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Thought Mining: Constructing Transformative Insights by Noticing and Contemplating Resonant Manifestations of the Mind

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Abstract

In this essay, we introduce thought mining as a strategy for making transformative shifts to the way a person thinks by constructing meaningful insights from vast arrays of thoughts through deliberate processes of noticing and interacting with what is resonating in their mind.

Keywords: Thought Mining, Transformative Learning, CORCE model

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Introduction

Many of the transformative shifts we encounter across the course of our lives largely depend on how we notice, interpret, and navigate the elements of our internal and external worlds. Maneuvering through our internal world requires us to interact with seemingly endless streams of thought that effortlessly make their way into our minds. While our thoughts are difficult to quantify, Tseng and Poppenk (2020) estimated that we think as many as 6,000 thoughts in a single day during our waking hours. The field of transformative learning emphasizes the significance of the many thoughts we think by reinforcing the teaching that making adjustments to the way we perceive the world can directly influence the quality and effects of our actions in the world (Chew, 2015; Hoggan, 2016; Mezirow, 2006; O'Sullivan, 2002). Taking into consideration the vast number of thoughts that flow through our minds, the limited moments to process our thoughts, and the critical consequences of our thoughts, it is worthwhile to explore how we determine which thoughts make sense to ponder further and how we glean useful insights from the thoughts we think. In this essay, we introduce thought mining as a strategy for making transformative shifts to the way a person thinks by constructing meaningful insights from vast arrays of thoughts through deliberate processes of noticing and interacting with what is resonating in their mind.

Definitions

Our definition of thought mining has connections to data mining literature. Data mining is generally concerned with applying data analysis techniques to extract meaningful insights from large data sets (Barua & Mondal, 2019; Fayyad et al., 1996; Gupta, 2014). Based on this interpretation of data mining, we define *thought mining* as the act of extracting meaningful insights from an array of thoughts by noticing and contemplating resonating manifestations of the mind. A single resonant element of thought that is noticed and contemplated may, in and of itself, be insightfully transformative. Or, multiple resonant thoughts that are seemingly related or disparate in nature could be noticed, synthesized, and

contemplatively refined to create new insights, which could lead to the generation of even more new transformative insights, and so on. A single thought leading to a sudden transformative shift would reflect an epochal transformation, whereas a progressive sequence of thoughts leading to a transformative shift would reflect a cumulative transformation (Mezirow, 2006).

Thought mining is an inflection of the term, *thought mine*, which may be used as a verb or a noun. As a verb, thought mine means to extract meaningful insights from an array of thoughts by noticing and contemplating resonating manifestations of the mind. As a noun, a thought mine is an array of thoughts from which meaningful insights may be extracted. A *thought miner*, thus, is an individual who engages in the practice of thought mining. Thought miners pay deliberate attention to the diverse thoughts and perspectives of themselves and others to help make meaning out of the world in ways that positively influence their ability "to take effective action in a democracy" (Mezirow, 2006, p. 30).

Origin

The concept of thought mining emerged through an unintended thought mining incident that spontaneously occurred when the first author (Nathan) awoke from a deep slumber in the middle of the night. After he woke up, he struggled to fall back asleep as his mind raced with countless meandering thoughts. He recognized that he was feeling overwhelmed by his continuously random stream of aimless thinking and eventually began to apply detachment strategies related to Buddhist mindfulness (e.g., Kabat-Zinn, 1994), presence (e.g., Tolle, 1999), and awareness (e.g., Rubin, 2023) practices that allowed him to objectively observe, rather than be consumed by, the incessantly sporadic occupants of his mind. Consequently, he found himself settling into a state of consciousness that was conducive to being an observer of the thoughts he was thinking. The phrase, thought mining, passed by his scope of awareness and captured his attention with a deeper level of energy than the other thoughts that had been crossing his mind. He began to engage with the phrase by contemplating it further and jotting notes in his phone related to the phrase. The process yielded an inaugural extraction of its meaning in the form of a written reflection with initial interpretations of a working definition of thought mining, types of thought mining, and methods of practicing thought mining. The initial reflection served as foundational content for this essay. The meaning of thought mining continues to evolve, as evidenced by the preparation of this essay.

