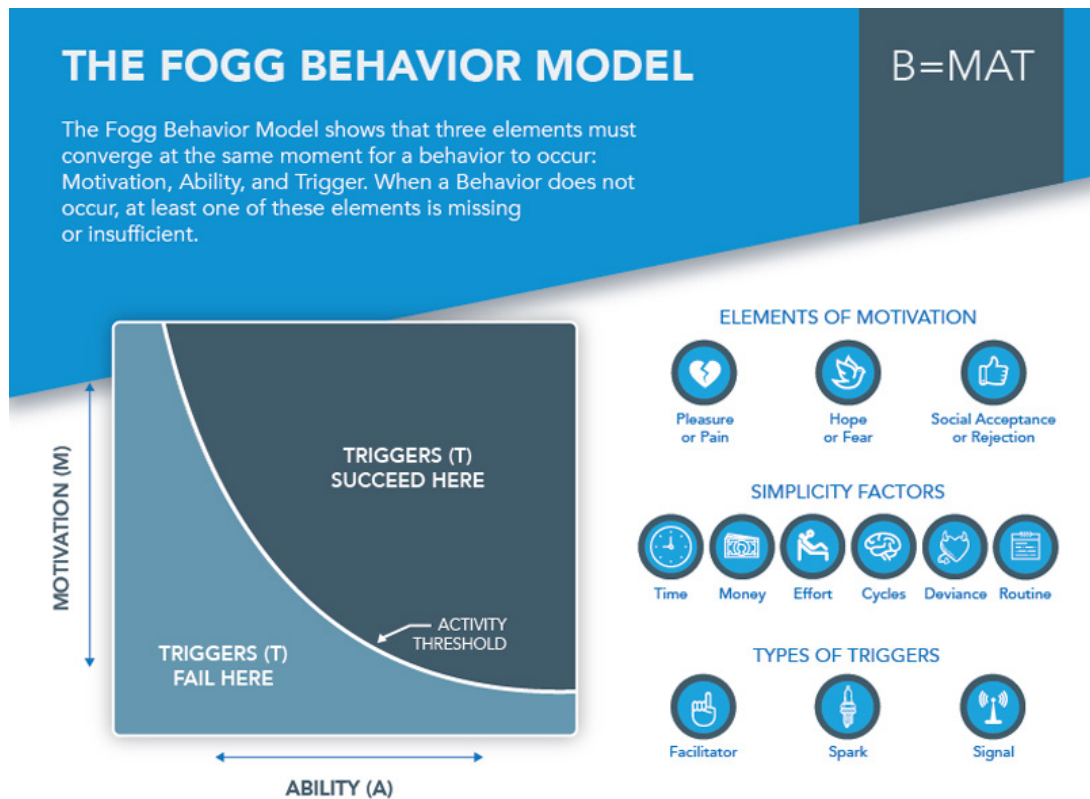
“You never change things by fighting the existing reality. To change something, build a new model that makes the existing model obsolete.”

— Buckminster Fuller

Persuasive Technology

Persuasive Technology is broadly defined as technology designed to change users' attitudes or behaviors through persuasion and social influence but not necessarily through coercion.

Most self-identified persuasive technology research focuses on interactive, computational technologies, including desktop computers, Internet services, video games, and mobile devices. Obtaining quality learning behavior requires constant improvement. The development of learning methods that change how people communicate and interact with educational systems and products is vital to improving academic outcomes.



Brian Jeffrey Fogg (B.J. Fogg) is an American social scientist and research associate at Stanford University. He is the founder and director of the Stanford Persuasive Technology Lab, later renamed as Behavior Design Lab.

