



Sylvia R. Karasu M.D.  
The Gravity of Weight

## Flow: In a Zone of Total Focus

There are intrinsic rewards in an experience.

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### KEY POINTS

- Flow is a psychological state in which someone is so involved in an activity that nothing else matters.
- Almost any activity, whether at work or during leisure, can induce a state of flow.
- During flow, people lose all track of time when their skills match the challenges of an activity.



Mihaly Csikszentmihalyi (1934-2021), a professor of psychology at the University of Chicago and originator of the concept of flow.

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In his newly published autobiography, Bill Gates, philanthropist and the founder of Microsoft, wrote of his mindset during his early work on coding, “Unconstrained by cost or time, I’d fall into a zone of total focus.” (p. 105, 2025)

The state that Gates described is likely *flow*, “an optimal experience” in which someone is “so involved in an activity that nothing else seems to matter...” Psychologist Mihaly Csikszentmihalyi originated the concept at the University of Chicago in the mid-1970s. (1990, 2008)

Csikszentmihalyi had grown up in Europe during World War II and was 10

when the war ended. He remembered those last months “filled with hunger, uncertainty, fear, exploding bombs, and sudden bursts of gunfire.” Even as a young boy, what struck him was the “obtuseness” of the adults around him: why couldn’t they have avoided the “mindless bloodshed” or prepared themselves better for what would happen? He remembered thinking then that “adults had no clue how to live.” (2000, 1975)

It was this realization, as well as later attending, by chance, a lecture by Swiss psychoanalyst Carl Jung, that created in Csikszentmihalyi a lifelong interest in psychology. (*TED Talk, 2004*)

He began studying human activities “that appear to contain rewards within themselves,” i.e., were *intrinsically* rewarding. (2000) “If Diogenes with his lantern twenty-three centuries ago had difficulty finding an honest man, today he would have perhaps an even more troublesome time finding a happy one,” he wrote. (1990, 2008)

Csikszentmihalyi originally called his concept *autotelic*, from the Greek for *self* and *goal*, but substituted the word *flow* when many of his subjects spontaneously used the word to describe a psychological state in which they could enjoy what they were doing and derive almost Zen-like satisfaction, regardless of whether they would receive any external rewards. (2000, 1975)



"A Seamstress," by French artist Edouard Vuillard, 1892. Any activity can lead to the state of flow. Source: Saint Louis Art Museum/Bridgeman Images. Copyright 2025 Artists Rights Society (ARS) New York. Used with permission of both Bridgeman and ARS.

He found that people could experience flow in any activity or even in some surprising circumstances (e.g., on the battlefield, performing surgery, even in prison), though some activities are more conducive to producing flow than others. (2000, 1975)



Trapeze artist on a tightrope, circa 18th century.  
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The founders of Cirque du Soleil, for example, were inspired by the concept, writes Csikszentmihalyi in his preface to the 25th Anniversary edition of his book (2000, 1975.) Some researchers have even studied the flow state and EEG dynamics during tightrope performances. (Leroy and Cheron, 2020)

Specifically, flow occurs when people are engaged in activities that they perceive are challenging and *evenly matched* with their capabilities. Flow does not occur if their skills are superior to the opportunities available, so they become bored, or when their skills are not up to the task so they develop anxiety. (2000, 1975)

Losing all track of time, as noted by Gates, is typical of the flow state, though it is difficult to measure

quantitatively because there is a “difference between *time measured* and *time experienced*” (Hancock et al, 2019.) Unlike in boredom, where there is also a distortion in a sense of time, but time seems to drag, in flow, time speeds up. (For a discussion of boredom, see my previous [post](#).)

The flow state is a “multi-dimensional” one. Other than a match between challenges and skill level and an activity seen as intrinsically rewarding, flow involves *autonomy*

(i.e., the freedom to choose an activity), and perception of the *activity as important and interesting*. (Durcan et al, 2024) It also involves *clear-cut goals*, an intense *involvement* and *concentration* in the activity (Scheepers and Keller, 2022), feelings of “effortless control,” and unambiguous, immediate feedback about a person’s effectiveness. (Norsworthy et al, 2021)

The flow state, depending on the type of activity that elicits it, may involve different levels of sympathetic and parasympathetic activation: For example, rock climbing may involve intense sympathetic activation, whereas *micro-flow* situations (e.g., daily self-soothing behaviors or performing household chores) may involve low activation. Empathizing with others may involve parasympathetic involvement. (Scheepers and Keller)



Flow occurs when a person's skills and challenges match. If they don't, either boredom or anxiety can develop.

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The state may also involve both the *dopamine* reward centers of the brain and the locus coeruleus-norepinephrine systems, which are pivotal in balancing engaging versus disengaging in activities. (van der Linden et al, 2021a; 2021b)

Csikszentmihalyi emphasizes that flow can occur during both recreational activities (e.g., playing chess, painting, gambling) and work (e.g., writing, doing scientific research): “The *boundaries* between work and play are artificial,” he wrote. (2000, 1975)

Some are more prone to experience flow states than others. There is also the suggestion that those who are prone are less likely to suffer from anxiety and *depression* because flow experiences distract people from ruminative, maladaptive thinking. (Gaston et al, 2024)



Untitled 3 by English artist R. Borlase Smart. Penlee House Gallery and Museum; Penzance, Cornwall, UK. Source: Copyright Penlee House Gallery and Museum, Penzance/Bridgeman Images. Used with permission.

Studying the neurophysiological state induced by flow, though, is challenging, and some researchers question, because of inconsistent findings, whether experimental conditions can elicit the state of flow. (Durcan et al.)

For example, one “core aspect” of flow involves a “sense of continuity,” that is “poorly captured” by self-report, with data collected *after* the experience. Asking people to comment on their flow experience during the actual state, though, inevitably interrupts the state (Scheepers and Keller), including trying to elicit the state in an fMRI scanner. (van der Linden et al, 2021a; 2021b)

Because flow is “complex,” understanding and describing it is “by

no means straightforward.” Even definitions of flow have “varied immensely,” and there exists no “gold standard” for modeling or measuring the state” (Northworthy et al.) To date, a “clear neurophysiological mechanism remains elusive.” (Durcan et al.)

There is also a question of whether flow differs from other states, such as mindfulness or even strong concentration, i.e., whether there is a “specific configuration” for it. (van der Linden et al, 2021 a; 2021b)

Despite all these difficulties and caveats in recreating the state experimentally, researchers appreciate that those who are prone to experience flow find it highly rewarding, beneficial to their sense of well-being, and even addicting.

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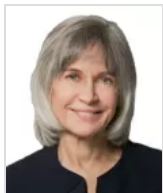


"At the Operation Theatre," by Russian artist, Natalia Gippius, 1944. During challenging operations, surgeons describe experiencing flow.  
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