Types

Three different types of thought mining have been identified: internal, external, and shared. Internal thought mining, prompted by thoughts within oneself, refers to the extraction of meaningful insights from one's own array of thoughts. External thought mining, inspired by others' thoughts, represents the extraction of meaningful insights from an array of thoughts representing one or more individuals outside of oneself. Shared thought mining, occurring between thoughts that are inside of oneself and thoughts of one or more others that are outside of oneself, is the extraction of meaningful insights between the thoughts of oneself and at least one other person.

Practice

The CORCE model is a semi-structured frame of reference for guiding a thought mining practice. The model comprises five phases: (C)onsciousness, (O)bservation, (R)esonance, (C)ontemplation, (E)xtraction (Figure 1). The CORCE model echoes tenets of creative thinking by representing a cognitive process that promotes original and effective thought (Runco & Jaeger, 2012). For example, being conscious allows a thinker to observe, resonate with, and contemplate original thoughts as means of extracting valuable insights that may have positive effects on how they interpret and interact with the world.

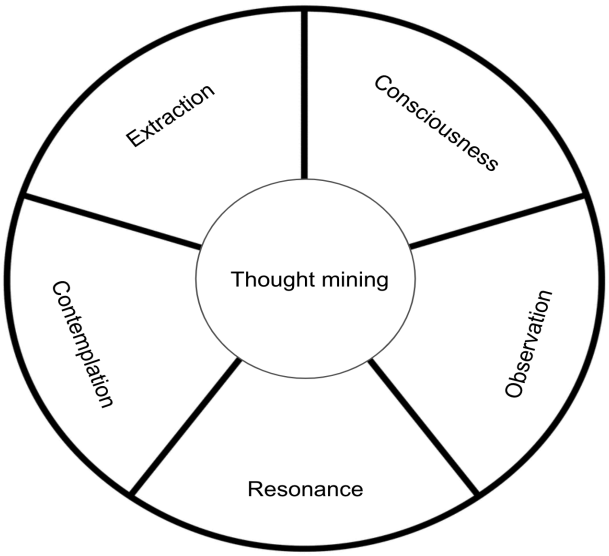

Figure 1: *CORCE Thought Mining Diagram*

On the surface, when viewing the CORCE model diagram beginning with the consciousness phase and following the framework through a clockwise fashion, each phase is a prerequisite for its subsequent phase. More specifically, CORCE suggests that being in a conscious (i.e., mindful, present) state is essential for an individual to be able to observe their thoughts; observing their thoughts is essential for being able to resonate with one or more of their thoughts; resonating with their thoughts is essential for being able to contemplate them further; and contemplating their thoughts is essential for them to be able to extract meaningful insights from their thoughts. In practice, though, it seems likely that a person will naturally weave in and out of the stages. For example, when they are in the contemplation phase, their ongoing state of consciousness may allow them to observe and resonate with new thoughts that pass through their mind, which could further influence their contemplative practice and, thus, the types of insights they extract through the process.

Consciousness

In the *consciousness phase*, an individual enters into a state of consciousness in which they are able to be aware of and attentive to the authentic conditions of the present moment. According to Damasio (1999), "consciousness is, in effect, the key to a life examined" (p. 5) as our approach to paying attention to the present moment can have direct effects on the quality of our thoughts (Siegel, 2007). The essence of what it means to be in a state of consciousness is linked to various academic and spiritual sources related to concepts of consciousness, mindfulness, and presence (e.g., Brown & Ryan, 2003; Chopra, 1994; Goleman, 2012; Kabat-Zinn, 1994; Newman, 2006; Searle, 1998; Tolle, 1999). For example, Kabat-Zinn (1994) referred to mindfulness as "the art of conscious living" (p. 6) and Tolle (1999) described presence as "pure consciousness" (p. 121), which Chopra (1994) referred to as our "spiritual essence" (p. 18). In the consciousness phase, the individual carries themself with an "openness to new information" (Langer, 1989, p. 62), nurturing "greater awareness, clarity, and acceptance of present-moment reality" (Kabat-Zinn, 1994, p. 4) in ways that allow them to nonjudgmentally notice their thoughts. Being in a conscious state allows them to proceed to the observation phase.

Observation

In the *observation phase*, the individual observes thoughts as they enter into their field of awareness. Observing one's thoughts is a practice of watching what's occurring inside oneself in the

present moment (Rubin, 2023). In this phase, the individual refrains from engaging with their thinking and simply witnesses their thoughts through a nonjudgmental lens as they pass through their mind (Davis & Hayes, 2011; Rohr, 2018; Walach et al., 2006). They are "purely noticing what is happening without evaluating, analyzing, or reflecting upon it" (Hülsheger et al., 2013, p. 311). Being an observer of their thoughts from a detached perspective allows them to proceed to the resonance phase.