Innovation and deployment of new technologies in the educational space are necessary if the U.S. is to continue progressing in the face of global competition. AI (artificial intelligence) systems will play a crucial role in that evolution. Machine learning algorithms deployed in social media have proven

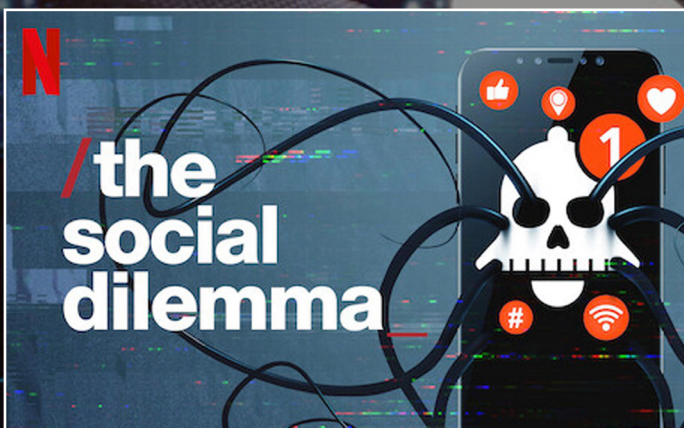
their incredible power to capture and focus the user's attention with precision and accuracy. The behaviors that result from exposure to these algorithms guarantee not only the user's habitual use of the platforms but also the intentional "sculpting" of the individual's belief system.

How it works.

Users are conditioned to interact with these systems based on their biases, education, personal preferences, demographics, and social interactions.

The AI analyzes their individual responses to the content that these platforms deliver and rapidly redistributes these responses as an individual belief "Matrix" to guide user behavior. This process is applied almost exclusively to commercial ends. In the world of social media, this powerful form of algorithmic persuasion has been viewed as detrimental to the user for the simple fact that these AI (artificially intelligent) systems are deployed and concealed beneath the user's awareness. Average citizens, unaware of the existence of these systems, become unwilling pawns in a game they did not realize they had committed to participating in. As awareness of these systems has become more available through the press and documentaries like 'The Social Dilemma', the general public's opinion of this approach has been less than positive.

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TRUTH
 SOCIAL MEDIA
 CONVENTIONALITIES
 ETIQUETTE
 PERFORMANCE
 RULES
 TRUST
 MORALS
 CHARACTER
 AUTHENTICITY
 ETHICS
 POCRISY

The Ethics of Persuasive Technology

One crucial factor that has been somewhat ignored throughout this controversy is that the debate is over the morals and ethics of the companies involved and not over the technology itself...

Separate from the unscrupulous practices of these platforms and their commercial interests, persuasive technologies can represent a quantum leap in education and training when applied to systems and organizations that are well defined and transparent in their practices. Educational institutions, the military, and intelligence communities can all benefit from the ethical application of these technologies.

The key to ensuring such ethical application is twofold.

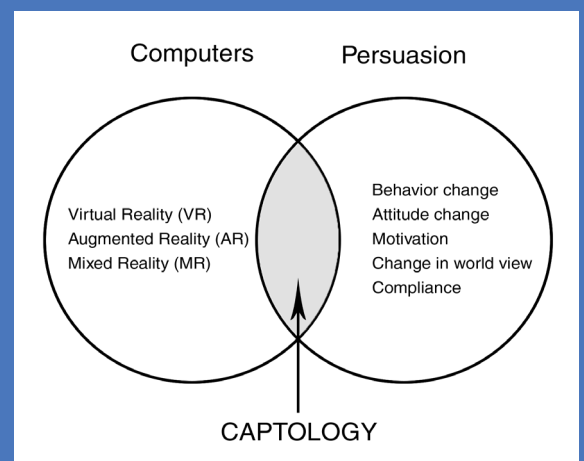
Part one of this equation is full transparency and part two is consent to ensure the user's safety and autonomy.

Persuasive technology can be defined as "any interactive computing system designed to change people's attitudes or behavior." Virtual and Augmented Reality systems are perfect vehicles for persuasive technologies because of their immersive aspect as well as their ability to collect data from the user.

Social media platforms like Facebook and Instagram rely

solely on the user's content choices as the database that the algorithms analyze. Because VR and AR systems are wearable technology, they can extract a complete set of unique data related to the attentional focus (eye-tracking), brain function, physiology, and emotional state of the user. This data, when added to the user's response to the training content, provides the algorithms with a more detailed profile of the user, which results in a more nuanced and focused approach for the individual.

Captology is the study of computers as persuasive technologies. This area of inquiry explores the overlapping space between persuasion in general (influence, motivation, behavior change, etc.) and computing technology. This includes the design, research, and program analysis of interactive computing products (such as the Web, desktop software, specialized devices, etc.) created for the purpose of changing people's attitudes or behaviors.





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Forging Innovation

The foundation of innovation in any industry involves bridging the chasm between seemingly unrelated technologies and creating an integrated system that provides more service than the sum of its parts.

The simulator industry as it exists today has become stagnant in its approach to education. As each new simulator system is developed, the graphics and operation improve. Of course, that is essential but this very "left-brained" mechanistic approach ignores the unlimited potential for human engineering. Whether the systems are costly and cumbersome stand-alone systems or the more fluid

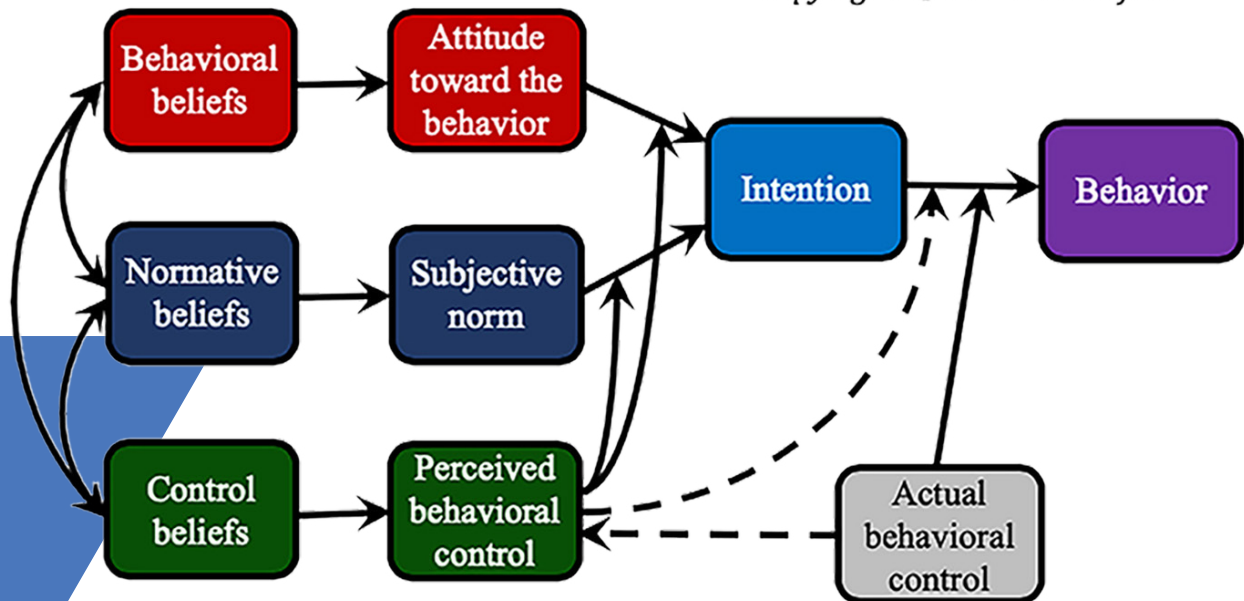
and cost-effective VR and AR networks, the approach to the education itself remains static.