Resonance

In the *resonance phase*, the individual allows themself to resonate with the energy of a thought they are thinking that may be attempting to connect with them at a deeper level. The resonance phase is linked to awe, which has been characterized as an emotion that people feel when they "encounter something physically or mentally grand that requires them to adjust their mental structures to make sense of the stimulus" (Yuan et al., 2024, p. 412). Based on this description, a resonating thought could be considered a mentally grand stimulus that seems to have potential to mean more than it is perceived to mean on the surface when it is initially noticed. Resonance also reflects echoes of Emerson's (1883) sentiments that "A man should learn to detect and watch that gleam of light which flashes across his mind from within" (p. 43). He suggests that if a person is not in a conscious state conducive to noticing such a glimmering thought, they are at risk for dismissing it simply because it is theirs. If an individual finds themselves feeling a stronger sense of resonance with a thought that enters their stream of awareness, the deeper connection they are feeling may be an indicator that the thought is worthwhile to ponder further. Being in awe of something, which may manifest as a resonant thought, can stimulate acts of reflective and creative thinking (Lucht & van Schie, 2024). Therefore, feeling a sense of resonance with a thought positions an individual to proceed to the contemplation phase.

Contemplation

In the *contemplation phase*, the individual puts time and energy into contemplating their resonant thought. They engage with the thought by allocating a greater degree of attention to the thought and allowing other related thoughts to arise and synthesize with the thought. The contemplation phase is linked to literature related to metacognition and self-reflection. Metacognition generally refers to an individual thinking about their thinking (Cross & Paris, 1988; Flavell, 1979; Kuhn & Dean, 2004). Self-reflection refers to "the inspection and evaluation of one's thoughts, feelings and behavior" (Grant et al., 2002, p. 821). A few examples of methods of engaging with a resonating thought may include interpreting the thought through subsequent thinking, oral dictation, writing, or discussion. Arts-based reflective approaches, such as painting, photography, music, or dance (Harvey et al., 2016) may also be employed during this phase. Regardless of the method, contemplating the thought allows an individual to advance to the extraction phase.

Extraction

In the *extraction phase*, the individual extracts meaningful insights as a result of their contemplation. According to Grant et al. (2002), the term, insight, refers to "the clarity of understanding of one's thoughts, feelings and behavior" (p. 821). An individual's insights may manifest as transformed understandings or perspectives that could influence how they respond to and otherwise interact with the conditions of the world (Chew, 2015; Mezirow, 2006; O'Sullivan, 2002). Their new insights are essentially the result of the transformative learning that they experienced through their implementation of the CORCE method.

Scenarios

This section provides examples of internal, external, and shared thought mining scenarios. The internal and external scenarios are personal examples representing a couple of Nathan's experiences. The shared thought mining scenario is an example from one of Nathan and the second author's (Derek's) discussions. Each example includes a title, contextual backdrop, description of how each phase of the CORCE method applies to the scenario, and a summary.

Internal Thought Mining

Title. Extract meaning from a sporadic resonant thought.

Context. Nathan attended a four-day silent retreat at a serene meditation center. His days typically consisted of multiple 30-45-minute sitting and walking meditations, three silent meals, a work meditation, a guided meditation, a talk by retreat teachers related to meditation practice, and unstructured silent time. Upon conclusion of the retreat, prior to departing the meditation center, he sat outside on a bench for a bit and admired the beautiful landscape. Many thoughts passed through his mind during those moments. This scenario uses the CORCE model to explain how Nathan extracted meaning from a thought that resonated with him as he sat on the bench and cast his gaze toward the horizon.

Consciousness. A few complete days of consistent, deliberate meditation practice—leading up to the moments when Nathan sat on the bench—positioned him in a state of consciousness conducive to noticing intricate attributes of his internal and external worlds.

Observation. He observed a multitude of thoughts flowing through his mind as he witnessed the natural beauty surrounding him.

Resonance. At one point, he noticed a flock of birds in the sky that appeared to be creating shapes in their formations. After the birds departed, the following phrase arose in Nathan's mind and began to resonate with him: "Shine your love into the world when you leave." The phrase periodically returned to Nathan's mind over the next few days.

Contemplation. Nathan's persistent resonance with the phrase prompted him to begin contemplating its significance as it would resurface in his mind. Around a week after the retreat concluded, since the phrase had been making daily appearances in his mind, he decided to reflect on it further by jotting down notes related to the phrase and formulating them into a coherent interpretation of what it might mean.

Extraction. Nathan's process of jotting notes and formulating them into a digestible narrative yielded an extracted meaning for him in the form of the following written reflection.

> *Shine your love into the world when you leave. I saw a formation of birds flying above the hilltops on the last day of the retreat. They started making shapes in the sky. The first shape I saw was a star. After they formed the star, they dispersed and then flew back together to create the shape of a heart. After they formed the heart, they arranged themselves in a line and flew out of sight. I interpreted the star to mean "shine." I interpreted the heart to mean "love." I interpreted lining up and flying out of sight as "leaving." Taken together, the message I received from the birds was to "Shine my love into the world when I leave."*

Nathan interpreted the phrase to be a message of encouragement to carry himself in a manner that would be conducive to consistently emitting authentically loving energy wherever he went, and it seemed to influence the extent to and ways in which he exhibits love through his daily interactions.

Summary. This internal thought mining scenario reflects a specific use case related to extracting meaning from a resonating thought that surfaced through an array of thoughts that passed by Nathan's scope of awareness during a few brief moments in time. The practice could be adapted for extracting meaning from virtually any array of thoughts within oneself.

External Thought Mining

Title. Extract meaning from a brief inspirational video.

Context. Nathan is part of a small group of friends who share brief, positively-oriented reflections with one another five days per week. Every Monday through Friday around 6:00 am, the coordinator of the group texts the same video to each group member along with the name of one member who is assigned to share their interpretation of the video. The videos tend to range from 5-15 minutes in length. The assigned member watches the video, writes a reflection on the video, and texts their reflection to the other members of the group on the same day that they receive the assignment. This scenario uses the CORCE model to explain how Nathan extracted meaning from the messages in one of the videos that was assigned to him. Nathan received the text with the video around the time he woke up in the morning, and he listened to the video before he got out of bed for the day.

Consciousness. Prior to pressing play on the video, Nathan closed his eyes and focused on his breath for a few moments to help detach himself from the chatter in his mind as well as any external distractions in the room that may have been competing for his attention. He opened his eyes briefly to press play and then closed his eyes again so he could attentively listen to the message in the video.

Observation. The video was close to 15 minutes in length. The general theme of the video focused on regularly expressing gratitude. Nathan observed the messages being conveyed in the video as he listened attentively to what was being said.

Resonance. Some of the messages in the video began to resonate with Nathan as he listened. He felt particularly drawn to the messages related to giving gratitude daily and writing a list of ten things to be grateful for.

Contemplation. Nathan jotted his initial thoughts about the messages from the video that resonated with him in the Notes app on his phone and then contemplated them through an iterative process of wordsmithing and further pondering his thoughts in relation to the video's messages to help bring them to life in a coherent manner.

Extraction. Nathan's iterative process of pondering and wordsmithing his thoughts related to the video extracted meaning for him in the form of the following written reflection that he sent to the group members:

> *Give gratitude in all things. Similar to a parent who is eager to continue giving to a grateful child, the divine energy of the universe is eager to continue giving to us if we express appreciation for what we have been given. The video included a recommendation for practicing gratitude by making a list of 10 things that you are grateful for. Here are 10 things in no particular order that I am grateful for from this past weekend:*
>
> - *The positive energy that I felt throughout the interactions that I had with my family and friends at the lake.*
> - *My kids being able to spend quality time with close friends on and off the water.*
> - *The friends who helped me dig trenches and haul boulders to build a rip rap retaining wall at our cabin.*
> - *The lumber yard still being open on Saturday afternoon so we could purchase cinder blocks and additional mortar to finish the retaining wall stairs.*
> - *The apologetic honesty of our friend who accidentally backed a vehicle into our parked pickup.*
> - *Our neighbors letting us use their garden cart and tamping tool as well as for the refreshing margarita they made for me at the end of a long day of working outside in the sun.*
> - *Multiple beautiful fireworks displays.*
> - *Playing pickleball with old and new friends.*
> - *Playing cornhole with family and friends.*
> - *Friends and family who brought and cooked delicious food.*
>
> *Compiling this list has been a helpful exercise in reflecting on a few of the many good things that I experienced over the past few days. I feel like it could be much longer. There seem to be several other things from the weekend that are not listed, including watching today's video, which prompted me to contemplate some of the things that I'm grateful for. I very much appreciate the opportunity to be in this group. Blessings to you all.*

Extracting a gratitude-oriented meaning from the video positively influenced Nathan's thoughts and the way he carried out his tasks and interactions with others throughout the remainder of the day as it positioned him to perceive his experiences through a lens of appreciation for the value that inherently accompanied each moment.