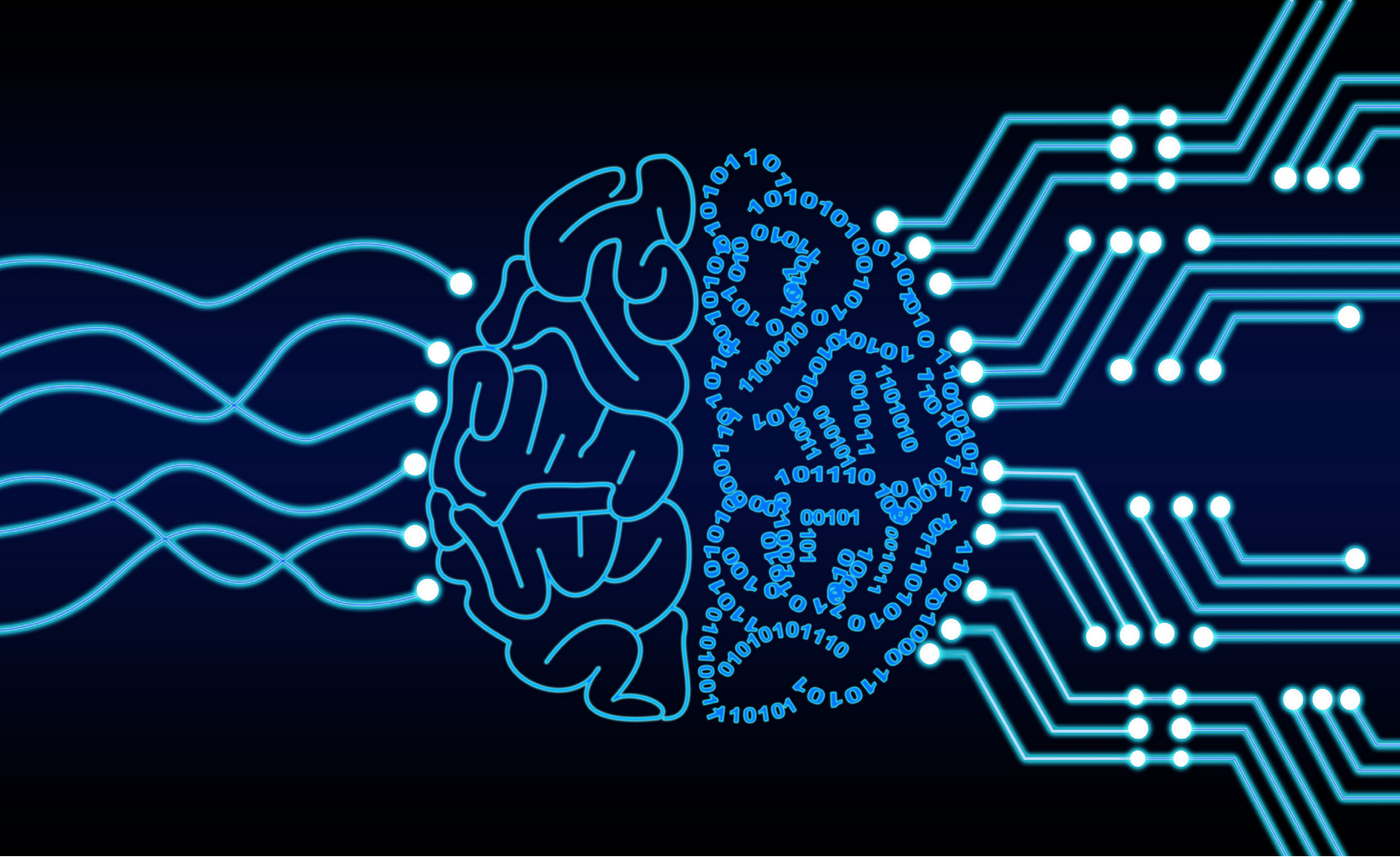
Human operators in the instructional "loop" still employ rote learning as the means of engagement and comprehension for the trainee. Although repetition is an important factor in any educational effort, the methodology used to provide it in these instances is still firmly

entrenched in 20th-century thinking. Mental and physical fitness, as well as the emotional readiness of individual trainees, does not carry the weight that it should in these educational exchanges. The systems proposed herein not only deliver the necessary insight into these critical areas but also possess the ability to correct any emotional or psychological deficiencies in the individual user in real-time.

Theory of Planned Behavior (TPB)

The theory of planned behavior (TPB) is a psychological theory that links beliefs to behavior. The theory maintains that three core components namely, attitude, subjective norms, and perceived behavioral control, together shape an individual's behavioral intentions. In turn, a tenet of TPB is that behavioral intention is the most proximal determinant of human social behavior.





Combining Protocols

Persuasive technologies used in combination with neuro priming (brain priming), gamified content (for user engagement), frequency enhancements (to effect neuroplastic change and regulate brain chemistry), and narrativized content (affective behavioral change using narrative) exemplify an evolutionary leap forward in education.