Summary. This external thought mining scenario reflects a specific use case related to extracting meaning from a brief inspirational video. The practice could be adapted for extracting meaning from virtually any written, audio, video, or other type of content outside of oneself.

Shared Thought Mining

Title. Shared thought mining

Context. Nathan and Derek co-host a conversational podcast. The purpose of the podcast is to extract meaningful insights from an assortment of thought patterns through contemplative discussions about resonating thoughts. Each episode begins with a thought that has been resonating with one or both of the hosts and then proceeds with a free-flowing, reflective conversation to explore deeper meanings of the initial thought as well as other thoughts that surface through the discussion. This scenario uses the CORCE method to demonstrate how Nathan and Derek collectively extracted meaning from a thought that initially resonated with Derek during one of their discussions.

Consciousness. As Nathan and Derek prepared to engage in a discussion on their podcast, they practiced a three-minute silent meditation to help cultivate a state of consciousness conducive to an enriching discussion.

Observation. Nathan and Derek silently observed the thoughts that flowed through their own minds during the meditation period. Then, as their conversation ensued, they observed each other's thoughts as they articulated them to one another.

Resonance. As their conversation continued, Derek commented on how busy schedules and tendencies for people to be enticed by external distractions, such as television shows, video games, and physical activities, can be barriers to connecting with one's own thoughts and engaging in reflective practices. The topic resonated with both Derek and Nathan, and they felt that it would be worthwhile to discuss further.

Contemplation. Derek and Nathan collectively contemplated their resonant thoughts related to distractions and busy schedules through further discussion. The nature of their conversation represented an intersubjective contemplative practice that occurred spatially between them rather than inside of or outside of them (Gunnlaugson, 2009). Their discussion led to Derek commenting on how it could be helpful to intentionally carve out time for reflection, which led to Nathan commenting on how a seemingly profound thought will sometimes suddenly pop into his mind in a random location at an unexpected time, which led to Derek commenting on how it is important for a person to leave space for something surprising to arise within their scope of awareness at any point throughout their day.

Extraction. Nathan and Derek's conversation yielded extracted meaning for them in the form of a descriptive visual that Derek proposed: "[for] a lot of us, everything's organized in these sorts of ways and we don't have an empty shelf sitting there for what might come today that we're not expecting." The empty shelf visual influenced how Nathan and Derek carried themselves throughout their subsequent days as, when they periodically thought about the visual, it seemed to help them remember to stay present and remain open to unexpected possibilities. They also discussed the empty shelf visual further in subsequent podcast episodes.

Summary. This shared thought mining scenario reflects a specific use case related to extracting meaning from a resonating thought that surfaced through a conversation between Nathan and Derek. The practice could be adapted for extracting meaning from virtually any thoughtful discussion between two or more people.

Discussion

The CORCE model provides a frame of reference that may help facilitate a thought mining practice. Nathan initially developed the CORCE model to help improve his understanding of key elements and processes that contributed to him gleaning transformative insights through some of his prior experiences with noticing and reflecting on resonant thoughts. The model reflects a synthesis of literature related to creative thinking, consciousness, mindfulness, presence, awe, metacognition, self-reflection, insight, and transformative learning.

Examples of internal, external, and shared thought mining practices were provided. The internal and external thought mining scenarios demonstrated how writing during the contemplation phase can yield a tangible extraction of meaning in the form of a written narrative. The shared thought mining scenario demonstrated how engaging in an auditory discussion during the contemplation phase can yield

an intangible extraction of meaning in the form of a descriptive visualization that simply exists as a mental image within one's mind.

It should be noted that transformation is a potential outcome of thought mining through the CORCE method; however, it is not a guaranteed outcome. For example, O'Sullivan (2002) indicated that transformative learning reflects "a deep structural shift in the basic premises of thought, feeling and action" (p. 11). It is possible for a thought mining practice through a CORCE lens to create deep structural shifts, as partially evidenced by the scenarios described in this paper; however, it seems unlikely that every thought mining iteration would yield such shifts. Due to the recency of its inception, according to the time that this manuscript was prepared, the CORCE model has not yet been scaled to a broader audience or empirically tested.

Recommendations

Thought mining is an emerging transformative learning strategy reflecting a synthesis of established concepts. To date, the sample size of CORCE model users (i.e., us, the authors) has been small, but the effects on us have been profound. Utilizing the CORCE model has positively affected our lives, and we see great potential for the model to positively impact others as well. Therefore, we hope this essay expands the reach of the thought mining concept and CORCE model to broader audiences so they may explore whether and how the concept and model could be applied to support their own transformation as well as transformative opportunities that they could create for others.

We recommend that practitioners and researchers explore possibilities for advancing the evolution of thought mining and the CORCE model. Educators could develop curriculum and activities around the CORCE method or the general concept of thought mining to create opportunities for students to engage in the practice, which could help respond to a need identified by Kostara et al. (2022) for more practical applications of transformative learning. Although the CORCE model has not yet been implemented in a formal learning setting, potential 45-minute internal, external, and shared thought mining activities for students are outlined in Table 1. Implementing a 45-minute CORCE thought mining activity on a single occasion could potentially stimulate an epochal transformation, whereas implementing the activity multiple times (e.g., 1x/week) across an academic term may contribute to a cumulative transformation.

Table 1

Internal, External, and Shared Thought Mining Activities for Students

<table>
<tr><th></th><th>Internal</th><th>External</th><th>Shared</th></tr>
<tr><td>Time</td><td>45 minutes</td><td>45 minutes</td><td>45 minutes</td></tr>
<tr><td>Participants</td><td>Self (S)</td><td>Self (S)</td><td>Self (S), Partner (P)</td></tr>
<tr><td>(C)onsciousness
10 minutes</td><td colspan="3">Participants engage in silent or guided meditation to help settle into a conscious state of awareness. During this time, depending on the type of meditation, they may find themselves beginning to observe their thoughts.</td></tr>
<tr><td rowspan="2">(O)bservation
5 minutes</td><td>(S) watches their own thoughts from an objective perspective.</td><td>(S) reads, watches, or listens to content reflecting the thoughts of someone else.</td><td>(S) and (P) watch their own thoughts from an objective perspective.</td></tr>
<tr><td colspan="3">As participants notice a new thought, they write or mentally note a word or brief phrase reflecting the thought.</td></tr>
<tr><td>(R)esonance
5 minutes</td><td colspan="3">Participants review the words or phrases representing the thoughts that they wrote or mentally noted. As they review the thoughts, they pay attention to the level at which they feel intrigued or fascinated by each thought. Then they choose the thought that ignites the greatest sense of awe or resonance within them.</td></tr>
<tr><td rowspan="2">(C)ontemplation
20 minutes</td><td colspan="2">(S) reflects on the resonant thought they selected by writing a reflection or recording an oral reflection.</td><td>(S) and (P) reflect on their resonant thoughts by discussing them with one another. They discuss (S)’s thoughts for 10 minutes and (P)’s thoughts for 10 minutes.</td></tr>
<tr><td colspan="3">Reflections may be free-form or structured. If structure is desired, reflective prompts may be helpful (e.g., What does the thought mean to you? How does it make you feel? How does it relate to your life? What questions do you have about the thought? What are your initial responses to the questions you have?)</td></tr>
<tr><td>(E)xtraction
5 minutes</td><td colspan="3">Participants describe key insights gleaned through their reflections during the contemplation phase and explain how their insights could influence the way they perceive and interact with the world.</td></tr>
</table>

Beyond formal learning environments, anyone could practice thought mining as a way to help them tap into the insights that are in the depths of their mind. We suggest you give it a try for yourself to see if it influences your ability to extract meaning from the thousands of daily thoughts that permeate your consciousness. Based on our own experiences with thought mining, we believe that a person could naturally weave the practice into the fabric of their everyday existence. In such cases, they would consistently navigate the normal tasks of their daily lives in a state of consciousness conducive to both observing their thoughts and feeling a sense of resonance that serendipitously accompanies some of their thoughts, which would prompt them to contemplate and extract transformative meaning from the resonant thoughts that passed through their field of awareness. As the exploration and implementation of thought mining practices advance, we encourage researchers to conduct studies related to its implementation and effects, including its impact on measurable outcomes related to metacognition, self-reflection, and progress toward transformational learning.

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