Customization is another primary concern that these hybrid systems address. Unlike conventional systems, these systems customize the educational experience for the individual user while still delivering the standardized curriculum. With their accumulation of big and unique data, these systems can perform yet another function to ensure the sustainable progress of the user.

Users' physiological and psychological profile data provides an opportunity for both real-time psych analysis (early detection) and treatment for certain emotional disturbances. As we continue into what has been called the Fourth Industrial Revolution, the evidence supporting this type of integration as a nexus in education is apparent.

An unexpected advantage of the 2020 pandemic is that it forced

professionals in all industries to reevaluate their trajectory into the future. Many of the temporary solutions recently offered in the realm of online education portals (Zoom et al.) have offered mediocre results but their failure has made room for revolutionary systems of the future. The ideas of effective transfer, acceleration, and scalability are equally addressed by this approach.



Education: A paradigm shift.

A dramatic paradigm shift in our attitudes toward educational goals must be established within our systems.

Persuasive technologies provide us with a unique opportunity in this regard. That's because persuasive cues set the proper frame for encouraging intrinsic motivation. Self-Determination Theory has emerged as the foundation of understanding intrinsic motivation. Richard Ryan and Edward Deci describe Self Determination Theory as follows:

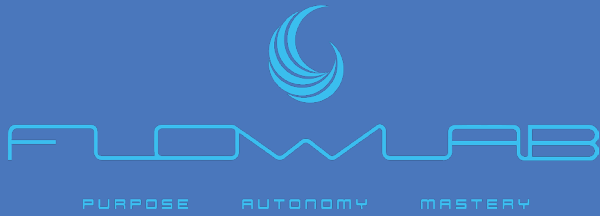
“Self-Determination Theory (SDT) is an approach to human motivation and personality that uses traditional empirical methods while employing an organismic metatheory that highlights the importance of humans' evolved inner resources for personality development and behavioral self-regulation (Ryan, Kuhl, & Deci, 1997). Thus, its arena is the investigation of people's inherent growth, tendencies, and innate psychological needs that is the basis for their self-motivation and personality integration, as well as for the conditions that foster those positive processes. Inductively, using the empirical process, we have identified three such needs—the needs for competence (Harter, 1978; White, 1963), relatedness (Baumeister & Leary, 1995; Reis, 1994), and autonomy (deCharms, 1968; Deci, 1975)—that appear to be essential for facilitating optimal functioning of the natural propensities for growth and integration, as well as for constructive social development and personal well-being.”

This very important understanding completely negates the "carrot on a stick" mentality (external motivation) in favor of approaches that use the inner resources of trainees to develop their intrinsic (internal) motivational capabilities. Persuasive technologies enhance, direct, and amplify the myriad internal (psychological) processes necessary for this type of motivational development. A neuroscientific approach to education must be employed, as it delivers data far outside conventional boundaries and offers new possibilities. Richard Ryan's and Stephano D Dominico's explorations support this approach:

"The use of neuroscience methods is an important new frontier for intrinsic motivation research for at least three interrelated reasons. First, to state the obvious, experience and behavior are mediated by the brain and a complete account of intrinsic motivation, therefore, requires an understanding of the neural systems that support it. Second, neuroscience affords the examination of internal processes that are not accessible by self-reports of experience or behavioral observations. Therefore, neuroscience of intrinsic motivation promises new insights that introspective and behavioral methods alone cannot afford. Finally, neuroscience methods can be used to investigate motivational processes at a higher level of resolution than experiential and behavioral methods. Therefore, neuroscience methods have the potential to refine conceptual accounts of intrinsic motivation by articulating the granular processes that comprise it."

In a relevant discussion, Ochsner (2007; p. 51) stated, "The combination of multiple streams of data allows researchers to converge on theoretical explanations that are robust and flexible and are not tied to a single specific experimental methodology." Intrinsic motivation would seem to be an especially ripe topic for neuroscience precisely because of the large body of empirical data that has already been garnered at the experiential and behavioral levels of analysis.

To learn more or to receive a consultation,
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